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SITE INVESTIGATION REPORT FOR SITE 2 REVISION 1 NAS BRUNSWICK ME
3/1/2011
TETRA TECH NUS

Revision 1
Site Investigation Report

For

Site 2
Naval Air Station Brunswick
Brunswick, Maine

Naval Facilities Engineering Command
Mid-Atlantic

Contract Number N62467-04-D-0055
Contract Task Order 432

March 2011

W5211715D

REVISION 1
SITE INVESTIGATION REPORT

FOR

SITE 2
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION - NAVY (CLEAN) CONTRACT

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Contract Number N62467-04-D-0055
Contract Task Order 432

March 2011

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1.0 INTRODUCTION

This investigation Summary Report was prepared under the Comprehensive Long-Term Environmental Action Navy (CLEAN) Contract No. N62467-04D-055, Contract Task Order (CTO) 432. The Scope of Work directs Tetra Tech NUS, Inc. (TtNUS) to develop a Summary Report for the Former Orion Street Landfill - South (Site 2) and the area north of Site 2, located at the Naval Air Station Brunswick (NASB) in Brunswick, Maine.

1.1 OBJECTIVES AND SCOPE

This report describes the field activities and preliminary findings of the investigation conducted between September and December 2008 at Site 2 and the area north of Site 2. The objectives of the investigation were to address the reported periodic elevated levels of inorganic elements (metals) in site leachate seeps and volatile organic compounds (VOCs) in groundwater, and to delineate the northern boundaries of the landfill (ECC, 2007). The objectives of this Summary Report are to provide an updated conceptual model for the Site and to determine whether significant data gaps remain that require further investigation.

The information presented in this report is organized as follows:

- Section 1.0 summarizes background information about Site 2 and the area north of Site 2, including a site description and history, discusses data gaps, and presents the objectives of the investigation.

- Section 2.0 presents a description of the field work performed during the 2008 field investigation. Sample collection procedures and the analytical program are also described in this section.

- Section 3.0 presents a summary of the physical conditions at Site 2 and the area north of Site 2, including basic site features, topography and drainage, geology, and hydrogeology, the sampling results, and the Conceptual Site Model (CSM). Information collected and observations made during the field investigation are utilized to provide updated descriptions of the physical site characteristics.

- Section 4.0 presents a summary of the findings of the investigation, conclusions drawn from the data assessment, and provides recommendations for further actions at the Site.

Appendix A contains backup for the aerial photograph review; Appendix B contains the electromagnetic (EM) and resistivity profiling geophysical survey report; Appendix C contains the soil boring logs, field sampling sheets, well construction logs, and other pertinent field data sheets; Appendices D-1 and D-2 contain a comprehensive listing of the analytical results from the fall 2008 field investigation; Appendix D-3 presents the data validation reports (on compact disk); and Appendix E presents details of the statistical comparison of NASB soil and groundwater background concentrations to the analytical data generated during the Site 2 investigation.

1.2 SITE BACKGROUND

This section presents background information for Site 2 and the area north of Site 2, at NASB. The site location and a general description of the site and surrounding area are included in Section 1.2.1. A summary of the site operational history is presented in Section 1.2.2 and a discussion of the previous environmental investigations and potential data gaps are presented in Section 1.2.3.

1.2.1 Site Location and Description

NASB is located in Cumberland County, Maine (Figure 1-1), approximately 20 miles northeast of Portland. The base is situated just south of the Androscoggin River and is located north of several coves (Harpswell, Buttermilk, and Woodward), which connect with Casco Bay. NASB was first commissioned on April 15, 1943, and is owned and operated by the federal government through the Department of the Navy. In 1987, NASB was placed on the National Priorities List (NPL) by the United States Environmental Protection Agency (EPA). In 2005, NASB was designated for closure under the Defense Base Realignment and Closure Act (BRAC) of 1990. BRAC legislation requires that the base closure be in full compliance with the Comprehensive Environmental Response Compensation and Liability Act (CERCLA). The operational closure date for NASB is September 15, 2011.

The CERLCA Information System operable unit number assigned to Site 2 is Operable Unit 7 (OU7). The former landfill consists of approximately 2 acres of land that was covered with soil in 1955 when it was closed.

Site 2 is located near the southern end of the main runway, as shown on Figure 1-1, and is bordered to the north and east by Mere Brook, by Orion Street to the west and southwest, and by New Gurnett Road to the south. Sites 1 and 3 are located across Mere Brook, to the northeast of Site 2.

The fall 2008 field investigation was performed in two areas; the former landfill area (Site 2) in the southern portion, and an adjacent area north of Site 2 (the area north of Site 2) that included an

incinerator and possible additional landfill area (Figure 1-2). The area north of Site 2 is approximately a 250 foot by 1000 foot polygon-shaped area. Site 2 and the area north of Site 2 are located within a restricted area in the central portion of NASB (Figure 1-2).

According to the United States Geological Survey (USGS) Brunswick, Maine 7.5-minute Quadrangle (1980), the elevation of Site 2 ranges from approximately 20 to 50 feet above mean sea level relative to the National Geodetic Vertical Datum (NGVD) of 1929. The central areas of Site 2 and the area north of Site 2 are relatively flat and slope to the north northeast and east toward Mere Brook. In general, the central portion of the site slopes slightly upward from south to north and from south to east in the vicinity of the former incinerator until reaching the steeply dipping slopes to the east, in the vicinity of Mere Brook. The topography dips steeply again at the edge of the landfill and east of the former incinerator area. Steep slopes present east of the landfill are associated with a former borrow pit.

The site supports a dense stand of conifers on top of the landfill and the area north of Site 2. Tall meadow grass is present along the south side of the landfill, in the northern portion of the area north of Site 2, and in the vicinity of the former incinerator area. An embankment along the northeast side of the area north of Site 2 is vegetated with trees and low underbrush.

1.2.2 Site History

According to E.C. Jordan (1990), Site 2 was used as the primary base landfill from 1945 until 1955, although it may have been in actual operation for less than 10 years because NASB was closed from 1946 to 1951. The base was occupied by non-military tenants from 1946 to 1951, and it is unknown if the landfill was utilized during that period of time (E.C. Jordan, 1990).

The Site 2 landfill originated as a borrow pit and the landfill was covered with approximately 6 inches of soil on its closure in 1955 (E.C. Jordan, 1990). Miscellaneous refuse, including drums, small containers, office furniture, and domestic wastes, was once exposed along the eastern side of the landfill, (EC Jordan, 1990); these items were subsequently removed from the site (E.C. Jordan, 1990). Other waste reportedly disposed in the landfill included solvents, paint, oil, toluene, methyl ethyl ketone, and medical supplies (E.C. Jordan, 1990).

According to available site information, an incinerator was formerly located at Site 2 (E.C. Jordan, 1990). The approximate location of the former incinerator is shown on Figure 1-2.

Solid waste was reportedly incinerated at the site; therefore, disposed material within the investigation area may include ash. Information on dates of operation and on when the incinerator was removed is

limited; however, aerial photographs indicate that the building that likely housed the incinerator was in place from 1959 to 1965, but appears to have been removed by 1966 (E.C. Jordan, 1990). The actual quantity of material disposed at Site 2 is unknown. It is also unknown if the area north of Site 2 was utilized as a landfill (E.C. Jordan, 1990).

1.2.3 Previous Site Investigations and Data Gaps

Previous investigations conducted at the site are described in the following documents:

- Remedial Investigation/Feasibility Study (E.C. Jordan Co, 1990),
- Human Health Risk Assessment (E.C. Jordan 1990),
- Ecological Risk Assessment (E.C. Jordan 1990),
- Baseline Risk Assessment (E.C. Jordan 1990),
- Record of Decision (Harding Lawson Associates 1998), and
- Second Five-Year Review (ECC and EA, 2005).

A Human Health Risk Assessment (HHRA), Ecological Risk Assessment (ERA), and Baseline Risk Assessment (BRA) were performed based on the Remedial Investigation (RI) (E.C. Jordan, 1990), which stated that there was no unacceptable risk to human or ecological receptors.

The contaminants of concern (COCs) identified in the 1998 Record of Decision (ROD) consist of:

- Iron and zinc in surface water.
- Iron and the polycyclic aromatic hydrocarbons (PAHs), phenanthrene, in stream sediment.
- 4,4'-Dichlorodiphenyltrichloroethane, 4,4,'-dichlorodiphenyldichloroethylene, arsenic, cadmium, chromium, lead, mercury, and nickel in leachate seeps.
- Mercury in surface soil associated with seep locations.

Based on this information, a ROD was prepared and the selected remedy was the Minimal Action Alternative, which included institutional controls, debris removal, installation of an additional groundwater monitoring well, environmental monitoring, and 5-year site reviews (Harding Lawson Associates, 1998). The ROD alternative selection was based on the fact that Site 2 was a restricted area and not open to the public. No areas of non-compliance with the remedial action for the Site 2 landfill were identified during either the first or second 5-year review.

Beginning in 2000, the Navy has been performing long-term monitoring (LTM) to verify the effectiveness of the Minimal Action Alternative at Site 2, including sampling of groundwater, surface water, stream sediment, leachate seeps, and leachate sediments. Sampling is performed on a semi-annual schedule.

Sporadic exceedances of EPA Maximum Contaminant Levels (MCLs) and State of Maine Maximum Exposure Guidelines (MEGs) have been detected in groundwater samples (TtNUS, 2008a). Exceedances of the Risk Based Ecological Screening Criteria (ECC, 2006) are also noted in surface water, seeps and sediment samples collected from Site 2 (TtNUS, 2008a). Elevated arsenic concentrations in groundwater (MW-243) and in leachate (LT-201) are most notable (TtNUS, 2008a). Elevated chromium was detected in the groundwater samples collected from wells MW-242 (April 2003) and MW-241 (September 2004); however, chromium has not exceeded screening criteria in recent groundwater sample events, with the exception of MW-242 in September 2009 (H&S, 2009a). Chromium has exceeded screening criteria in the leachate seep samples. In addition, aluminum, barium, cadmium, cobalt, copper, iron, lead, mercury, nickel, selenium, silver, vanadium, sodium, arsenic, and manganese were detected above relevant criteria in some groundwater, surface water, and leachate seep and sediment samples (TtNUS, 2008a). One VOC, carbon disulfide, was reportedly detected in each of the leachate sediment samples collected during 2008 at levels exceeding the applicable criteria. VOCs have not exceeded regulatory standards in groundwater or surface water since May 2003.

As a result of the change of status of the NASB under the BRAC program, Site 2 may become accessible to the public in the future. It was concluded at a Navy Data Quality Objective (DQO) meeting held with Maine Department of Environmental Protection (MEDEP) and EPA on August 14, 2007, that the ROD established in 1998 for Site 2 was no longer valid because it was based on the fact that the area was secure and not accessible to the public. Discussion at the August 2007 meeting concluded that Site 2 data gaps exist relative to the areal extent of the landfill and the nature and extent of possible contamination and migration from Site 2.

The DQO meeting concluded that the following data gaps/objectives should be addressed for Site 2:

1.) Define the extent of the landfill area;
2.) Collect data necessary to evaluate potential source, nature, and extent of contaminants of concern and potential migration pathways; and
3.) Use the information to assess risk and develop remedial alternatives, as necessary.

A work plan was prepared to address stakeholder concerns in the DQO meeting; however, due to the desire of the stakeholders to implement field activities in fall of 2008, it was decided to implement a previously approved work plan (ECC, 2007), with the acknowledgement that additional work may be

needed to gather sufficient information for Site 2. A conference call was held on September 9, 2008, with representatives of the Navy, EPA, and MEDEP and the work plan was amended to address certain issues before proceeding (Navy 2008).

The Site 2 investigation was implemented by TtNUS and included historic aerial photograph reviews, geophysical surveys, test pit excavations, soil boring advancement and well installation, hydraulic conductivity testing, soil and groundwater sampling and chemical analysis, and a sample location survey. The site investigation activities are discussed in Section 2.

2.0 INVESTIGATION ACTIVITIES

This section presents a description of Site 2 and the area north of Site 2 investigation activities conducted in the fall of 2008. The activities were specified in the approved Final Work Plan for Investigation Activities at the Former Orion Street Landfill – South (Site 2), Naval Air Station Base, Brunswick, Maine (Work Plan) (ECC, 2007). TtNUS proposed investigation modifications to the Navy and coordinating agencies on September 9, 2008, and documented the modifications in a letter to the agencies dated September 16, 2008 (modification correspondence). As per the agreement reached, the field activities were conducted in accordance with TtNUS Standard Operating Procedures (SOPs). The activities completed during this investigation included the following:

- Reviewed available historical aerial photographs;
- Performed EM surveys and resistivity profiling;
- Excavated 10 test pits;
- Advanced 13 soil borings;
- Collected 25 soil samples for laboratory analysis;
- Installed and developed 10 new monitoring wells;
- Measured groundwater levels;
- Collected 10 groundwater samples (one from each of the new wells);
- Performed hydraulic conductivity testing in nine wells;
- Surveyed sample locations and newly installed monitoring wells; and,
- Characterized and disposed investigation-derived waste (IDW).

The following sections present a description of the investigation activities at Site 2 and the area north of Site 2.

2.1 HISTORICAL AERIAL PHOTOGRAPH REVIEW

TtNUS conducted a review of available aerial photographs as part of the site investigations. The objectives of the aerial photograph review were 1) to assess whether past disposal practices or land uses at Site 2 and the area north of Site 2 may have contributed to impacts observed in site groundwater and leachate seeps; and 2) to provide additional information relating to the extent of the landfill and cover fill applied to the site. TtNUS reviewed available aerial photographs from 1940, 1953, 1957, 1959, 1965, 1966, 1972, 1978, 1980, and 1989 for the site. Most of the aerial photographs were obtained from an April 1987 report entitled “Site Analysis – Brunswick Naval Air Station, Brunswick Maine”, prepared for the EPA by the Biometrics Corporation. The 1953 and 1989 aerial photographs were obtained from the

report entitled: "CERFA Identification of Uncontaminated Property at the Naval Air Station, Brunswick, Maine" (TtNUS, June 2007b), prepared for the Mid-Atlantic Naval Facilities Engineering Command.

TtNUS considered the following information during the aerial photograph review: general site condition; structure location(s), if identified; potential standing liquid and/or stains; vegetative stress; evidence of burial and landfill activities; visible evidence of fill and/or waste materials. The approximate locations of Site 2 and the area north of Site 2 are delineated on each photograph presented in Appendix A. The results of the aerial photograph analysis are summarized below.

Figure A-1; September 28, 1940, Aerial Photograph: The site and its surrounding land appear to be vegetated and undeveloped. At that time, the base was in the early stage of construction and disturbed land is visible well to the north of the site.

Figure A-2; 1953 Aerial Photograph: The soil in the southwestern and western parts of Site 2 appears to be disturbed in this photograph. Approximately 40 to 50 percent of the area appears to be disturbed. Also in this aerial photograph is a potential dump pit or area of standing water in the southeastern portion of the site, and possible drainage either into or out of the potential dump pit on the northwest side. The eastern side of the site adjacent to Mere Brook and south of the possible dump pit are vegetated. The access road (now New Gurnett Road) to the south and the runways directly northwest of Site 2 are visible in this photograph. There are no buildings evident in this aerial photograph.

Figure A-3; 1957 Topography Map: A dump pit is outlined in the southeastern portion of the map and three buildings (216, 260, and 261) are shown in the northwestern portion of the map. Buildings 260 and 261 are likely to be the former incinerator buildings shown on Figure A-4 discussed below. Building 216 is shown on this map, which corresponds with the locations of possible above ground storage tanks (ASTs) identified by the EPA (1987) and shown on Figures A-4 and A-5. According to Figure A-3, there is over 30 feet of elevation change between the Mere Brook area and the building areas. New Gurnett Road is visible to the south and the approximate location of Orion Street is shown dashed on this aerial photograph.

Figure A-4; April 18, 1959, Aerial Photograph: According to the EPA (1987), two ASTs are visible in the northwestern portion of the area north of Site 2, labeled "2 Poss T" on Figure A-4, although it is not clear if these structures are ASTs. To the east of the possible ASTs, a dirt road is visible. The dirt road initiates approximately at what is currently Orion Street and terminates at the incinerator buildings located southeast of the ASTs. According to the EPA (1987) there are possible debris and standing liquid visible immediately to the south and southeast of the former incinerator buildings though these are not clearly

identifiable on Figure A-4. A building and disturbed areas to the northeast and east of Mere Brook are visible in this aerial photograph at the approximate locations of Site 1 and Site 3.

Figure A-5; August 31, 1965, Aerial Photograph: There are two structures in the northwestern portion of the area north of Site 2 labeled "T" by the EPA (1987) that are visible in this aerial photograph. The EPA (1987) indicates that these are potentially ASTs (see Figure A-5). The dirt road observed in the 1959 aerial photograph is also visible in this aerial photograph. Scattered debris is visible to the south and southeast of the incinerator buildings and it appears that some debris was pushed over the edge of the slope to the southeast. An access road is also visible on the south side of the site, adjacent to the debris areas.

Figure A-6; August 28, 1966, Aerial Photograph: The structures (Buildings 216, 260 and 261 shown on Figures A-3 and A-5) are no longer visible in this aerial photograph. An area labeled as "DSB" by the EPA (1987) is described as being dismantled buildings on Figure A-6. This "DSB" area is in the approximate location of the Buildings 260 and 261 shown on Figures A-3 and A-5. The dirt roads described in the previous aerial photographs are not visible in this aerial photograph. Landfill activities appear to no longer be ongoing.

Figure A-7; May 13, 1972, Aerial Photograph: The dirt road viewed on earlier aerial photographs loops back to Orion Street to the west. No debris is visible in this aerial photograph and no landfilling activities are identifiable. The area appears to be re-vegetating.

Figure A-8; August 15, 1978, Aerial Photograph: The dirt road viewed on earlier aerial photographs is somewhat visible in this aerial photograph. Debris is not visible in this aerial photograph. An area of either trees or possibly standing liquid is visible southeast of the dirt road in this aerial photograph. Another building and a road oriented northwest/southeast is visible across Mere Brook to the east.

Figure A-9; September 9, 1980, Aerial Photograph: The features in this aerial photograph appear to be similar to that described above in the 1978 aerial photograph description.

Figure A-10; 1989 Aerial Photograph: Vegetation appears to have replaced the dirt road. There is no evidence of landfill activities in this photograph.

2.2 ELECTROMAGNETIC SURVEY AND RESISTIVITY PROFILING

Geophysical surveys were conducted to locate possible buried metal objects at the site, to determine the northern limits of the Site 2 landfill, and to attempt to investigate elevated-conductivity groundwater that

may contain elevated metals previously reported in leachate seeps located northeast and east of the survey area. Metal detection (EM-61), terrain conductivity (EM-31), and resistivity surveys were performed in the area north of Site 2 and are discussed in the following sections; a copy of the report is provided in Appendix B.

2.2.1 EM-61 Survey

An EM-61 surface geophysical survey was performed in the area north of Site 2 to evaluate potential subsurface metal disposal. The EM-61 method is effective for locating medium to large buried metallic objects without being affected by surface metal such as fences and other surface features. The penetration depth of the EM-61 method is approximately 12 feet.

The EM-61 survey was conducted along a series of traverses oriented northwest to southeast across the area north of Site 2, as shown on Figure 2-1A. The survey area extended toward the steep embankment to the east as far as possible, north to the sediment location (SED-16), and approximately 100 feet east of the chain link fence to the west (Figure 2-1A). The traverses were spaced 5 feet apart during the EM-61 survey rather than the originally planned 3-foot spacing, due to thick vegetation cover. In open areas, EM-61 readings were recorded at the rate of 5 per second, and were recorded in real time using a Trimble™ GPS. In more wooded areas, data were recorded every 0.63 feet along grid lines.

The EM-61 survey revealed a relatively high concentration of metal anomalies in four areas, as shown on Figure 2-1A. The larger anomalies occur in the southern portion of the area north of Site 2. Anomalies 1 and 2 are close together at the southern portion of the survey area. Reinforced concrete and metal debris were exposed at the surface in the vicinity of anomaly 1. Anomaly 3 is located to the west of anomalies 1 and 2, and reinforced concrete walls or footings were visible at ground surface in the vicinity of this anomaly. The weak to very strong metal responses in this area could be attributed to remnants of the former buildings or incinerator structure. Anomaly 4 was a moderate metal response along the west side of the survey area, most likely resulting from metallic trash buried less than a foot or two below grade.

A few scattered isolated anomalies were also identified throughout the survey area, as shown on Figure 2-1A. The scattered isolated anomalies are likely caused by small individual objects that are buried less than a foot deep. This was confirmed by unearthing or noting small metal objects, such as pipes or pieces of rebar, in these locations.

2.2.2 EM-31 Survey

An EM-31 surface geophysical survey was performed in the southern portion of the EM-61 survey area to better define the limits of the Site 2 landfill. EM-31 was selected because it provides wider coverage and an approximate exploration depth of 18 feet. The EM-31 method may also be useful in identifying high total dissolved solids (TDS) zones in groundwater.

The EM-31 survey was performed along a series of traverses oriented in a northwest-southeast direction, as shown on Figure 2-1A. The survey traverses were spaced approximately 10 feet apart and readings were measured at 5-foot intervals along the survey lines. The results of the EM-31 survey are discussed further in Appendix B.

The EM-31 data confirmed the metal anomalies identified by the EM-61 survey. Based on the results of the EM surveys, the anomalies identified within the survey area were likely isolated piles of debris. The groundwater elevation was below the maximum EM-31 survey exploration depth in this area; therefore, it was not useful for delineating high TDS zones in groundwater.

2.2.3 Resistivity Profiling

Resistivity profiling was performed in the area north of Site 2. Resistivity is affected by soil moisture content and the salinity of the water, and is useful in defining depth to groundwater, subsurface stratigraphy, and low resistivity (high conductivity) groundwater zones.

The resistivity profile lines extended the length of the EM-61 survey area. Two profiles were conducted along two traverses (R-1 and R-2) spaced 30 feet apart. The survey lines were oriented in a northwest-southeast direction, parallel to three leachate seeps (LT-201, LT-202 and LT-203), as shown on Figure 2-1B. Each of the survey lines were approximately 260 meters long. The maximum modeled depth for the resistivity profiling is approximately 130 feet, based on the electrode spacing, as discussed in Appendix B.

The model results for the resistivity survey are shown on Figure 2-1B. The insets shown on the right side of Figure 2-1B represent the modeled survey lines for R-1 and R-2, respectively. The model shown on the left of Figure 2-1B is a two-dimensional slice, at a depth of 20 feet below grade. Areas of highest resistivity are interpreted to represent dry sandy soil, while very low resistivities (below 150 ohmmeters) are interpreted to represent saturated silty to clayey soils or groundwater that has been impacted by conductive landfill leachate. The modeled resistivity profiles for R-1 and R-2 are similar due to their proximity.

Based on the resistivity model results, the uppermost subsurface unit in the northwestern and southeastern portions of the profiles consists of dry sandy soils ranging from 0 to 40 feet thick. The uppermost unit in the central portion of the profiles (from about 110 to 165 meters) is modeled as a lower resistivity unit, possibly with a higher clay content than on either end of both surveys. The modeled water table is shown on each of the survey lines on the right side of Figure 2-1B as a dashed blue line. Groundwater levels in wells SB-305 and SB-310 were used as controls for R-1 and R-2, respectively. Below the upper sand, areas of low resistivity material interpreted as saturated silty to clayey soils are inferred. Within the low resistivity layers, very low resistivity zones (dark blue) were inferred, which may represent areas of elevated total dissolved solids in groundwater (Figure 2-1B).

2.3 SOIL CHARACTERIZATION

A total of 11 test pits were excavated and 13 soil borings were advanced in October 2008 to facilitate soil lithologic characterization, soil sample laboratory analysis, and monitoring well installation. The following sections describe the soil characterization program.

2.3.1 Test Pit Excavation

After the EM surveys were completed, a visual inspection of the site was conducted. A number of smaller anomalies were explained by metal scraps on or close to the surface. Eleven test pits were excavated to investigate geophysical anomalies, as summarized in Table 2-1. A TtNUS geologist observed the test pit excavations and documented field activities. The test pits were excavated to the saturated zone, the shallow clay unit, the reach of the excavation equipment, or until natural material was encountered, whichever was less. The test pits were excavated to facilitate soil sample collection, characterize subsurface lithology, and to investigate anomalies identified during the EM-61, EM-31, and resistivity profile surveys. Soil samples were collected from each of the test pits and screened with a photonionization detector (PID) equipped with a 10.2 electron volt (eV) lamp. Soil samples were screened in accordance with headspace screening methods specified in the Work Plan (ECC, 2007). No elevated PID screening readings were obtained during the test pit program, as shown on the test pit logs presented in Appendix C-1. Test pit locations are depicted on Figure 1-2. Table 2-1 summarizes the test pit depths, rationale, material encountered, and sample intervals collected during test pit excavations.

A total of 16 soil samples were collected from select test pits and analyzed as specified in Section 2.3.3. As per the modification correspondence (TtNUS, 2008b), samples were collected from the test pits and analyzed for dioxins by EPA Method 8290A if potential coal ash was encountered. A total of 16 samples (15 field samples and one duplicate) were collected from the test pits TP-2-01 through TP-2-11. Soil samples were not collected from TP-2-03 because it was located in the same vicinity (within 20 feet) as

TP-2-02. Soil sample collection log sheets are provided in Appendix C-3. Results obtained during the test pit program were used to direct additional investigation activities, as discussed in the following section.

2.3.2 Soil Boring Advancement

A total of 13 soil borings were drilled at the site using direct push technology. A TtNUS geologist directed the soil boring activities and documented findings. Soil boring locations are shown on Figure 1-2, and a summary of the soil boring program is provided in Table 2-2. The soil borings were advanced to facilitate soil sampling, subsurface lithologic characterization, and monitoring well installation, as discussed in Section 2.4, at 10 of the soil boring locations (SB-2-301 through SB-2-310). Three of the soil borings (SB-2-311 through SB-2-313) were advanced to determine the thickness of suspected ash layers in the vicinity of the test pits.

Surface and subsurface soil samples were collected continuously to the depth of each boring with a GeoProbe® Macro-Core® piston rod soil sampling system or dual tube soil sampling system. The Macro-Core® samples consisted of a 1.5-inch inside diameter (ID), 5-foot long core barrel with a clear plastic liner, and the dual tube samples consisted of a 1-inch ID, 5-foot long core barrel with a clear plastic liner. As each sampler was opened, the soils were monitored for organic vapors using a PID equipped with a 10.2 eV lamp and an aliquot was collected for jar headspace screening. Soil samples collected from each of the borings were screened in accordance with headspace screening methods specified in the Work Plan (ECC, 2007). Headspace screening results are summarized in Table 2-2. The borehole and the breathing zone of the field crews were periodically monitored for organic vapors, in accordance with the site-specific Health and Safety Plan (TtNUS, 2008b).

2.3.3 Soil Sampling Procedures

Soil samples were collected from test pits and soil borings in accordance with the Work Plan (ECC, 2007). Soil samples were described according to the Unified Soil Classification System and the description logged onto the test pit and soil boring logs presented in Appendix C-1 and C-2, respectively, to provide a lithologic record of the subsurface materials. Soil sample log sheets are presented in Appendix C-3.

The test pit soil samples for VOC analysis were collected directly from the backhoe bucket. For the remaining analyses, soil was collected from the bucket, homogenized in an aluminum pan, and transferred into appropriate laboratory-supplied containers.

Soil samples collected from soil borings for VOC analysis were collected directly from the acetate liner. The remaining soil was homogenized in an aluminum pan and transferred into appropriate laboratory-supplied bottleware. If additional soil was needed to fulfill volume requirements, an additional acetate liner was obtained from the desired depth and homogenized with the original soil.

Soil samples were placed in laboratory supplied containers for each of the analysis types and shipped to the appropriate analytical laboratory under proper chain of custody. Soil samples from test pits and soil borings were analyzed for the following parameters:

- VOCs by EPA Method 8260B;
- semi-volatile organic compounds (SVOCs) by EPA Method 8270C/8270SIM;
- pesticides by EPA Method 8081A;
- polychlorinated biphenyls (PCBs) by EPA Method 8082;
- target analyte list (TAL) metals by EPA Methods 6020, 6010B and 7471A; and,
- dioxins/furans by EPA Method 8290A.

Table 2-3 provides a complete list of analyses for each soil sample collected during the field investigation.

2.4 MONITORING WELL INSTALLATION

A total of 10 monitoring wells were installed, each in separate soil borings (SB-2-301 through SB-2-310). Table 2-4 provides a summary of the total depth and screened interval for each of these wells; well construction logs are provided in Appendix C-4. The monitoring well locations were selected to characterize site groundwater quality, provide groundwater elevation control points to further define site groundwater flow direction, and to provide upgradient (site background) groundwater sampling locations (ECC, 2007). Five of the 10 monitoring well locations (MW-2-304 through MW-2-308) were selected within the EM survey area, in the vicinity of existing leachate seep sampling locations LT-201, LT-202, and LT-203. Three of the monitoring well locations (MW-2-301 through MW-2-303) were completed in the vicinity of the former incinerator. One monitoring well (MW-2-309) was completed adjacent to existing monitoring well MW-241 to monitor the Lower Sand unit directly above the clay layer. One monitoring well (MW-2-310) was installed northwest of the former incinerator area, in the vicinity of a low resistivity anomaly.

Monitoring wells MW-2-301 through MW-2-309 were completed with well screens set in the Upper Sand unit and Transition Unit, directly above the Presumpscot Clay Formation, based on examination of the soil cores. At monitoring well location MW-2-310, the well screen was set from 21.9 to 31.9 feet below

ground surface (bgs) since elevated PID measurements were obtained from soil samples collected from this sample interval.

Manufactured pre-packed well screens consisting of 2.5-inch outer diameter (OD), 1-inch ID, Schedule 40 polyvinyl chloride (PVC) flush-threaded, machine-slotted well screen (0.010 inches slot openings) were utilized for each of the well installations. Two 5-foot long pre-packed well screens were threaded together for each of the wells to create 10-foot long well screen intervals. Each monitoring well was fitted with a bottom plug. Silica sand was placed in the annulus opposite the pre-pack well screen, up to approximately 2 feet above the pre-packed well screen. Bentonite was placed in the annular space above the sand pack to approximately 3.5 feet bgs. A silica sand drainage layer was placed above the bentonite seal, and a steel outer protective casing (4-inch ID by 5 feet long) was installed around the PVC riser pipe; silica sand was placed in the annulus of the protective casing. A surface seal consisting of Quikrete® and potable water was formed around each protective casing, flush with the ground surface. New monitoring wells were locked with keyed-alike locks. Well construction logs are provided in Appendix C-4.

A black mark was drawn on the top of the PVC well riser to serve as a reference point for the well survey and groundwater depth measurements upon completion of each well. The horizontal and vertical locations of all wells were surveyed following the completion of well construction (see Section 2.9).

2.5 MONITORING WELL DEVELOPMENT

Each of the 10 newly completed monitoring wells was developed using peristaltic pumps due to the high level of silt in the geologic formation. Fine-grained material around the well screen was drawn into the well and removed by agitating the well water while simultaneously pumping water from the well at a discharge rate of approximately 0.1 gallons per minute. Fluid produced during well development was containerized in 55-gallon drums and treated through the on-base water treatment system. Well development data are presented in Appendix C-5.

Water quality parameters including pH, temperature, oxidation reduction potential (ORP), specific conductance, dissolved oxygen (DO), and turbidity were monitored during well development activities at 10-minute intervals. Well development continued until the pH, temperature, DO, ORP, and specific conductance stabilized and turbidity was below 10 nephelometric turbidity units (NTUs) in each of the wells.

2.6 WATER LEVEL MEASUREMENTS

A synoptic round of water level measurements was collected on October 21, 2008, to provide data for interpretation of groundwater contours, flow directions, and hydraulic gradients. Water levels were measured in the newly installed wells, as summarized on Table 2-4. The groundwater flow evaluation is summarized in Section 3.

Groundwater level measurements were obtained using an electronic water-level indicator. In addition, an oil/water interface probe was used to check for the presence of non-aqueous phase liquid (NAPL) in each well, none was found. Water level measurements in wells were recorded from the surveyed highest point of the top of the PVC riser (marked in black). Water levels were not measured in previous wells because they were measured as part of the LTMP and the 10 new wells provided reasonable coverage across the site.

2.7 GROUNDWATER SAMPLING

Groundwater samples were collected from each of the 10 newly installed monitoring wells, following the EPA's low-flow purging and sampling protocols. Fluid produced during sampling was containerized in 55-gallon drums and disposed of through the on-base water treatment system.

Peristaltic pumps with dedicated ¼-inch ID Teflon-lined tubing were used for groundwater sampling. The monitoring wells were purged at flow rates between 100 and 200 milliliters per minute (mL/min), depending on the drawdown observed during purging. Turbidity, pH, temperature, ORP, specific conductance, and DO were monitored at 5 to 10 minute intervals during groundwater sampling. Low flow purge data are presented on the groundwater sample log sheets in Appendix C-6.

Low flow sampling continued until pH, temperature, specific conductance, and turbidity had stabilized in each of the wells with the exception of wells MW-2-305 and MW-2-308. For the each of the wells, except MW-2-305 and MW-2-308, when three consecutive readings differed less than 10 percent for ORP, and DO; differed less than 3 percent for temperature and specific conductance; pH varied by +/-0.1 or less; and turbidity was less than 10 NTUs, the well was considered stable and ready for sampling. The recharge rate of well MW-2-305 was insufficient to sustain a water level above the screened interval, even at the lowest practical purge rate. Instead, groundwater samples were collected from well MW-2-305 by purging a sufficient volume of water, then collecting grab samples after recharge. The turbidity was above 10 NTUs in well MW-2-308 during sampling activities; however, the remaining parameters were stable when the well was sampled. After two hours of purging, the turbidity measured in well MW-2-308 was 15.3 NTUs. Initial and final groundwater parameter readings are summarized in Table 2-5.

Groundwater samples were placed in laboratory supplied containers, shipped to the laboratory, and analyzed for the following parameters:

- VOCs by EPA Method 8260B,
- SVOCs by EPA Method 8270C/8270C SIM,
- pesticides by EPA Method 8081A,
- PCBs by EPA Method 8082, and
- TAL metals by EPA Methods 6020, 6010B, and 7470A.

2.8 HYDRAULIC CONDUCTIVITY MEASUREMENTS

TtNUS performed in-situ hydraulic conductivity tests in each of the newly installed wells, except MW-2-304. The well screen intervals for the majority of these wells are set in the Upper Sand unit, and extend into the Transition Unit, as shown in Table 2-4. The well screen intervals for MW-2-302 and MW-2-309 are set in the Transition Unit only. The slug test results are discussed in Section 3 and summarized in Table 2-6.

Prior to initiation of slug testing at each well, the groundwater level was measured to the nearest 0.01 foot using an electronic water-level indicator. An electronic water level/pressure transducer was then lowered into the well to either 1 foot above the bottom of the well (in shallow wells), or at least 10 feet below groundwater level (in deep wells), and static water level was re-established.

“Rising head” tests were performed in each of the monitoring wells by inserting a 5-foot slug into the well, then withdrawing the slug from the well once the water level had returned to static conditions. The slug tests continued until water levels recovered to at least 90 percent of the static level. Water level measurements were collected using the pressure transducer. A slug test was not performed at MW-2-304 because equipment became temporarily stuck in the well when the test was attempted.

The data collected during slug testing was evaluated using the Bouwer and Rice Method (Fetter, 1994). Slug test calculations are included in Appendix C-7 and the results are discussed in Section 3.0.

2.9 SAMPLE LOCATION SURVEY

A State of Maine licensed surveyor documented the horizontal locations of sample points, the extent of test pits, and the vertical and horizontal locations of monitoring wells. Survey control was maintained by tying into the Maine State Grid coordinate North American Datum of 1983 (NAD83) West Zone for horizontal datum and the North American Vertical Datum (NAVD) of 1988 system for vertical datum.

Elevations were referenced to a USGS benchmark. Surveyed features were horizontally located to within +/- 0.1 foot. The tops of the PVC well risers were surveyed to +/- 0.01 foot vertically.

2.10 INVESTIGATION-DERIVED WASTE

Waste materials generated during the field investigation included drill cuttings, excess soil sample, well purge and development fluid, decontamination fluids, spent calibration fluids, wash water from steam cleaning, and polyethylene sheeting. IDW was containerized into 55-gallon drums, and stored at the on-base water treatment building (Building 50). The aqueous containers of IDW were stored until the sediment had settled out, then the water was pumped through the on-base water treatment system. The soil container of IDW was transported under a bill of lading to a licensed facility for disposal.

3.0 RESULTS

The following sections provide a summary of site geology, hydrogeology, analytical results, and the updated site conceptual model.

3.1 PHYSICAL SETTING

This section presents a description of the physical conditions based on information presented in Section 2.0, including aerial photographs, test pit and soil boring logs, groundwater level measurements, and results of other site investigation activities.

3.1.1 Geology

Three geologic cross-sections were generated based on information discussed in Section 2. Approximate cross-section locations are shown on Figure 3-1A. One cross section (A-A') is oriented perpendicular to interpreted groundwater flow in a northwest to southeast direction (Figure 3-1B) and two cross sections (B-B' and C-C') are oriented approximately west to east across the site (Figure 3-1C). Subsurface stratigraphic units encountered during site investigations are discussed in stratigraphic order.

Fill – This unit was observed at all soil boring and test pit locations except those located in the northern portion of the site, as shown on Figure 3-2. The fill consists of fine to medium sand with minor amounts of silt, and contained debris and inter-bedded layers of dark ash-like material in the vicinity of the former incinerator area. The ash is described in detail in the following paragraph. Debris was noted in test pits TP-02-01, TP-02-02, TP-02-03, TP-02-04, TP-02-05, TP-02-06, and TP-02-07, as discussed in Section 2.3.1. The debris consisted of metal scraps, garbage, plastic, large pieces of metal, and other trash. The areal extent of interpreted fill with debris, based on its presence in test pits and/or borings, is depicted on Figure 3-2. The interpreted fill with debris area incorporates the four geophysical anomalies discussed in Section 2.2 (Figure 2-1A). The fill unit, where identified, ranged from 4.5 feet thick (TP-02-04) to 8 feet thick (MW-02-306). The average thickness of the fill unit was approximately 5 feet.

Suspected Ash – The suspected ash consists of black, very fine, loose, powdery material mixed with debris. Material suspected to be ash was observed in borings and test pits located in the vicinity of the former incinerator (see Figure 3-2), including test pits TP-02-02, TP-02-03, TP-02-04, TP-02-05, TP-02-07, and soil boring SB-02-313, as described in Tables 2-1 and 2-2. The ash material was found to be both mixed with debris and in thin, discrete layers, and was most prominent in the southeastern portion of the site. Black organic material observed at TP-02-01, which is located along the west side of the landfill area, may represent ash.

Upper Sand – This unit underlies the fill unit and consists of dark to light brown or orange brown fine to medium sand with varying minor amounts of silt. Thickness ranges from approximately 6 feet in the northwestern portion of the site (SB-02-307) to 27 feet thick in the southeastern portion of the site (SB-2-304). The average thickness of the Upper Sand is approximately 11 feet. The depth to the top of the Upper Sand ranged from 0.5 feet bgs in the northwestern corner of the site (SB-2-308) to 8 feet bgs in the northern portion of the site (SB-02-306). This unit underlies the fill, where present, or the organic topsoil material where fill was not encountered.

Transition Unit –The Transition Unit underlies the Upper Sand and consists of light brown to gray fine sand and silt with interbedded clay. The Transition Unit ranges from approximately 7 feet thick in the northwestern portion (SB-02-308) to approximately 19 feet thick in the southern portion of the site (SB-02-303). The depth to the top of the Transition Unit ranged from approximately 7 feet bgs in the northern portion of the site (SB-2-307) to 28 feet bgs in the southern portion (SB-02-304).

Glaciomarine Silt/Clay (Presumpscot Formation) –This unit underlies the Transition Unit and consists of gray, cohesive, plastic, clay with lenses of fine sand and/or silt. This unit was encountered in each of the soil borings with the exception of soil borings SB-02-311, SB-02-312, and SB-02-313 since these borings were advanced only to the top of the Upper Sand to better define potential ash thickness near the Site 2 landfill. The depth to the top of the Presumpscot Formation ranged from 16 feet bgs in the northwestern portion of the site (SB-02-308) to 38 feet bgs near the center of the site (SB-02-310). The top of the Presumpscot Formation dips strongly toward Mere Brook. The maximum observed thickness of the Presumpscot Formation was 12 feet in boring SB-02-310. The bottom of the unit was not encountered at the depth where the boring was terminated; therefore, the total thickness of the Presumpscot Formation in the site vicinity is unknown.

3.1.2 Hydrogeology

Groundwater was encountered in fill, the Upper Sand, and the Transition Unit at the site. The permeable nature of the surficial materials in the unsaturated zone above the water table suggests a high infiltration capacity. Groundwater movement below the water table (saturated zone) occurs preferentially through the Upper Sand and fine sand interbeds within the underlying Transition Unit. The underlying Presumpscot Clay unit separates the surficial aquifer from the underlying bedrock aquifer and acts as an aquitard, limiting downward movement of groundwater. Groundwater movement in bedrock is not known in the site area.

A synoptic round of groundwater levels were measured on October 21, 2008, in newly installed monitoring wells. Depths to groundwater ranged from approximately 3 to 20 feet bgs across the site on

October 21, 2008, and groundwater elevations calculated for each monitoring well are presented in Table 2-4.

The direction of groundwater flow is consistent with topography and surface drainage at the site. Groundwater generally flows beneath the area north of Site 2 to both the east and the northeast toward Mere Brook, as shown on Figure 3-3. A steep slope exists along the northeast portion of the site bordering Mere Brook, as shown on Figure 1-2. Three seeps, identified as LT-201, LT-202, and LT-203 on Figure 1-2, have been noted along this steep embankment. These leachate seeps are most likely present due to the steep drop in ground elevation in this area. Shallow groundwater likely discharges to Mere Brook.

Lateral hydraulic gradients in the inferred direction of groundwater flow across the site were calculated between the Upper Sand and Transition Unit. The average lateral gradient in overburden was calculated between upgradient and downgradient equipotential lines in the northern and southern portion of the site to provide a comparison between hydraulic gradients. The lateral hydraulic gradient calculated in the northern portion of the site was 0.0438 and 0.0816 in the southern portion, indicating minimal spatial variability. In general, the flow gradient steepened across the study area to the east, toward Mere Brook, as topography dropped off.

The hydraulic conductivity was estimated from in-situ “slug” tests in seven wells completed in the Upper Sand and Transition Unit and two wells completed in the Transition Unit. The results of the slug tests are summarized in Table 2-6. Slug test calculations are presented in Appendix C-5. The slug test data were analyzed using the Bouwer and Rice Method (1976). The calculated hydraulic conductivity values for the wells screened across the Upper Sand and the Transition Unit ranged from 0.44 feet per day (ft/d) (1.55 x 10^{-04} centimeters per second [cm/sec]) to 2.37 ft/d (8.36 x 10^{-4} cm/sec), with an estimated geometric mean of 1.13 ft/d (4.00 x 10^{-04} cm/sec). The calculated hydraulic conductivity values for wells screened entirely in the Transition Unit ranged from 0.225 ft/d (7.94 x 10^{-05} cm/sec) to 0.79 ft/d (2.79 x 10^{-04} cm/sec), which is consistent with silty and fine sands. Hydraulic conductivity estimates reported previously (EC Jordan, 1990) ranged from 7.8x10^{-5} to 2.9X10^{-3} cm/sec, which correspond to the range of results estimated from the 2008 field investigation.

Groundwater flow velocities were estimated based on slug test results, groundwater elevations, and representative effective porosities. The geometric mean hydraulic conductivity (K) value was used in the groundwater flow velocity calculations. The geometric mean K value is presented in Table 2-6. Groundwater flow velocities were estimated using the modified Darcy Equation (V=Ki/n) for the northern and southern portions of the site. Based on a geometric mean of 1.13 ft/d (for wells screened across the Upper Sand and Transition Unit), a gradient (i) of 0.044 (northern) and 0.082 (southern), and an effective

porosity (n) of 0.35, the calculated groundwater flow velocity is 0.14 ft/d and 0.26 ft/d, respectively. The average groundwater flow velocity was estimated at 0.2 ft/d. The calculated groundwater velocities ranged from 52 to 96 feet per year, which refines the previous estimates of 16 to 600 feet per year (EC Jordan, 1990).

3.2 SAMPLING RESULTS

This section presents the soil and groundwater analytical results obtained for samples collected during the 2008 field investigation. Section 3.2.3 summarizes results from previous leachate seep sampling performed by ECC in September 2008, and H&S in September 2009.

Tier II data validation was performed for analytical data collected by TtNUS during the 2008 investigation using the procedures outlined in the "EPA Region 1 Tiered Organic and Inorganic Data Validation Guidelines" dated July 1, 1993; results are presented in Appendix D-3 (on compact disk). A comprehensive listing of the qualified data is presented in Appendix D-1 and Appendix D-2 for soil and groundwater, respectively. Data summaries for detected compounds are presented in Tables 3-1 though 3-3.

The following sections present results of soil and groundwater sample analysis for samples collected by TtNUS. Also included is a discussion of groundwater, surface water, and leachate seep sample results obtained as part of the LTMP conducted at Site 2. The Site 2 data were compared to background data, based on recommendations in "Background Study for Naval Air Station Brunswick" (August 2010) and the "Sampling and Analysis Plan (SAP) Background Study Naval Air Station Brunswick" (July 2009). The completed statistical analysis is presented in Appendix E. Comparison of Site 2 soil and groundwater analytical results to NASB background analytical results are discussed in the following sections.

3.2.1 Soil

For Upper Sand surface and subsurface soil samples, concentrations of aluminum, arsenic, iron, manganese, potassium, and silver are within NASB background concentrations. For Transition Unit soil samples, which are all subsurface soils, aluminum and vanadium concentrations are also within background concentration levels.

Table 3-1 presents the VOC, SVOC, pesticide, and metal compounds detected in soil samples collected in October 2008. Table 3-2 presents dioxin compounds detected in soil samples. A comprehensive listing of the soil analytical results is presented in Appendix D-1. The analytical data presented in Tables 3-1 and 3-2 was compared to Outdoor Commercial Worker and Park User scenarios (Incremental

Lifetime Cancer Risk = 1E-06, non-cancer Hazard Quotient = 0.2), and Soil to Groundwater Screening Levels from the Maine Remedial Action Guidelines (RAGs) for Contaminated Soil (MEDEP, 2010). Residential screening levels are not applicable because access to the site is restricted and foreseeable future land use is unlikely to be residential.

No VOCs were detected in soil samples at concentrations above screening criteria. Eight VOCs were detected in the soil samples at concentrations below screening criteria, including acetone, 2-butanone, benzene, chloroform, carbon disulfide, ethylbenzene, tetrachloroethene, and toluene. Acetone and 2-butanone are common laboratory contaminants.

Twenty SVOCs were detected in the soil samples from Site 2 as shown in Table 3-1. Five of the SVOCs detected exceeded Maine RAG Park User criteria (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene) at a total of two locations (SB-302, 0 to 2 feet; TP-02, 0.0 to 0.5 feet and 1 to 2 feet); and slightly exceeded the Outdoor Commercial User criteria, as shown on Figure 3-4. At five other locations (SB-309, 0 to 2 feet; TP-01, 0.0 to 0.5 feet; TP-5, 1 to 2 feet; TP-6, 1 to 2 feet; TP-7, 3 to 4 feet), benzo(a)pyrene slightly exceeded the Park User criterion (44 microgram per kilogram [ug/kg]), but did not exceed the Commercial Worker criterion (350 ug/kg). Without exception, SVOC exceedances were not detected in samples collected from areas outside of the interpreted fill with debris area (Figure 3-2 and Figure 3-4). Maximum SVOC exceedances were detected in soil samples collected from SB-02-302 (from 0 to 2 feet bgs) and test pit TP-02-02 (from 0 to 6 inches bgs).

Pesticides did not exceed Outdoor Commercial Worker, Park User, or Soil to Groundwater Criteria. Nine pesticides were detected in soil samples at concentrations below the screening criteria, as shown in Table 3-1 and on Figure 3-5.

Three metals, nickel, mercury, and vanadium, were detected at one or two locations at levels that exceeded Commercial Worker and/or Park User screening criteria, as shown in Table 3-1 and on Figure 3-6. Nickel and vanadium exceeded NASB background, Park User, and/or Commercial Worker criteria at two depths in one location (samples TP-02-02, 0 to 6 inches bgs and TP-02-02 1 to 2 feet bgs). Mercury exceeded NASB background and the Maine RAGs Park User criterion at only one location (TP-02-11, 4 to 5 feet bgs). Arsenic exceedances of Commercial and Park User criteria are included in Table 3-1 and on Figure 3-6 for comparison. Arsenic levels are within the NASB background levels.

Six soil samples suspected of containing ash were collected from five test pits and analyzed for dioxins and furans, as shown in Table 3-2. Dioxin/furans were detected in soil at concentrations that did not exceed Maine RAGs Outdoor Commercial Worker and/or Park User criteria at any sample location. The

highest concentrations of dioxin and furan compounds were detected in the sample collected from test pit TP-02-07 (3 to 4 feet bgs), located in the former incinerator area.

3.2.2 Groundwater

For groundwater samples collected from monitoring wells screened across the Upper Sand/Transition Unit (MW-2-301, -303 through -308 and -310), aluminum, antimony, barium, beryllium, copper, lead, magnesium, sodium, vanadium, and zinc concentrations are similar to NASB background concentrations. For groundwater samples collected from monitoring wells screened in the Transition Unit only (MW-2-302, and -309), metals concentrations are similar to NASB background concentrations.

Table 3-3 summarizes the VOC, pesticide, and inorganic compounds detected in groundwater samples collected in October, 2008. A comprehensive listing of the complete groundwater analytical results is presented in Appendix D-2. The groundwater analytical data was compared to the EPA MCLs (EPA, 2010) and the Maine MEGs for Drinking Water (Maine CDC, 2010).

No VOCs were detected at concentrations above drinking water criteria. Trace levels of three VOCs were detected in one groundwater sample (GW-02-310) collected from MW-2-310.

SVOCs or PAHs were not detected in groundwater samples collected during the October 2008 investigation.

One pesticide, 4,4'-DDD, was detected in groundwater at a trace concentration below the screening criteria (see Table 3-3).

Iron and manganese in groundwater samples collected from three monitoring wells screened across the Upper Sand/Transition Unit exceeded both NASB background and groundwater screening criteria (samples GW-2-303, -305, and -310) as shown in Table 3-3 and on Figure 3-7. The three wells are screened across both the Upper Sand and Transition Unit. Elevated iron and manganese concentrations are typically associated with reducing groundwater conditions. Under reducing conditions (low ORP values), solid forms of Fe^{3+} and Mn^{+4} are reduced to the soluble forms of Fe^{2+} and Mn^{2+}, resulting in elevated concentrations of these elements dissolved in groundwater.

Cobalt was detected in only one groundwater sample (sample GW-02-303), slightly above its MEG (10 micrograms per liter [ug/L]). Well MW-2-303 is located in the vicinity of the former incinerator.

Sodium exceeded the Maine MEG (20,000 µg/L) in three groundwater samples, as shown in Table 3-3 and on Figure 3-7; however, concentrations are consistent with NASB background concentrations.

3.2.3 Long Term Monitoring Program Results

Groundwater, surface water, sediment, leachate seep, and leachate sediment samples have been collected from Site 2 since 2001 as part of the LTMP. Monitoring Event 18 at Site 2 in September 2008 (ECC, 2009) was collected within a month of the TtNUS sampling round at Site 2, which allows for a close comparison of monitoring data throughout the site. In addition, surface water, leachate, and leachate sediment (LT-201, LT-202, and LT-203) collected in September 2009 (H&S, 2010a), were included to provide a comparison to fall 2009 data. Surface water and sediment (SW/SED-15, SW/SED-16) upstream of Site 2 and Sites 1 & 3 for September 2008 (ECC, 2008a) and 2009 (H&S, 2009a) were also included for comparison to Mere Brook surface water and sediment results opposite and downstream of Site 2 and the area north of Site 2.

Groundwater

Groundwater sample results in September 2008 (ECC, 2009) and September 2009 (H&S, 2010a) from the Dyer's Gate Well, and monitoring wells MW-103, MW-104, MW-241, MW-242, and MW-243 were selected for comparison; these samples were analyzed for VOCs, TAL metals, and mercury. Monitoring well locations are shown on Figures 3-2 and 3-3. Groundwater sample analytical results are compared with Maine MEGs and Federal MCLs. VOCs were not detected in wells sampled in September 2008 and September 2009, with the exception of some below-criteria detections in samples collected from well MW-242 in September 2008.

Manganese was detected above the Maine MEGs in the groundwater samples collected from well MW-103: 670 ug/L in September 2008 and 572 ug/L in September 2009. Well MW-103 is located adjacent to the west side of the former incinerator. MW-242, located west of the Site 2 landfill showed similar manganese concentrations (662 ug/L) in September 2008; however, in September 2009, manganese showed a significant decline to 68.7 J ug/L. Manganese was also detected (539 ug/L) in a sample from MW-243 slightly above the MEG in September 2009 only.

Sodium was detected above criteria in September 2008 and September 2009 in the groundwater samples collected from the Dyer's Gate well at concentrations of 151,000 and 150,000 ug/L, respectively. These concentrations are higher by an order of magnitude than the concentrations detected in samples collected by TtNUS in October 2008. A possible source of sodium in the Dyer's Gate well, and other wells at the

site, may be from dissolution of sodium chloride salts likely used to deice Orion Street upgradient of the site.

Thallium, cadmium, and aluminum concentrations detected in well MW-241 exceeded screening criteria in the sample collected in September 2008. Chromium (69.7 J ug/L) slightly exceeded its MEG in a groundwater sample from MW-242 in September 2009. These compounds were not detected above screening criteria in wells sampled by TtNUS in October 2008.

Leachate Seeps

Leachate seep samples were collected from three leachate seeps (LT-201, LT-202, and LT-203) located on the northeastern slope of the area north of Site 2 in September 2008. Approximate leachate seep locations are shown on Figures 3-2 and 3-3. The leachate seep samples were analyzed for VOCs, TAL metals, and mercury. Leachate seep sample results were compared with Risk-Based Ecological Screening Values (RBESVs).

VOCs were not detected above screening criteria in seep samples collected from the seeps during September 2008 and September 2009. Total xylenes are the only VOCs detected in leachate seeps that exceed screening criteria since LTM began in 2001, with exceedances of screening values detected in samples collected from LT-202 during spring monitoring events in 2003, 2004, and 2005.

Aluminum, barium, cadmium, chromium, copper, iron, lead, manganese, and nickel were detected in leachate seep samples above the RBESV during September 2008 and September 2009. Highest inorganic concentrations were detected in leachate seep samples collected from LT-202 and LT-203 in September 2008. As discussed in Section 3.2, the leachate seeps are an expression of the water table intersecting the steep ground surface slope east and northeast of the site toward Mere Brook. A comparison of the leachate seep samples to RBESVs, and turbidity measurements for the September 2008 and September 2009 sampling events are summarized below:

Parameter	RBESV (ug/L)	LT-201 (Sept. 2008)	LT-201 (Sept. 2009)	LT-202 (Sept. 2008)	LT-202 (Sept. 2009)	LT-203 (Sept. 2008)	LT-203 (Sept. 2009)
Aluminum	87	220	100 U	6000	423	3950	44.0
Barium	3.9	29.7	21.2	36.4	17.3	48.1	7.55
Cadmium	0.08	2.2	2.0 U	1	2.0 U	1.3	2.0 U
Copper	2.36	5.6	1.1 J	8.9	1.5 J	19.3	0.97 J

Chromium	11	5.6 J	10 U	49.3	1.1 J	109	0.89 J
Iron	1000	31800	5560	30400	29500	41700J	913J
Lead	0.41	0.99	0.098 U	5.9	0.96 U	6.1	0.14 U
Manganese	120	897	750	1660	1780	2590	390
Turbidity (NTU)	--	13.5	26.2	74.6	23	53.9	37.9

Naturally-occurring iron and manganese are commonly in reduced forms in low ORP groundwater. When groundwater discharges along a seepage face, reduced forms of iron and manganese become oxidized (e.g., iron floc). Metals at lower concentrations can be adsorbed to iron and manganese oxides and hydroxides.

Turbidity values are elevated in all three samples, especially in samples collected at LT-202 and LT-203. Aqueous samples collected for metals analysis undergo acid preservation, as required by the analytical method. Acidification lowers the pH, which may dissolve metals presently sorbed onto or within the particles. Therefore, elevated metals concentrations in the leachate samples may be due to elevated levels of particulates present in these samples.

Leachate Sediment

Leachate sediment samples were collected from three locations adjacent to the site (LT-201, LT-202, and LT-203) in September 2008 and September 2009. Approximate locations are shown on Figure 3-2 and 3-3. The leachate seep sediment samples were analyzed for VOCs, TAL metals, and mercury. Leachate seep sediment sample results were compared with the RBESVs.

Carbon disulfide was the only VOC detected in the three leachate sediment samples collected in September 2008 and September 2009 at levels above the RBESV.

Arsenic, antimony, barium, cobalt, lead, iron, manganese, mercury, and selenium were detected in one or more of the leachate sediment samples at levels above the RBESV in September 2008 and September 2009. Mercury was detected in each of the leachate sediment samples at levels above the RBESV in 2008 and 2009. Mercury concentrations ranged from 0.61 J to 1.8 milligram per kilogram (mg/kg).

Surface Water

Surface water samples were collected along Mere Brook from two locations upstream of the area north of Site 2 (SW-15 and SW-16), at one location (SW-04) opposite the area north of Site 2 and Sites 1 and 3,

and at one location (SW-07) opposite the Site 2 landfill and downstream of Sites 1 and 3, as shown on Figure 1-2. Surface water analytes exceeding RBESVs in one or more samples for the September 2008 and September 2009 sampling events are summarized in the table below. Turbidity measurements are included for comparison.

Parameter	RBESV (ug/L)	SW-15 (Sept. 2008)	SW-15 (Sept. 2009)	SW-16 (Sept. 2008)	SW-16 (Sept. 2009)	SW-04 (Sept. 2008)	SW-04 (Sept. 2009)	SW-07 (Sept. 2008)	SW-07 (Sept. 2009)
Aluminum	87	93.5J	148	33.4 J	43.1	79 J/129 J	46.6 J	185 J	81.5 J
Barium	3.9	24.3 J	25.7	23.2 J	22.2	23.9 J/24.9 J	23.2	24.8 J	23.3
Iron	1000	660	1220	603	737	882	741	876	1040
Lead	0.41	0.41 J	1.6	0.32 J	0.58 J	0.43 J/0.47 J	0.57 J	0.63 J	0.90 J
Manganese	120	142	175	142	138	164/171	133.5	178	163
Turbidity (NTU)	--	6.17	8.5	6.26	4.6	3.82	3.4	3.67	19.1

The surface water samples were analyzed for VOCs and metals. The data were compared with RBESVs. VOCs were not detected in the samples. Aluminum, barium, iron, lead, and manganese were at similar concentrations in the Mere Brook surface water samples collected upstream (SW-15, SW-16) and downstream of Sites 1 and 3 (SW-04) and opposite the Site 2 landfill (SW-07) in September 2008 and in September 2009. Barium concentrations at downstream locations (SW-04 and SW-07) were similar to upstream locations (SW-015 and SW-016). Aluminum and manganese were slightly higher in the sample from SW-07, which is located downstream of SW-04, Sites 1 and 3, and opposite the Site 2 landfill. Relatively high metals concentrations may result from dissolution of metals associated with particulates as a result of acid preservation. In general, the similarity of analyte concentrations at upstream surface water locations (SW-15, SW-16) compared with downstream locations, indicates that Site 2 and the area north of Site 2 are not significant sources of contaminant concentrations to Mere Brook.

3.3 SITE CONCEPTUAL MODEL

This section presents the conceptual model for the site, which was developed based on historical information and the findings presented in the previous sections. Information used to develop the site conceptual model included new boring and well construction logs, site hydrogeologic interpretations, chemical analysis results, aerial photograph review, and historical information. The site conceptual model is present below. Figure 3-8 illustrates conceptual contaminant migration pathways to potential receptors.

3.3.1 Contaminant Source Areas

Site 2 was used as the primary base landfill from 1945 to 1955, though the actual period of operation may have been 5 years, since the base was closed from 1946 to 1951. An incinerator was in operation during the early 1950s. The RI (EC Jordan, 1990) concluded that environmental contamination is present primarily in soil, and to lesser degrees in groundwater, leachate seeps and sediment, surface water, and stream sediment. The ROD for Site 2 (Harding Lawson Associates, 1998) stated that the contaminants detected at the site were consistent with historical land use and disposal of incinerated wastes at the site. Buried ash may contribute to inorganic contamination in groundwater and leachate groundwater, downgradient of the landfill (Harding Lawson Associates, 1998).

The 2008 site investigation generally confirmed the RI and LTM findings regarding the area north of the Site 2 landfill. Shallow fill areas are located in the south-central part of the area of investigation. Highest concentrations were detected in soil samples collected adjacent to the former incinerator area, former location of Building 216, and areas located within the interpreted fill area shown in pink on Figures 3-2 through 3-6.

As discussed in Section 3.2.1, arsenic concentrations in soil samples exceeded residential screening criteria (0.39 mg/kg) at every location sampled, but did not exceed the Maine RAGs at any location. Arsenic was also detected in one or more of the leachate sediment samples at levels above its RBESV in September 2008 (ECC, 2009). In comparison, the “Study of State Soil Arsenic Regulations” prepared by the Association for the Environmental Health of Soils (AEHS) background levels of arsenic in soil in Maine range from 1 to 28 mg/kg, based on data available from five sites located in Maine. Arsenic concentrations in soil samples collected during the 2008 investigation at Site 2 ranged from 0.85 to 7.6 mg/kg, with an average concentration of 2.7 mg/kg, which is within the lower end of the background range of arsenic in soil published by the AEHS. Arsenic concentrations detected in soil samples during the 2008 field investigation are consistent with NASB background levels.

The majority of concentrations of SVOCs, nickel, vanadium, and mercury that exceeded minimum screening criteria were detected in or near surface soils collected from test pits located within the area of interpreted fill, as shown on Figures 3-2 through 3-6. The one and only chromium and two SVOC criteria exceedances were detected in the surface soil sample collected from soil boring SB-02-309, located within the former landfill area, as shown on Figures 3-4 and 3-6. The exceptions to this are soil samples collected from test pit TP-02-10 (4 to 5 feet bgs) and soil boring SB-02-310 (4 to 6 feet bgs), located north of the interpreted fill area where concentrations of benzo(a)pyrene exceeded minimum screening criteria approximately by a factor of two or less. Based on this information, the area of interpreted fill shown in pink on Figures 3-2 though 3-7 should be included within the landfill boundaries.

3.3.2 Geologic/Hydrogeologic Controls on Contaminant Migration

Contaminant migration at the site is controlled by various geologic and hydrogeologic factors. Precipitation infiltrates through the generally permeable surficial materials, including the fill materials. Upon reaching the water table, groundwater moves laterally east and northeast through the permeable Upper Sand and Transition Unit toward Mere Brook, which is the local groundwater discharge point for the site. Vertical groundwater migration is limited by the presence of the underlying Presumpscot Clay Formation. Seeps located along the base of the steep slope down to Mere Brook act as intermediate discharge points for groundwater.

Compounds detected in Site 2 soils (primarily SVOCs along with some inorganics) generally have limited mobility and tend to adsorb to soils rather than migrate through groundwater. This is evidenced by the lack of detection of SVOCs and the limited detection of inorganics in leachate seeps observed at the site. Elevated iron and manganese concentrations, and other inorganics, are typically associated with reducing groundwater conditions. Both iron and manganese are naturally occurring elements. Under reducing conditions (low ORP values), iron and manganese reduce to the more soluble states and, as a result, are commonly elevated in dissolved concentration and would be readily detectable in site groundwater and/or leachate seeps. ORP values ranged from approximately -104 to 51 millivolts (mV) in wells where manganese concentrations were detected above minimum screening criteria. The highest manganese concentration was detected in well GW-02-305; the well that also yielded the lowest ORP values, as shown in Table 2-5. Additionally, the highest dissolved iron concentration and second highest manganese concentrations were detected in the groundwater sample collected from well GW-02-310; this well also had a relatively low ORP value.

The majority of criteria exceedances were detected in surface soil or subsurface soil collected near-surface (within 6 feet of existing grade) from within the interpreted area of fill (shown on Figures 3-4 through 3-6) or the former landfill, as discussed in Section 3.3.1.

For groundwater, iron and manganese concentrations exceeding minimum screening criteria were detected in two samples (GW-02-305 and GW-02-310), collected from wells located north of the interpreted fill area, and two samples (GW-02-303 and GW-02-303), collected from wells located within the interpreted fill area and the landfill, as shown on Figure 3-7. Sodium slightly exceeded the Maine drinking water standard (20,000 ug/L) in three samples; however, sodium is within NASB background concentrations. Cobalt was detected in only one groundwater sample (GW-02-303) above NASB background and slightly above its Maine MEG (10 ug/L).

As discussed in Section 3.1.2, groundwater flows from the interpreted fill area, shown in pink on Figure 3-3, toward Mere Brook in a northeasterly and easterly direction to the leachate seeps and eventually to Mere Brook. In September 2008, inorganics concentrations were at similar high levels at locations LT-202 and LT-203, in contrast to September 2009, when high levels occurred at LT-201 and LT-202, as shown on Figure 3-3 and summarized in the table below.

Leachate Seep and Sediment Sampling Results

Compound	RBESV (ug/L)	LT-201 (Sept. 2008)	LT-201 (Sept. 2009)	LT-202 (Sept. 2008)	LT-202 (Sept. 2009)	LT-203 (Sept. 2008)	LT-203 (Sept. 2009)
Leachate (ug/L)							
Aluminum	87	220	BC	6000	423	3950	59.4J
Barium	3.9	29.7	21.2	36.4	17.3	48.1	7.6
Cadmium	0.88	2.2	2.0U	1	2.0U	1.3	2.0U
Chromium	11	BC	BC	49.3	1.1J	109	0.89J
Copper	2.36	5.6	1.1J	8.9	1.5J	19.3	1.1J
Iron	1000	31800	5560	30400	29500	41700	913J
Lead	0.41	0.99	BC	5.9	0.96U	6.1	BC
Manganese	120	897	750	1660	1780	2590	393
Nickel	13.4	BC	BC	30.6	BC	171	BC
Turbidity (NTU)	--	13.5	26.2	74.6	23	53.9	37.9
Leachate Sediment (mg/kg)							
Carbon Disulfide	0.0016	0.0061	0.0082UJ	0.0116	0.0036J	0.0185	0.015J
Antimony	0.16	0.55	51.5J	BC	2.5UJ	BC	2.4UJ
Arsenic	9.8	BC	2.6	35.1	2.7	72.5	2.8
Barium	0.7	15	12.9J	BC	27.2	103	32.4
Cobalt	10	BC	1.4J	BC	3.1J	16.5	2.7J
Iron	10000	BC	5430	11600	10100	276000	12400
Lead	35.8	46.1	54.4	BC	18.9	BC	14
Manganese	630	BC	47.5	BC	310	1710	185
Mercury	0.18	1.8	0.70	1.8	1.6	0.61	0.98
Selenium	0.29	BC	0.43J	0.7	0.58J	BC	0.93J

* BC indicates sample result below RBESV criteria.

A comparison of the overall sampling results from LT-203 (upstream of the fill area and in an area of no groundwater impacts) and LT-201 (downgradient of the fill area) suggests minimal or no impacts from the interpreted fill area to the leachate seeps and leachate sediment. ECC (2009) references “slight

discoloration of the water along Mere Brook opposite and just downgradient of the leachate seeps" suggesting that the leachate seeps may be contributing to impacts in Mere Brook. However, surface water upstream (SW-15 and SW-16) of the likely discharge point from Site 2 to Mere Brook typically yields higher concentrations of inorganics than the surface water location (SW-07) located downstream of Site 2; therefore, these data indicate that Site 2 and the area north of Site 2 are not significant sources of inorganic contamination in Mere Brook surface water.

Iron and manganese are present in groundwater and in seeps exceeding NASB background and screening criteria. Metals such as iron and manganese, which are ubiquitous in nature, may be elevated due to acidic and anaerobic conditions present in the groundwater system. Elevated metals may also result from acid preservation required by the analytical method in samples that contain particulates. Turbidity, a measure of particulates, were high in leachate seep samples relative to groundwater samples, which likely contributed to elevated metals in these samples. Human and ecological receptors may come in contact with contaminants in leachate seeps and leachate sediments; however, access to the site is restricted, thereby limiting human exposure.

4.0 CONCLUSIONS AND RECOMMENDATIONS

The objectives of the Site 2 investigation were to: 1) investigate levels of inorganics in leachate seeps and VOCs in groundwater; 2) further delineate the boundaries of the landfill; and 3) provide an updated CSM. An updated CSM is presented in Section 3 of this report and is shown on Figure 3-8. Based on the results of this investigation, the areal extent of the landfill should incorporate the area that includes debris, shown in pink on Figures 3-2 through 3-7. This area includes materials identified potentially as ash and also contains debris likely associated with landfill operations.

Site 2 and the area north of Site 2 are not current sources of contamination to Mere Brook, based on the data presented in this report. While this investigation focused primarily on the area north of Site 2, groundwater samples were collected from existing and new wells located at Site 2, and results from seep and surface water sampling as part of the LTMP were discussed in this report. The only exceedance of background concentrations and screening criteria in groundwater was manganese. Elevated manganese concentrations may be related to low ORP and acidic conditions measured in groundwater.

The following conclusions summarize the findings of the Site 2 and area north of Site 2 field investigation:

1. The northern edge of Site 2 (former Orion Street Landfill) extends north of the previously mapped location. Materials encountered consisted of broken concrete, glass bottles, asphalt, and scrap metal (e.g., rebar, sheet metal, cable, wire, cans) in a matrix of sand and silt. The interpreted boundaries of the landfill are shown on Figure 3-2 (interpreted fill with debris area), based on a review of historic aerial photographs and results of geophysical surveys and soil investigations. Ash was observed in a layer up to 1.5 feet thick in the southeastern portion of the site and was mixed with debris at depths of up to 9.5 feet bgs. These materials occurred above the groundwater table.

2. Other fill materials encountered in the area north of the Site 2 landfill consisted of sand, silt, and widely-disseminated metal and asphalt. The areal extent of this fill unit is shown on Figure 3-2 (interpreted fill area). The thickness of this unit ranged from 4.5 to 8 feet (SB-02-306).

3. The Upper Sand (fine to medium sand) occurs beneath both fill units throughout the site and ranged in observed thickness from 6 to 27 feet.

4. The Transition Unit (interbedded fine sand, silt, and clay) underlies the Upper Sand and ranged in observed thickness from 7 to 19 feet.

5. The depth to groundwater ranged from approximately 5 to 22 feet bgs. Groundwater movement below the groundwater table (saturated zone) probably occurs preferentially through the Upper Sand and fine sand interbeds within the underlying Transition Unit. Groundwater flows beneath Site 2 and the area north of Site 2 to the east and the northeast toward Mere Brook. The direction of groundwater flow is consistent with topography and surface drainage at the site. Shallow groundwater from Site 2 and the area north of Site 2 discharges to seeps along a steep embankment located on the west side of Mere Brook and to Mere Brook.

6. Dioxin and furan concentrations detected in ash samples did not exceed MEDEP RAGs for Outside Construction Workers and Park User criteria.

7. VOCs detected in soil and groundwater samples were below screening criteria.

8. Five SVOCs detected in soil samples exceeded Maine RAG Park User criteria (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene) at two locations (SB-302, 0 to 2 feet; TP-02, 0.0 to 0.5 feet, and 1 to 2 feet); and slightly exceeded the Outdoor Commercial User criteria as shown in Table 3-1 and on Figure 3-4. At five other locations (SB-309, 0 to 2 feet; TP-01, 0.0 to 0.5 feet; TP-5, 1 to 2 feet; TP-6, 1 to 2 feet; TP-7, 3 to 4 feet), benzo(a)pyrene slightly exceeded the Park User criterion (44 ug/kg), but did not exceed the Commercial Worker criterion (350 ug/kg). Without exception, SVOC exceedances were not detected in samples collected from areas outside the interpreted fill with debris area (Figure 3-2 and Figure 3-4). Maximum SVOC exceedances were detected in soil samples collected from SB-02-302 (collected from 0 to 2 feet bgs) and test pit TP-02-02 (collected from 0 to 6 inches bgs).

9. For Upper Sand surface and subsurface soil samples, concentrations of aluminum, arsenic, iron, manganese, potassium, and silver are within NASB background concentrations. For Transition Unit soil samples, which are all subsurface soils, aluminum and vanadium concentrations, are within NASB background concentrations.

10. Nickel, mercury, and vanadium were the only metals exceeding NASB background and applicable MEDEP screening criteria (Commercial Worker and/or Park User) in soil samples collected at only two test pits located in the fill area (TP-02-02 and TP-02-11). Nickel exceeded NASB background and Park User criteria at TP-02-02 and TP-02-11. Vanadium exceeded Commercial Worker and Park User screening criteria at TP-02. Mercury slightly exceeded the Maine RAGs Park User criterion at TP-02-11, only.

11. Based on results of soil and groundwater samples collected during the 2008 investigation, the landfill boundary should include the area of interpreted fill shown in pink on Figures 3-2 through 3-7.

12. Iron and manganese concentrations in groundwater exceeded minimum drinking water screening criteria in samples collected from only two wells located north of the interpreted fill area (MW-02-305 and MW-02-310), and one well (MW-02-303) located within the interpreted fill area. Sodium concentrations exceeded the Maine drinking water criterion in three samples; however, sodium concentrations are similar to NASB background levels. Cobalt was detected in only one groundwater sample from MW-02-303 above NASB background and slightly above its Maine MEG (10 ug/L).

13. Iron and manganese in groundwater samples collected from three monitoring wells exceeded both NAS background and groundwater screening criteria (samples GW-2-303, -305, and -310). Under reducing conditions (low ORP values), solid forms of Fe^{3+} and Mn^{+4} are reduced to the soluble forms of Fe^{2+} and Mn^{2+}, resulting in elevated concentrations of these elements dissolved in groundwater. Iron and manganese are ubiquitous in nature.

14. Elevated concentrations of inorganics were detected in leachate seep and leachate sediment samples collected from upstream sample locations LT-202 and LT-203 during September 2008 and 2009. Aluminum, barium, cadmium, chromium, copper, iron, lead, manganese, and nickel were detected in leachate seep samples above the RBESV during September 2008 and September 2009. Metals concentrations in the leachate samples may be elevated due to the release of metals from particulates as a result of acid preservation required by the analytical method.

15. Arsenic, antimony, barium, cobalt, lead, iron, manganese, mercury, and selenium were detected in one or more of the leachate sediment samples at levels above the RBESV in September 2008 and September 2009.

16. Aluminum, barium, iron, lead, and manganese were at similar concentrations in the Mere Brook surface water samples collected upstream (SW-15 and SW-16) and downstream of Sites 1 and 3 (SW-04), and opposite the Site 2 landfill (SW-07) in September 2008 and in September 2009. In general, the similarity of analyte concentrations at upstream surface water locations (SW-15 and SW-16) compared with downstream locations, indicates that Site 2 and the area north of Site 2 are not significant sources of contaminant concentrations to Mere Brook.

17. Trace metals dissolved in groundwater under reducing conditions become oxidized upon reaching surface water. Trace metals can be oxidized and sorbed to iron and manganese oxides and hydroxides, thereby reducing their dissolved concentrations in water, but elevating their concentrations in particulates or sediment.

18. Carbon disulfide is the only VOC detected in each of the three leachate sediment samples collected in September 2008 and September 2009 at levels above the RBESV (ECC, 2009 and H&S, 2009b). Arsenic, antimony, barium, cobalt, iron, lead, manganese, mercury, and selenium were detected in one or more of the leachate sediment samples at levels above the RBESV in September 2008 (ECC, 2009). Mercury was detected in each of the leachate sediment samples at levels above the RBESV in 2008 and 2009. Mercury concentrations ranged from 0.61J to 1.8 mg/kg.

19. Since iron and manganese, which are ubiquitous in nature, are the only analytes detected in groundwater at concentrations above NASB background and screening criteria, Site 2 and the area north of Site 2 do not appear to be significant sources of other metals detected in the leachate seeps and leachate sediment.

20. Analyte concentrations are similar in surface water samples collected in both upstream (SW-15 and SW-16) and downstream (SW-07) from Site 2 and the area north of Site 2 in recent sampling events conducted in September 2008 and September 2008 (ECC, 2008a and H&S, 2009). Therefore, these results indicate that Site 2 and the area north of Site 2 are not significant sources of contamination to Mere Brook.

The following recommendations are based on the conclusions of the Site 2 and area north of Site 2 field investigation:

1. Consider advancing soil borings to better delineate the western edge of the landfill area north of Site 2.

2. Continue with the Minimal Action Alternative recommendations listed in the ROD, which included institutional controls, debris removal, environmental monitoring, and 5-year site reviews (Harding Lawson Associates, 1998).

3. Assess future use for Site 2. The ROD recommendation was based on the fact that Site 2 was a restricted area, groundwater was not used as a drinking water source, and Site 2 was not open to the public. Groundwater restrictions are in place and won't be used as a drinking water source.

Should the anticipated land use for Site 2 change from its current status, the ROD recommended alternative should be revisited, as necessary.

4. Update the site map to show the extent of the landfill based on the findings of this study.

TABLES

TABLE 2-1

TEST PIT SUMMARY
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE
PAGE 1 OF 2

Test Pit	Depth (ft)	Rationale	Observations	Samples Collected
TP-2-01	6	Investigate EM anomaly 4 in western part of the site	Fill (glass, scrap metal, asphalt, cement blocks, charcoal, aluminum can, headlight) in top 3 ft, fill to 5 ft bgs. Dark organic sand and tan-brown sand from 5 ft bgs to bottom of test pit (natural materials).	TP-2-01-0006 (0 to 6 inches) and TP-2-01-0203
TP-2-02	2.5	Investigate EM anomaly 1 in southeastern part of the site	Fill (asphalt, concrete) throughout test pit. Suspected ash from 1ft bgs to bottom of test pit. No natural material encountered.	TP-2-02-0006 (0 to 6 inches) and TP-2-02-0102
TP-2-03	7	Investigate EM anomaly 1 in southeastern part of the site	Fill (metal straps, concrete blocks, scrap metal, abundant plastic, pieces of fence, rubble, locker door). Suspected ash from 1 to 7 ft bgs. No natural material encountered.	NA
TP-2-04	6.6	Investigate EM anomaly 2, southeast of the former incinerator area	Fill (cans, steel bar, bottles, crushed drum, pipe, abundant metal debris) in top 4.5 ft Suspected ash from 2.5 to 4.5 ft bgs. Orange-tan silty sand from 4.5 ft bgs to bottom of test pit (natural materials).	TP-2-04-0304
TP-2-05	8	Investigate discrete EM anomaly	Fill (drum cover, metal scraps, concrete boulder, bottles) in top 3.5 ft. Suspected ash from 0.1 to 0.6 ft bgs. Orange silty sand from 3.5 ft bgs to bottom of test pit (natural materials).	TP-2-05-0102 and TP-2-05-0708
TP-2-06	4.5	Investigate discrete EM anomaly	Fill (concrete pieces, metal cables, bricks) to 2 ft. Dark organic layer underlain by orange silty sand from 2 ft bgs to bottom of test pit (natural materials).	TP-2-06-0102

TABLE 2-1

TEST PIT SUMMARY
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE
PAGE 2 OF 2

Test Pit	Depth (ft)	Rationale	Observations	Samples Collected
TP-2-07	7	Investigate EM anomaly 3, former incinerator area	Fill (abundant metal scraps, trash can, pipes, glass cans, bottles, burned wood, metal cable, and plastic debris) in top 6 ft. Suspected ash from 3 to 6 ft bgs. Organic layer underlain by orange-tan silty sand from 6 ft bgs to bottom of test pit (natural materials).	TP-2-07-0304 and TP-2-07-0607
TP-2-08	4	Investigate low resistivity anomaly	No man-made debris or ash noted. Perched water at 1.7 ft bgs. Sand and silt, some gravel from 0 to 1 foot bgs. Silty sand, trace clay from 1 to 4 feet bgs.	TP-2-08-0304
TP-2-09	6	Investigate whether an east-west ditch was natural or man-made	Sand and sand with silt throughout test pit (natural material).	TP-2-09-0506
TP-2-10	8	Investigate whether an east-west ditch was natural or man-made	Fill materials to 5 ft bgs. Orange-tan sand with some silt from 5 ft bgs to bottom of test pit (natural material).	TP-2-10-0405
TP-2-11	8	Investigate EM anomaly 3, former incinerator area	Fill to 5.5 ft. Orange-tan silty sand from 5.5 ft bgs to bottom of test pit (natural material).	TP-2-11-0405 and TP-2-11-0708

Abbreviations:
bgs - below ground surface
EM - electromagnetic survey
ft - feet

TABLE 2-2

SOIL BORING SUMMARY
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

Soil Boring	Depth (ft)	Rationale	Geologic Material	Samples Collected	Sample Rationale	Sample PID Reading (Headspace)	Well installed
SB-2-301	28	Vicinity of former incinerator area	Interpreted Fill (0.3-4.5 ft bgs) Upper Sand (4.5-16 ft bgs) Transition Unit (16-24 ft bgs) Presumpscot Clay (24-28 ft bgs)	SB-2-301-0406	Soil appeared darker	0.1	Yes
SB-2-302	32	Vicinity of former incinerator area	Interpreted Fill (0.8-5.5 ft bgs) Upper Sand (5.5-14 ft bgs) Transition Unit (14-28 ft bgs) Presumpscot Clay (28-32 ft bgs)	SB-2-302-0002	Elevated PID readings	8.4	Yes
SB-2-303	36	Vicinity of former incinerator area	Interpreted Fill (0-4.5 ft bgs) Upper Sand (4.5-13 ft bgs) Transition Unit (13-32 ft bgs) Presumpscot Clay (32-36 ft bgs)	SB-2-303-1214	Water table	0.1	Yes
SB-2-304	40	Upgradient of LT-201	Upper Sand (1-28 ft bgs) Transition Unit (28-36 ft bgs) Presumpscot Clay (36-40 ft bgs)	SB-2-304-1620	Water table	0.1	Yes
SB-2-305	25	Upgradient of LT-202	Intrepreted Fill (2.3-5.7 ft bgs) Upper Sand (5.7-17 ft bgs) Transistion Unit 17-25 ft bgs)	SB-5-305-0507	Soil appeared darker	ND	Yes
SB-2-306	28	Upgradient of LT-203	Interpreted Fill (1.3-8 ft bgs) Upper Sand (8-16.6 ft bgs) Transistion Unit (16.6-27 ft bgs) Presumpscot Clay (27-28 ft bgs)	SB-2-306-1620	Water table	ND	Yes
SB-2-307	22	Vicinity of leachate seeps	Upper Sand (0.8-6.2 ft bgs) Transition Unit (6.2-17 ft bgs) Presumpscot Clay (17-22 ft bgs)	SB-2-307-0507	Water table	ND	Yes
SB-2-308	20	Vicinity of leachate seeps	Upper Sand (0.5-9 ft bgs) Transition Unit (9-16 ft bgs) Presumpscot Clay (16-20 ft bgs)	SB-2-308-0003	Elevated PID readings	0.7	Yes
SB-2-309	30	Gather more information from MW-241 area	Interpreted Fill (0.3-1.5 ft bgs) Upper Sand (1.5-13.5 ft bgs) Transition Unit (13.5 -25 ft bgs) Presumpscot Clay (25-30 ft bgs)	SB-2-309-0002	Elevated PID readings	7.8	Yes
SB-2-310	50	Low resistivity anomaly	Poor recovery in upper 25 feet, fine to medium sand, organics noted. Transition Unit (25-38 ft bgs) Presumpscot Clay (38-50 ft bgs)	SB-2-310-0408	Elevated PID readings	46.4	Yes
SB-2-311	10	Thickness of suspected ash layer	Interpreted Fill (0.4-5 ft bgs) Upper Sand (5-10 ft bgs)	NA	NA	NA	No
SB-2-312	10	Thickness of suspected ash layer	Interpreted Fill (0.7-4.5 ft bgs) Upper Sand (4.5-10 ft bgs)	NA	NA	NA	No
SB-2-313	15	Thickness of suspected ash layer	Interpreted Fill (0.2-6.5 ft bgs) Suspected ash mixed in from 0-1 ft bgs and 6-6.5 ft. Upper Sand (6.5-15 ft bgs) Poor recovery in 5-10 ft sleeve-ash may extend below 6.5 ft, but no more than 10 ft bgs.	NA	NA	NA	No

Notes:
Please refer to Appendix D-2 for complete soil boring logs

Abbreviations:
bgs - below ground surface
ft - feet
NA = not applicable
ND = non-detect
PID - photoionization detector

TABLE 2-3

SAMPLE ANALYSIS SUMMARY
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

Location	Sample Interval Depth (ft bgs)	Material Sampled	VOCs	SVOCs	Pesticides/ PCBs	Metals	Dioxins
TP-2-01-0006	00-0.5	F	X	X	X	X	
TP-2-01-0203	02-03	A	X	X	X	X	
TP-2-02-0006	00-0.5	F	X	X	X	X	
TP-2-02-0102	01-02	A	X	X	X	X	X
TP-2-04-0304	03-04	A	X	X	X	X	X
TP-2-05-0102	01-02	F	X	X	X	X	
TP-2-05-0708	07-08	N	X	X	X	X	X
TP-2-06-0102	01-02	N	X	X	X	X	
TP-2-07-0304	03-04	A	X	X	X	X	X
TP-2-07-0607	06-07	N	X	X	X	X	
TP-2-08-0304	03-04	N	X	X	X	X	X
TP-2-09-0506	05-06	N	X	X	X	X	
TP-2-10-0405	04-05	F	X	X	X	X	
TP-2-11-0405	04-05	F	X	X	X	X	X
TP-2-11-0708	07-08	N	X	X	X	X	
SB-2-301-0406	04-06	N	X	X	X	X	
SB-2-302-0002	00-02	F	X	X	X	X	
SB-2-303-1214	12-14	N	X	X	X	X	
SB-2-304-1620	16-20	N	X	X	X	X	
SB-2-305-0507	05-07	N	X	X	X	X	
SB-2-306-1620	16-20	N	X	X	X	X	
SB-2-307-0507	05-07	N	X	X	X	X	
SB-2-308-0003	00-03	N	X	X	X	X	
SB-2-309-0002	00-02	N	X	X	X	X	
SB-2-310-0408	04-08	N	X	X	X	X	
SB-2-301	21	W	X	X	X	X	
SB-2-302	23	W	X	X	X	X	
SB-2-303	20	W	X	X	X	X	
SB-2-304	25	W	X	X	X	X	
SB-2-305	22	W	X	X	X	X	
SB-2-306	23	W	X	X	X	X	
SB-2-307	13.7	W	X	X	X	X	
SB-2-308	13.5	W	X	X	X	X	
SB-2-309	21.55	W	X	X	X	X	
SB-2-310	29	W	X	X	X	X	

Abbreviations:
A - Ash
F - Fill
N - Native Sand
W - Groundwater
ft bgs - feet below ground surface
PCBs - polychlorinated biphenyls
SVOCs - semivolatile organic compounds
VOCs - volatile organic compounds

TABLE 2-4

WELL CONSTRUCTION/WATER LEVEL SUMMARY
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

Well Identification	Year Installed	Aquifer Screened	Well Inside Diameter (in)	PVC Riser Elevation[1] (ft-msl)	Ground Elevation[1] (ft-msl)	Depth to Top of Well Screen (ft bgs)	Depth to Bottom of Well Screen (ft bgs)	Elevation of Top of Well Screen[1] (ft-msl)	Elevation of Bottom of Well Screen[1] (ft-msl)	Depth to Groundwater (ft from TPVC)	Groundwater Elevation[1] - October 21, 2008 (ft-msl)
MW-2-301	2008	Upper Sand/Transition Unit	1	55.71	53.77	11.5	21.5	42.27	32.27	19.32	36.39
MW-2-302	2008	Transition Unit	1	56.41	54.52	14.0	24.0	40.52	30.52	20.27	36.14
MW-2-303	2008	Upper Sand/Transition Unit	1	57.95	55.95	11.0	21.0	44.95	34.95	17.21	40.74
MW-2-304	2008	Upper Sand/Transition Unit	1	42.39	40.60	18.0	28.0	22.60	12.60	21.91	20.48
MW-2-305	2008	Upper Sand/Transition Unit	1	56.74	54.76	10.8	20.8	43.96	33.96	20.21	36.53
MW-2-306	2008	Upper Sand/Transition Unit	1	56.62	54.69	14.5	24.5	40.19	30.19	19.92	36.70
MW-2-307	2008	Upper Sand/Transition Unit	1	50.39	48.48	5.7	15.7	42.78	32.78	9.60	40.79
MW-2-308	2008	Upper Sand/Transition Unit	1	55.09	53.18	4.3	14.3	48.88	38.88	11.53	43.56
MW-2-309	2008	Transition Unit	1	26.46	24.52	14.5	24.5	10.02	0.02	4.99	21.47
MW-2-310	2008	Upper Sand/Transition Unit	1	55.50	53.46	21.9	31.9	31.56	21.56	19.36	36.14
Previously Installed Wells											
MW-103	1984	Upper Sand/Transition Unit	2	57.00	54.20	17.0	27.0	37.20	27.20	NA	NA
MW-104	1984	Upper Sand/Transition Unit	2	22.70	19.10	9.0	19.0	10.10	0.10	NA	NA
MW-212	1981	Transition Unit	2	50.11	48.10	11.0	16.0	37.10	32.10	NA	NA
MW-241	2000	Upper Sand/Transition Unit	2	28..9	25.70	2.0	12.0	23.70	13.70	NA	NA
MW-242	No available soil boring logs or well construction data										
Dyer's Gate			2							NA	NA

Note:
1) Elevations are based on feet mean sea level (NAVD 1988).

Abbreviations:
bgs - below ground surface
ft - feet
in - inches
NA - not applicable
NAVD - North American Vertical Datum
PVC - polyvinyl chloride
TPVC - top of PVC riser

TABLE 2-5

GROUNDWATER SAMPLING FIELD PARAMETERS (OCTOBER 2008)
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

Well Identification	Sample Date	Depth Sampled (ft bgs)	Pump Type Bladder/ Perisaltic	Initial Clock Time	Final Clock Time	Time of Reading	Depth to Water Below MP (ft)	Purge Rate (mL/min)	Cum. Volume Purged (gal)	Temp (^oC)	Spec. Cond. (mS/cm)	pH	ORP (mV)	DO (mg/L)	Turbidity (NTU)
MW-2-301	10/21/2008	21	Peristaltic	1035	1110	1040	19.32	160	0.2	11.02	61	5.18	113.6	8.13	46.8
						1110	19.32	160	1.4	10.73	61	5.02	172.7	7.68	0.3
MW-2-302	10/21/2008	23	Peristaltic	945	1035	955	20.8	110	0.3	10.10	190	5.24	64.0	3.11	8.7
						1030	20.82	110	1.3	10.24	170	5.11	160.1	4.21	1.5
MW-2-303	10/21/2008	20	Peristaltic	840	905	845	NR	190	0.3	11.01	236	5.19	55.7	3.80	13.5
						905	18.01	190	1.3	10.84	258	5.27	51.3	1.56	1.0
MW-2-304	10/21/2008	25	Peristaltic	1200	1235	1205	21.92	100	0.1	10.34	273	6.00	86.7	2.22	151
						1235	21.92	100	0.9	10.31	273	6.02	83.6	1.70	2.90
MW-2-305	10/20/2008	NR	Peristaltic	1035	1145	1040	NR	130	0.2	9.31	293	6.04	-103.5	12.60	90
						1145	NR	110	1.4	9.76	202	6.01	-72.6	7.01	8
MW-2-306	10/20/2008	23	Peristaltic	1305	1335	1310	NR	280	0.4	10.56	182	5.21	75.1	14.46	75
						1335	20.47	280	2.2	9.97	192	4.86	133.3	15.28	2.1
MW-2-307	10/20/2008	13.7	Peristaltic	1050	1135	1100	9.97	150	0.4	10.35	169	4.66	192.1	9.31	6.2
						1130	10.01	150	1.6	10.54	173	4.70	221.7	3.03	0.2
MW-2-308	10/20/2008	13.5	Peristaltic	1315	1435	1325	11.56	130	0.3	11.64	133	4.75	231.2	4.16	95.3
						1430	11.56	130	2.6	11.72	131	4.76	244.0	2.96	16.4
MW-2-309	10/22/2008	21.55	Peristaltic	820	1015	830	5.32	130	0.3	8.53	132	6.88	-126.9	0.70	140
						1010	5.32	130	3.8	8.40	124	7.09	-149.5	0.39	8.5
MW-2-310	10/21/2008	29	Peristaltic	1125	1208	1135	20.27	130	0.3	10.05	458	5.77	-92.5	1.99	19
						1205	20.11	100	1.3	10.14	442	5.79	-77.1	1.04	5.1

Abbreviations:
^oC - degrees Centigrade
µS/cm - microSiemens per centimeter
DO - dissolved oxygen
ft bgs - feet below ground surface
gal - gallons
mg/L - milligrams per liter
mL/min - milliliters per minute
MP - measuring point
mV - millivolts
NR - not reported
NTU - nephelometric turbidity units
ORP - oxidation reduction potential

TABLE 2-6

HYDRAULIC CONDUCTIVITY SUMMARY
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

Well Identification	Material Screened	K[1]		Geologic Materials[2]
		(cm/s)	(ft/d)	
MW-2-301	Upper Sand/Transition Unit	4.48E-04	1.27	Silty sands, fine sands
MW-2-302	Transition Unit	2.79E-04	0.79	Silty sands, fine sands
MW-2-303	Upper Sand/Transition Unit	2.74E-04	0.78	Silty sands, fine sands
MW-2-305	Upper Sand/Transition Unit	1.55E-04	0.44	Silty sands, fine sands
MW-2-306	Upper Sand/Transition Unit	4.23E-04	1.20	Silty sands, fine sands
MW-2-307	Upper Sand/Transition Unit	8.36E-04	2.37	Silty sands, fine sands
MW-2-308	Upper Sand/Transition Unit	5.10E-04	1.44	Silty sands, fine sands
MW-2-309	Transition Unit	4.78E-04	1.36	Silty sands, fine sands
MW-2-310	Upper Sand/Transition Unit	7.94E-05	0.22	Silty sands, fine sands
Minimum of Upper/Transition wells		7.94E-05	0.22	
Maximum of Upper/Transition Wells		8.36E-04	2.37	
Geometric Mean of Upper/Transition Wells		3.10E-04	0.88	
MinimumTransition wells		4.48E-04	1.27	
Maximum of Transition Wells		4.78E-04	1.36	
Geometric Mean of Transition Wells		1.88E-04	0.53	

Notes:

1) Hydraulic conductivity estimates using the Bouwer and Rice method (Aqtesolv).

2) Interpretation based on range of hydraulic conductivity values presented by Fetter (1994).

Abbreviations:

cm/s - centimeters per second

ft/d - feet per day

Reference: Fetter, C. W., 1994. Applied Hydrogeology. Prentice-Hall, Inc., pp. 98, 101-102; 243-256.

TABLE 3-1

SUMMARY OF ANALYTICAL DATA[1] - SOIL
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE
PAGE 1 OF 12

LOCATION	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs- Excavation or Construction Worker[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	SB-02-301	SB-02-302	SB-02-303	SB-02-304	SB-02-305
SAMPLE ID						SB-2-301-0406	SB-2-302-0002	SB-2-303-1214	SB-2-304-1620	SB-2-305-0507
TOP DEPTH						4	0	12	16	5
BOTTOM DEPTH						6	2	14	20	7
SAMPLE DATE						20081008	20081008	20081007	20081009	20081007
Volatile Organics (ug/kg)										
2-BUTANONE	10,000,000	10,000,000	10,000,000	NC	10,000,000	23 U	20 UJ	19 U	20 U	36 U
ACETONE	10,000,000	10,000,000	10,000,000	NC	10,000,000	23 U	20 UJ	11 J	20 U	240
BENZENE	86,000	28,000	30,000	510	510	4 U	4 UJ	4 U	4 U	7 U
CARBON DISULFIDE	10,000,000	5,700,000	6,100,000	NC	5,700,000	4 U	4 UJ	4 U	4 U	7 U
CHLOROFORM	140,000	75,000	740,000	NC	75,000	4 U	4 UJ	4 U	4 U	7 U
ETHYLBENZENE	420,000	210,000	2,700,000	810	810	4 U	4 UJ	4 U	4 U	7 U
TETRACHLOROETHENE	8,800	4,400	10,000,000	430	430	4 UJ	4 UJ	4 U	4 UJ	7 U
TOLUENE	10,000,000	4,500,000	10,000,000	8,100	8,100	4 U	4 UJ	4 U	4 U	7 U
Semivolatile Organics (ug/kg)										
ACENAPHTHENE	2,000,000	1,600,000	110,000	170,000	110,000	500 U	360 U	390 U	360 U	450 U
ANTHRACENE	7,800,000	7,200,000	430,000	2,400,000	430,000	500 U	100 J	390 U	360 U	450 U
BENZALDEHYDE	NC	NC	NC	NC	NC	500 UJ	360 UJ	390 UJ	360 UJ	510 J
BENZO(A)ANTHRACENE	3,500	440	43,000	NC	440	10 J	**560**	24 U	22 U	8.7 J
BENZO(A)PYRENE	350	44	4,300	NC	44	11 J	**530 J**	24 UJ	22 UJ	28 UJ
BENZO(B)FLUORANTHENE	3,500	440	43,000	NC	440	24 J	**690 J**	24 U	22 UJ	28 U
BENZO(G,H,I)PERYLENE	5,500,000	1,200,000	10,000,000	NC	1,200,000	500 U	260 J	390 U	360 U	450 U
BENZO(K)FLUORANTHENE	35,000	4,400	430,000	NC	4,400	500 UJ	430 J	390 UJ	360 UJ	450 UJ
BIS(2-ETHYLHEXYL)PHTHALATE	210,000	130,000	2,400,000	NC	130,000	500 U	190 J	390 U	360 U	450 U
CARBAZOLE	NC	NC	NC	NC	NC	500 U	360 U	390 U	360 U	450 U
CHRYSENE	350,000	44,000	180,000	NC	44,000	500 U	450	390 U	360 U	450 U
DIBENZO(A,H)ANTHRACENE	350	44	4,300	NC	44	30 UJ	**140 J**	24 UJ	22 UJ	28 UJ
DIBENZOFURAN	NC	NC	NC	NC	NC	500 U	360 U	390 U	360 U	450 U
FLUORANTHENE	7,300,000	1,700,000	10,000,000	NC	1,700,000	500 U	880	390 U	360 U	450 U
FLUORENE	2,700,000	1,400,000	200,000	120,000	120,000	500 U	360 U	390 U	360 U	450 U
INDENO(1,2,3-CD)PYRENE	3,500	440	43,000	NC	440	21 J	410	24 U	22 U	19 J
NAPHTHALENE	200,000	330,000	32,000	1,700	1,700	500 U	360 U	390 U	360 U	450 U
PENTACHLOROPHENOL	15,000	11,000	35,000	NC	11,000	46 UJ	17 J	36 UJ	33 UJ	41 UJ
PHENANTHRENE	3,600,000	1,200,000	470,000	97,000	97,000	500 U	560	390 U	360 U	450 U
PYRENE	5,500,000	1,200,000	10,000,000	NC	1,200,000	500 U	990	390 U	360 U	450 U
Pesticides/PCBs (ug/kg)										
4,4'-DDD	12,000	7,500	140,000	NC	7,500	3.8 J	38 J	3.9 U	3.6 U	3.4 J
4,4'-DDE	8,500	5,300	98,000	NC	5,300	0.92 J	23 J	3.9 UJ	3.6 U	1.6 J
4,4'-DDT	12,000	6,400	28,000	NC	6,400	1.7 J	68 J	3.9 U	0.92 J	2.6 J
ALPHA-CHLORDANE[3]	11,000	6,000	33,000	NC	6,000	2.6 U	1.7 J	2 UJ	1.8 U	2.3 UJ
ENDOSULFAN II	1,200,000	270,000	290,000	NC	270,000	5 U	3.6 UJ	3.9 U	3.6 U	0.86 J
ENDRIN	62,000	13,000	95,000	NC	13,000	5 U	3.6 UJ	3.9 UJ	3.6 U	4.5 UJ
ENDRIN ALDEHYDE	NC	NC	NC	NC	NC	5 U	3.6 UJ	3.9 U	3.6 U	4.5 U
GAMMA-CHLORDANE[3]	11,000	6,000	33,000	NC	6,000	2.6 U	1.7 J	2 UJ	1.8 U	2.3 UJ
HEPTACHLOR EPOXIDE	320	200	620	NC	200	2.6 U	1.8 UJ	2 UJ	1.8 U	2.3 UJ

TABLE 3-1

SUMMARY OF ANALYTICAL DATA[1] - SOIL
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

LOCATION	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs- Excavation or Construction Worker[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	SB-02-301	SB-02-302	SB-02-303	SB-02-304	SB-02-305
SAMPLE ID						SB-2-301-0406	SB-2-302-0002	SB-2-303-1214	SB-2-304-1620	SB-2-305-0507
TOP DEPTH						4	0	12	16	5
BOTTOM DEPTH						6	2	14	20	7
SAMPLE DATE						20081008	20081008	20081007	20081009	20081007
Inorganics (mg/kg)										
ALUMINUM	340,000	57,000	61,000	NC	57,000	11200	8300	7050	4520	8780
ANTIMONY	140	23	25	NC	23	0.05 UJ	0.1 UJ	0.05 UJ	0.05 UJ	0.17 J
ARSENIC	0.42	0.23	4	NC	0.23	**1.5 J**	**3 J**	**1.9**	**1.9 J**	**1.5**
BARIUM	10,000	10,000	10,000	NC	10,000	13.8	32.7	26.5	18.7	13.8
BERYLLIUM	680	110	120	NC	110	0.45 J	0.45	0.44	0.25 J	0.39 J
CADMIUM	19	3.6	3.9	NC	3.6	0.05 UJ	0.38 J	0.01 U	0.02 UJ	0.01 UJ
CALCIUM	NC	NC	NC	NC	NC	679 J	3380 J	1300	990 J	352
CHROMIUM[4]	10,000	10,000	10,000	NC	10,000	7.9 J	22.6 J	11.4	7.9 J	8
COBALT	100	17	180	NC	17	1.4 J	3.5	3.6	3	2.4 J
COPPER	4,800	790	870	NC	790	3 J	17.4 J	8.5	5.6 J	4.1
IRON	240,000	40,000	43,000	NC	40,000	7200	11200	10800 J	8000	5940 J
LEAD	560	280	950	NC	280	8	75.5	3.4 J	2.3	6.3 J
MAGNESIUM	NC	NC	NC	NC	NC	659	1840	2700	1950	925
MANGANESE	8,000	1,400	1,500	NC	1,400	73.1 J	128 J	135 J	133 J	57.1 J
MERCURY	100	17	190	NC	17	0.04 J	1.2 J	0.01 U	0.01 U	0.05
NICKEL	1,000	170	190	NC	170	4	12.8	9.1	6.8	5.6
POTASSIUM	NC	NC	NC	NC	NC	284	912	1580	1110	409
SILVER	1,700	280	310	NC	280	0.08 UJ	0.87 J	0.06 UJ	0.1 UJ	0.07 U
SODIUM	NC	NC	NC	NC	NC	51.6 J	198 J	79.7 UJ	70.3 J	40.1 UJ
VANADIUM	2,400	400	430	NC	400	15.7	18.8	19.2	13.5	15.2
ZINC	10,000	10,000	10,000	NC	10,000	17 J	64.3 J	20.8 J	16.6 J	15.2 J

Notes:

1. This table contains the detect and non-detect results for all parameters detected in at least one sample in this media subgroup. Complete results for all parameters are presented in Appendix E.
2. Maine RAGs - Maine Remedial Action Guidelines for Contaminated Soil, January 13, 2010 (Appendix 2 - Incremental Lifetime Cancer Risk = 1E-06; Hazard Quotent -0.2)
3. Value for Chlordane was substituted.
4. Value for Chromium (III) was substituted.

Black background/White print - Criteria Exceeded
Grey Background - Detected
U - Not Detected
UJ - Detection Limit Approximate
J - Quantitation Limit Approximate
NC - Criterion not available

TABLE 3-1

SUMMARY OF ANALYTICAL DATA[1] - SOIL
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE
PAGE 3 OF 12

LOCATION	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs- Excavation or Construction Worker[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	SB-02-306	SB-02-307	SB-02-308	SB-02-309	SB-02-309
SAMPLE ID						SB-2-306-1620	SB-2-307-0507	SB-2-308-0003	SB-2-309-0002	SB-2-309-0002-AVG
TOP DEPTH						16	5	0	0	0
BOTTOM DEPTH						20	7	3	2	2
SAMPLE DATE						20081007	20081006	20081006	20081008	20081008
Volatile Organics (ug/kg)										
2-BUTANONE	10,000,000	10,000,000	10,000,000	NC	10,000,000	18 U	17 U	19 U	20 U	21 U
ACETONE	10,000,000	10,000,000	10,000,000	NC	10,000,000	18 U	17	27	100 J	55.5 J
BENZENE	86,000	28,000	30,000	510	510	4 U	3 U	4 U	4 U	4 U
CARBON DISULFIDE	10,000,000	5,700,000	6,100,000	NC	5,700,000	4 U	3 U	4 U	4 U	4 U
CHLOROFORM	140,000	75,000	740,000	NC	75,000	4 U	3 U	4 U	4 U	4 U
ETHYLBENZENE	420,000	210,000	2,700,000	810	810	4 U	3 U	4 U	4 U	4 U
TETRACHLOROETHENE	8,800	4,400	10,000,000	430	430	4 U	3 U	4 U	4 U	4 UJ
TOLUENE	10,000,000	4,500,000	10,000,000	8,100	8,100	4 U	3 U	4 U	4 U	4 U
Semivolatile Organics (ug/kg)										
ACENAPHTHENE	2,000,000	1,600,000	110,000	170,000	110,000	410 U	360 U	380 U	450 U	450 U
ANTHRACENE	7,800,000	7,200,000	430,000	2,400,000	430,000	410 U	360 U	380 U	450 U	450 U
BENZALDEHYDE	NC	NC	NC	NC	NC	410 UJ	360 UJ	380 UJ	450 UJ	450 UJ
BENZO(A)ANTHRACENE	3,500	440	43,000	NC	440	25 U	22 U	2.5 J	49	51.5
BENZO(A)PYRENE	350	44	4,300	NC	44	25 UJ	22 UJ	23 UJ	**54 J**	**56.5 J**
BENZO(B)FLUORANTHENE	3,500	440	43,000	NC	440	25 U	22 U	23 U	81 J	83.5 J
BENZO(G,H,I)PERYLENE	5,500,000	1,200,000	10,000,000	NC	1,200,000	410 U	360 U	380 U	450 U	450 U
BENZO(K)FLUORANTHENE	35,000	4,400	430,000	NC	4,400	410 UJ	360 UJ	380 UJ	450 UJ	450 UJ
BIS(2-ETHYLHEXYL)PHTHALATE	210,000	130,000	2,400,000	NC	130,000	410 U	360 U	380 U	450 U	450 U
CARBAZOLE	NC	NC	NC	NC	NC	410 U	360 U	380 U	450 U	450 U
CHRYSENE	350,000	44,000	180,000	NC	44,000	410 U	360 U	380 U	450 U	450 U
DIBENZO(A,H)ANTHRACENE	350	44	4,300	NC	44	25 UJ	22 UJ	23 UJ	17 J	18.5 J
DIBENZOFURAN	NC	NC	NC	NC	NC	410 U	360 U	380 U	450 U	450 U
FLUORANTHENE	7,300,000	1,700,000	10,000,000	NC	1,700,000	410 U	360 U	380 U	450 U	450 U
FLUORENE	2,700,000	1,400,000	200,000	120,000	120,000	410 U	360 U	380 U	450 U	450 U
INDENO(1,2,3-CD)PYRENE	3,500	440	43,000	NC	440	9.4 J	22 U	10 J	54	56.5
NAPHTHALENE	200,000	330,000	32,000	1,700	1,700	410 U	360 U	380 U	450 U	450 U
PENTACHLOROPHENOL	15,000	11,000	35,000	NC	11,000	37 UJ	33 UJ	35 UJ	41 UJ	41 UJ
PHENANTHRENE	3,600,000	1,200,000	470,000	97,000	97,000	410 U	360 U	380 U	450 U	450 U
PYRENE	5,500,000	1,200,000	10,000,000	NC	1,200,000	410 U	360 U	380 U	450 U	450 U
Pesticides/PCBs (ug/kg)										
4,4'-DDD	12,000	7,500	140,000	NC	7,500	4.1 U	3.6 U	3.8 U	14	11.8
4,4'-DDE	8,500	5,300	98,000	NC	5,300	4.1 UJ	3.6 UJ	3.8 UJ	86	70.5
4,4'-DDT	12,000	6,400	28,000	NC	6,400	4.1 U	3.6 U	3.8 U	95 J	102 J
ALPHA-CHLORDANE[3]	11,000	6,000	33,000	NC	6,000	2.1 UJ	1.9 UJ	2 UJ	0.83 J	0.735 J
ENDOSULFAN II	1,200,000	270,000	290,000	NC	270,000	4.1 U	3.6 U	3.8 U	4.5 U	4.5 U
ENDRIN	62,000	13,000	95,000	NC	13,000	4.1 UJ	3.6 UJ	3.8 UJ	4.5 U	4.5 U
ENDRIN ALDEHYDE	NC	NC	NC	NC	NC	4.1 U	3.6 U	3.8 U	4.5 U	4.5 U
GAMMA-CHLORDANE[3]	11,000	6,000	33,000	NC	6,000	2.1 UJ	1.9 UJ	2 UJ	1 J	0.965 J
HEPTACHLOR EPOXIDE	320	200	620	NC	200	2.1 UJ	1.9 UJ	2 UJ	2.3 U	2.3 U

TABLE 3-1

SUMMARY OF ANALYTICAL DATA[1] - SOIL
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

LOCATION	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs- Excavation or Construction Worker[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	SB-02-306	SB-02-307	SB-02-308	SB-02-309	SB-02-309
SAMPLE ID						SB-2-306-1620	SB-2-307-0507	SB-2-308-0003	SB-2-309-0002	SB-2-309-0002-AVG
TOP DEPTH						16	5	0	0	0
BOTTOM DEPTH						20	7	3	2	2
SAMPLE DATE						20081007	20081006	20081006	20081008	20081008
Inorganics (mg/kg)										
ALUMINUM	340,000	57,000	61,000	NC	57,000	7890	3440	11000	24300	24000
ANTIMONY	140	23	25	NC	23	0.16 UJ	0.05 J	0.14 J	0.09 UJ	0.105 UJ
ARSENIC	0.42	0.23	4	NC	0.23	**1.6**	**2**	**1.9**	**6.9 J**	**6.8 J**
BARIUM	10,000	10,000	10,000	NC	10,000	32.8	11	19.8	94.6	94.2
BERYLLIUM	680	110	120	NC	110	0.35 J	0.26 J	0.54	1.1	1.1
CADMIUM	19	3.6	3.9	NC	3.6	0.01 U	0.01 U	0.01 U	0.19 UJ	0.235 UJ
CALCIUM	NC	NC	NC	NC	NC	1310	559	358	2400 J	2400 J
CHROMIUM[4]	10,000	10,000	10,000	NC	10,000	14.5	6.3	11.9	40.7 J	40.8 J
COBALT	100	17	180	NC	17	4.8	2.4 J	3.8	12.9	12.4
COPPER	4,800	790	870	NC	790	10	5.2	5.9	31.1 J	30.7 J
IRON	240,000	40,000	43,000	NC	40,000	12000 J	6550 J	10000 J	29700	29200
LEAD	560	280	950	NC	280	3.3 J	2.5 J	5.7 J	22.6	25.6
MAGNESIUM	NC	NC	NC	NC	NC	3260	1460	1710	7640	7480
MANGANESE	8,000	1,400	1,500	NC	1,400	190 J	123 J	119 J	613 J	518 J
MERCURY	100	17	190	NC	17	0.01 U	0.01 U	0.02 UJ	0.3 J	0.485 J
NICKEL	1,000	170	190	NC	170	10.7	6.5	9.5	37.8	37.1
POTASSIUM	NC	NC	NC	NC	NC	1960	829	803	4190	4220
SILVER	1,700	280	310	NC	280	0.06 UJ	0.06 U	0.06 U	0.11 UJ	0.13 UJ
SODIUM	NC	NC	NC	NC	NC	91 UJ	46.7 UJ	54.8 UJ	212 J	211 J
VANADIUM	2,400	400	430	NC	400	22	9.4	17.5	66.5	68.6
ZINC	10,000	10,000	10,000	NC	10,000	26.3 J	14 J	20 J	84.2 J	89.9 J

Notes:

1. This table contains the detect and non-detect results for all parameters detected in at least one sample in this media subgroup. Complete results for all parameters are presented in Appendix E.
2. Maine RAGs - Maine Remedial Action Guidelines for Contaminated Soil, January 13, 2010 (Appendix 2 - Incremental Lifetime Cancer Risk = 1E-06; Hazard Quotent -0.2)
3. Value for Chlordane was substituted.
4. Value for Chromium (III) was substituted.

Black background/White print - Criteria Exceeded
Grey Background - Detected
U - Not Detected
UJ - Detection Limit Approximate
J - Quantitation Limit Approximate
NC - Criterion not available

TABLE 3-1

SUMMARY OF ANALYTICAL DATA[1] - SOIL
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE
PAGE 5 OF 12

LOCATION	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs- Excavation or Construction Worker[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	SB-02-309	SB-02-310	SB-02-310	SB-02-310	TP-02-01
SAMPLE ID						SB-2-309-0002-D	SB-2-310-0406	SB-2-310-0406-AVG	SB-2-310-0406-D	TP-2-01-0006
TOP DEPTH						0	4	4	4	0
BOTTOM DEPTH						2	6	6	6	0.5
SAMPLE DATE						20081008	20081009	20081009	20081009	20081001
Volatile Organics (ug/kg)										
2-BUTANONE	10,000,000	10,000,000	10,000,000	NC	10,000,000	22 U	20 U	21 U	22 U	22 U
ACETONE	10,000,000	10,000,000	10,000,000	NC	10,000,000	22 UJ	89	90.5	92	170
BENZENE	86,000	28,000	30,000	510	510	4 U	2 J	2 J	2 J	2 J
CARBON DISULFIDE	10,000,000	5,700,000	6,100,000	NC	5,700,000	4 U	4 U	4 U	4 U	4 U
CHLOROFORM	140,000	75,000	740,000	NC	75,000	4 U	4 U	4 U	4 U	4 U
ETHYLBENZENE	420,000	210,000	2,700,000	810	810	4 U	1 J	1.5 J	2 J	4 U
TETRACHLOROETHENE	8,800	4,400	10,000,000	430	430	4 UJ	4 UJ	4 UJ	4 UJ	4 U
TOLUENE	10,000,000	4,500,000	10,000,000	8,100	8,100	4 U	4 U	4 U	4 U	2 J
Semivolatile Organics (ug/kg)										
ACENAPHTHENE	2,000,000	1,600,000	110,000	170,000	110,000	450 U	420 U	425 U	430 U	390 U
ANTHRACENE	7,800,000	7,200,000	430,000	2,400,000	430,000	450 U	420 U	425 U	430 U	390 U
BENZALDEHYDE	NC	NC	NC	NC	NC	450 UJ	420 UJ	425 UJ	430 UJ	390 UJ
BENZO(A)ANTHRACENE	3,500	440	43,000	NC	440	54	26	30	34	50
BENZO(A)PYRENE	350	44	4,300	NC	44	**59 J**	30 J	34 J	38 J	**52**
BENZO(B)FLUORANTHENE	3,500	440	43,000	NC	440	86 J	52 J	56 J	60 J	120
BENZO(G,H,I)PERYLENE	5,500,000	1,200,000	10,000,000	NC	1,200,000	450 U	420 U	425 U	430 U	390 U
BENZO(K)FLUORANTHENE	35,000	4,400	430,000	NC	4,400	450 UJ	420 UJ	425 UJ	430 UJ	390 U
BIS(2-ETHYLHEXYL)PHTHALATE	210,000	130,000	2,400,000	NC	130,000	450 U	420 U	425 U	430 U	390 U
CARBAZOLE	NC	NC	NC	NC	NC	450 U	420 U	425 U	430 U	390 U
CHRYSENE	350,000	44,000	180,000	NC	44,000	450 U	420 U	425 U	430 U	390 UJ
DIBENZO(A,H)ANTHRACENE	350	44	4,300	NC	44	20 J	9.2 J	10.6 J	12 J	21 J
DIBENZOFURAN	NC	NC	NC	NC	NC	450 U	420 U	425 U	430 U	390 U
FLUORANTHENE	7,300,000	1,700,000	10,000,000	NC	1,700,000	450 U	420 U	425 U	430 U	390 UJ
FLUORENE	2,700,000	1,400,000	200,000	120,000	120,000	450 U	420 U	425 U	430 U	390 U
INDENO(1,2,3-CD)PYRENE	3,500	440	43,000	NC	440	59	30	34	38	54
NAPHTHALENE	200,000	330,000	32,000	1,700	1,700	450 U	420 U	425 U	430 U	390 U
PENTACHLOROPHENOL	15,000	11,000	35,000	NC	11,000	41 UJ	38 UJ	38.5 UJ	39 UJ	18 J
PHENANTHRENE	3,600,000	1,200,000	470,000	97,000	97,000	450 U	420 U	165 J	120 J	390 U
PYRENE	5,500,000	1,200,000	10,000,000	NC	1,200,000	450 U	420 U	175 J	140 J	390 U
Pesticides/PCBs (ug/kg)										
4,4'-DDD	12,000	7,500	140,000	NC	7,500	9.6	1 J	1.25 J	1.5 J	80
4,4'-DDE	8,500	5,300	98,000	NC	5,300	55	4.2 U	4.25 U	4.3 U	960 J
4,4'-DDT	12,000	6,400	28,000	NC	6,400	110	1.3 J	1.72 J	4.3 U	2300
ALPHA-CHLORDANE[3]	11,000	6,000	33,000	NC	6,000	0.64 J	2.2 U	2.2 U	2.2 U	10 U
ENDOSULFAN II	1,200,000	270,000	290,000	NC	270,000	4.5 U	4.2 U	4.25 U	4.3 U	19 U
ENDRIN	62,000	13,000	95,000	NC	13,000	4.5 U	4.2 U	4.25 U	4.3 U	19 U
ENDRIN ALDEHYDE	NC	NC	NC	NC	NC	4.5 U	4.2 U	4.25 U	4.3 U	19 U
GAMMA-CHLORDANE[3]	11,000	6,000	33,000	NC	6,000	0.93 J	2.2 U	2.2 U	2.2 U	10 U
HEPTACHLOR EPOXIDE	320	200	620	NC	200	2.3 U	2.2 U	2.2 U	2.2 U	10 UJ

TABLE 3-1

SUMMARY OF ANALYTICAL DATA[1] - SOIL
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

LOCATION	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs- Excavation or Construction Worker[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	SB-02-309	SB-02-310	SB-02-310	SB-02-310	TP-02-01
SAMPLE ID						SB-2-309-0002-D	SB-2-310-0406	SB-2-310-0406-AVG	SB-2-310-0406-D	TP-2-01-0006
TOP DEPTH						0	4	4	4	0
BOTTOM DEPTH						2	6	6	6	0.5
SAMPLE DATE						20081008	20081009	20081009	20081009	20081001
Inorganics (mg/kg)										
ALUMINUM	340,000	57,000	61,000	NC	57,000	23800	8610	8860	9110	6920
ANTIMONY	140	23	25	NC	23	0.12 UJ	0.07 UJ	0.06 UJ	0.05 UJ	1.8 J
ARSENIC	0.42	0.23	4	NC	0.23	**6.7 J**	**1.3 J**	**1.35 J**	**1.4 J**	**2.9**
BARIUM	10,000	10,000	10,000	NC	10,000	93.9	12.9	13.2	13.4	109
BERYLLIUM	680	110	120	NC	110	1.1	0.35 J	0.365 J	0.38 J	0.29 J
CADMIUM	19	3.6	3.9	NC	3.6	0.28 UJ	0.04 UJ	0.045 UJ	0.05 UJ	2
CALCIUM	NC	NC	NC	NC	NC	2400 J	338 J	353 J	368 J	1400
CHROMIUM[4]	10,000	10,000	10,000	NC	10,000	41 J	6.7 J	6.95 J	7.2 J	37.4
COBALT	100	17	180	NC	17	12	1.6 J	1.55 J	1.5 J	3.3
COPPER	4,800	790	870	NC	790	30.3 J	3 J	3 J	3 J	244
IRON	240,000	40,000	43,000	NC	40,000	28800	7400	7450	7500	10200 J
LEAD	560	280	950	NC	280	28.7	6	6.1	6.2	175 J
MAGNESIUM	NC	NC	NC	NC	NC	7330	702	723	744	1570
MANGANESE	8,000	1,400	1,500	NC	1,400	423 J	96.7 J	92 J	87.3 J	212 J
MERCURY	100	17	190	NC	17	0.67 J	0.04 J	0.04 J	0.04 J	0.22
NICKEL	1,000	170	190	NC	170	36.4	3.7 J	3.8 J	3.9	15
POTASSIUM	NC	NC	NC	NC	NC	4240	314	333	352	912
SILVER	1,700	280	310	NC	280	0.15 UJ	0.15 UJ	0.14 UJ	0.13 UJ	3.2
SODIUM	NC	NC	NC	NC	NC	210 J	41.7 J	40.3 J	38.9 J	107 UJ
VANADIUM	2,400	400	430	NC	400	70.7	13.4	13.9	14.4	19
ZINC	10,000	10,000	10,000	NC	10,000	95.6 J	13.8 J	14.2 J	14.7 J	1310 J

Notes:

1. This table contains the detect and non-detect results for all parameters detected in at least one sample in this media subgroup. Complete results for all parameters are presented in Appendix E.
2. Maine RAGs - Maine Remedial Action Guidelines for Contaminated Soil, January 13, 2010 (Appendix 2 - Incremental Lifetime Cancer Risk = 1E-06; Hazard Quotent -0.2)
3. Value for Chlordane was substituted.
4. Value for Chromium (III) was substituted.

Black background/White print - Criteria Exceeded
Grey Background - Detected
U - Not Detected
UJ - Detection Limit Approximate
J - Quantitation Limit Approximate
NC - Criterion not available

TABLE 3-1

SUMMARY OF ANALYTICAL DATA[1] - SOIL
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE
PAGE 7 OF 12

LOCATION	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs- Excavation or Construction Worker[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	TP-02-01	TP-02-02	TP-02-02	TP-02-02	TP-02-02
SAMPLE ID						TP-2-01-0203	TP-2-02-0006	TP-2-02-0102	TP-2-02-0102-AVG	TP-2-02-0102-D
TOP DEPTH						2	0	1	1	1
BOTTOM DEPTH						3	0.5	2	2	2
SAMPLE DATE						20081001	20081001	20081001	20081001	20081001
Volatile Organics (ug/kg)										
2-BUTANONE	10,000,000	10,000,000	10,000,000	NC	10,000,000	18 U	22 U	53 U	56 U	59 U
ACETONE	10,000,000	10,000,000	10,000,000	NC	10,000,000	36	100	86	78	70
BENZENE	86,000	28,000	30,000	510	510	4 U	4 U	10 U	11 U	12 U
CARBON DISULFIDE	10,000,000	5,700,000	6,100,000	NC	5,700,000	4 U	4 U	10 U	8 J	11 J
CHLOROFORM	140,000	75,000	740,000	NC	75,000	4 U	4 U	10 U	11 U	12 U
ETHYLBENZENE	420,000	210,000	2,700,000	810	810	4 U	4 U	10 U	11 U	12 U
TETRACHLOROETHENE	8,800	4,400	10,000,000	430	430	4 U	4 U	10 U	11 U	12 U
TOLUENE	10,000,000	4,500,000	10,000,000	8,100	8,100	4 U	4 U	10 U	11 U	12 U
Semivolatile Organics (ug/kg)										
ACENAPHTHENE	2,000,000	1,600,000	110,000	170,000	110,000	370 U	320 J	690 U	755 U	820 U
ANTHRACENE	7,800,000	7,200,000	430,000	2,400,000	430,000	370 U	420	690 U	755 U	820 U
BENZALDEHYDE	NC	NC	NC	NC	NC	370 UJ	420 UJ	690 UJ	755 UJ	820 UJ
BENZO(A)ANTHRACENE	3,500	440	43,000	NC	440	23 U	**1400**	**640 J**	440 J	240 J
BENZO(A)PYRENE	350	44	4,300	NC	44	23 U	**1200**	**470 J**	**345 J**	**220 J**
BENZO(B)FLUORANTHENE	3,500	440	43,000	NC	440	23 U	25 U	**590**	**495 J**	400 J
BENZO(G,H,I)PERYLENE	5,500,000	1,200,000	10,000,000	NC	1,200,000	370 U	560	690 U	755 U	820 U
BENZO(K)FLUORANTHENE	35,000	4,400	430,000	NC	4,400	370 U	1100	520 J	400 J	280 J
BIS(2-ETHYLHEXYL)PHTHALATE	210,000	130,000	2,400,000	NC	130,000	370 U	130 J	690 U	755 U	820 U
CARBAZOLE	NC	NC	NC	NC	NC	370 U	250 J	690 U	755 U	820 U
CHRYSENE	350,000	44,000	180,000	NC	44,000	370 UJ	1200 J	690 J	470 J	250 J
DIBENZO(A,H)ANTHRACENE	350	44	4,300	NC	44	23 UJ	**390 J**	**160 J**	**114 J**	**68 J**
DIBENZOFURAN	NC	NC	NC	NC	NC	370 U	160 J	690 U	755 U	820 U
FLUORANTHENE	7,300,000	1,700,000	10,000,000	NC	1,700,000	370 UJ	2200 J	1400	930 J	460 J
FLUORENE	2,700,000	1,400,000	200,000	120,000	120,000	370 U	240 J	690 U	755 U	820 U
INDENO(1,2,3-CD)PYRENE	3,500	440	43,000	NC	440	23 U	**1000**	280	225 J	170 J
NAPHTHALENE	200,000	330,000	32,000	1,700	1,700	370 U	210 J	690 U	755 U	820 U
PENTACHLOROPHENOL	15,000	11,000	35,000	NC	11,000	34 U	38 U	63 U	68.5 U	74 U
PHENANTHRENE	3,600,000	1,200,000	470,000	97,000	97,000	370 U	2000	1200	715 J	230 J
PYRENE	5,500,000	1,200,000	10,000,000	NC	1,200,000	370 U	2800	1500	980 J	460 J
Pesticides/PCBs (ug/kg)										
4,4'-DDD	12,000	7,500	140,000	NC	7,500	3.7 U	22	5.4 J	9.7 J	14
4,4'-DDE	8,500	5,300	98,000	NC	5,300	0.99 J	460 J	24 J	32 J	40 J
4,4'-DDT	12,000	6,400	28,000	NC	6,400	1.8 J	1000	160	195	230
ALPHA-CHLORDANE[3]	11,000	6,000	33,000	NC	6,000	1.9 U	2.2 U	9.7 J	5.9 J	4.2 UJ
ENDOSULFAN II	1,200,000	270,000	290,000	NC	270,000	3.7 U	4.2 U	6.9 U	7.55 U	8.2 U
ENDRIN	62,000	13,000	95,000	NC	13,000	3.7 U	4.2 U	6.9 U	7.55 U	8.2 U
ENDRIN ALDEHYDE	NC	NC	NC	NC	NC	3.7 U	4.2 U	6.9 U	7.55 U	8.2 U
GAMMA-CHLORDANE[3]	11,000	6,000	33,000	NC	6,000	1.9 U	2.2 U	9.7 J	5.9 J	4.2 UJ
HEPTACHLOR EPOXIDE	320	200	620	NC	200	1.9 UJ	2.2 UJ	3.6 UJ	3.9 UJ	4.2 UJ

TABLE 3-1

SUMMARY OF ANALYTICAL DATA[1] - SOIL
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

LOCATION	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs- Excavation or Construction Worker[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	TP-02-01	TP-02-02	TP-02-02	TP-02-02	TP-02-02
SAMPLE ID						TP-2-01-0203	TP-2-02-0006	TP-2-02-0102	TP-2-02-0102-AVG	TP-2-02-0102-D
TOP DEPTH						2	0	1	1	1
BOTTOM DEPTH						3	0.5	2	2	2
SAMPLE DATE						20081001	20081001	20081001	20081001	20081001
Inorganics (mg/kg)										
ALUMINUM	340,000	57,000	61,000	NC	57,000	3150	9090	1450	1660	1870
ANTIMONY	140	23	25	NC	23	0.12 J	1.2 J	1.8 J	1.55 J	1.3 J
ARSENIC	0.42	0.23	4	NC	0.23	**0.85**	**5.4**	**4.6**	**3.55**	**2.5**
BARIUM	10,000	10,000	10,000	NC	10,000	5	64.6	51.2	49.8	48.5
BERYLLIUM	680	110	120	NC	110	0.18 J	0.61	0.02 U	0.02 U	0.02 U
CADMIUM	19	3.6	3.9	NC	3.6	0.01 U	2.2	0.08 UJ	0.095 UJ	0.11 UJ
CALCIUM	NC	NC	NC	NC	NC	289	2030	3270	4140	5000
CHROMIUM[4]	10,000	10,000	10,000	NC	10,000	3.3	28.5	10.1	11.6	13.1
COBALT	100	17	180	NC	17	0.53 J	6.1	4.8 J	4.8 J	4.8 J
COPPER	4,800	790	870	NC	790	1.9 J	94.5	48.2	40.7	33.2
IRON	240,000	40,000	43,000	NC	40,000	2820 J	13300 J	23000 J	15400 J	7740 J
LEAD	560	280	950	NC	280	2.8 J	105 J	53 J	88 J	123 J
MAGNESIUM	NC	NC	NC	NC	NC	509	2080	382	498	615
MANGANESE	8,000	1,400	1,500	NC	1,400	26.6 J	190 J	89.2 J	62.4 J	35.6 J
MERCURY	100	17	190	NC	17	0.01 U	0.36	0.26	0.275	0.29
NICKEL	1,000	170	190	NC	170	2 J	**389**	**510**	**520**	**530**
POTASSIUM	NC	NC	NC	NC	NC	287	1410	495 J	608 J	720
SILVER	1,700	280	310	NC	280	0.06 U	1.8 J	0.19 UJ	0.325 UJ	0.46 UJ
SODIUM	NC	NC	NC	NC	NC	32.3 UJ	133 UJ	149 UJ	99.2 J	124 J
VANADIUM	2,400	400	430	NC	400	6.1	**453**	**6030**	**5380**	**4730**
ZINC	10,000	10,000	10,000	NC	10,000	4.9 J	149 J	11.6 J	12 J	12.3 J

Notes:

1. This table contains the detect and non-detect results for all parameters detected in at least one sample in this media subgroup. Complete results for all parameters are presented in Appendix E.
2. Maine RAGs - Maine Remedial Action Guidelines for Contaminated Soil, January 13, 2010 (Appendix 2 - Incremental Lifetime Cancer Risk = 1E-06; Hazard Quotent -0.2)
3. Value for Chlordane was substituted.
4. Value for Chromium (III) was substituted.

Black background/White print - Criteria Exceeded
Grey Background - Detected
U - Not Detected
UJ - Detection Limit Approximate
J - Quantitation Limit Approximate
NC - Criterion not available

TABLE 3-1

SUMMARY OF ANALYTICAL DATA[1] - SOIL
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

LOCATION	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs- Excavation or Construction Worker[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	TP-02-04	TP-02-05	TP-02-05	TP-02-06	TP-02-07
SAMPLE ID						TP-2-04-0304	TP-2-05-0102	TP-2-05-0708	TP-2-06-0102	TP-2-07-0304
TOP DEPTH						3	1	7	1	3
BOTTOM DEPTH						4	2	8	2	4
SAMPLE DATE						20081001	20081002	20081002	20081002	20081002
Volatile Organics (ug/kg)										
2-BUTANONE	10,000,000	10,000,000	10,000,000	NC	10,000,000	63 UJ	28 U	26 U	18 U	21 U
ACETONE	10,000,000	10,000,000	10,000,000	NC	10,000,000	54 J	110	59	21	36
BENZENE	86,000	28,000	30,000	510	510	16 J	6 U	5 U	4 U	4 U
CARBON DISULFIDE	10,000,000	5,700,000	6,100,000	NC	5,700,000	12 UJ	6 U	5 U	4 U	4 U
CHLOROFORM	140,000	75,000	740,000	NC	75,000	10 J	6 U	5 U	4 U	4 U
ETHYLBENZENE	420,000	210,000	2,700,000	810	810	12 UJ	6 U	5 U	4 U	4 U
TETRACHLOROETHENE	8,800	4,400	10,000,000	430	430	10 J	6 U	5 U	4 U	4 U
TOLUENE	10,000,000	4,500,000	10,000,000	8,100	8,100	12 UJ	6 U	5 U	4 U	4 U
Semivolatile Organics (ug/kg)										
ACENAPHTHENE	2,000,000	1,600,000	110,000	170,000	110,000	640 UJ	400 U	410 U	360 U	390 U
ANTHRACENE	7,800,000	7,200,000	430,000	2,400,000	430,000	640 UJ	220 J	410 U	360 U	390 U
BENZALDEHYDE	NC	NC	NC	NC	NC	640 UJ	400 UJ	290 J	360 UJ	390 UJ
BENZO(A)ANTHRACENE	3,500	440	43,000	NC	440	63 J	80	7.2 J	76	180
BENZO(A)PYRENE	350	44	4,300	NC	44	41 J	**68**	7.8 J	**58**	**140**
BENZO(B)FLUORANTHENE	3,500	440	43,000	NC	440	87 J	96	27	64	160
BENZO(G,H,I)PERYLENE	5,500,000	1,200,000	10,000,000	NC	1,200,000	640 UJ	560	410 U	360 U	390 U
BENZO(K)FLUORANTHENE	35,000	4,400	430,000	NC	4,400	640 UJ	800 J	410 U	360 UJ	140 J
BIS(2-ETHYLHEXYL)PHTHALATE	210,000	130,000	2,400,000	NC	130,000	640 UJ	400 U	410 U	360 U	390 U
CARBAZOLE	NC	NC	NC	NC	NC	640 UJ	210 J	410 U	360 U	390 U
CHRYSENE	350,000	44,000	180,000	NC	44,000	640 UJ	1200	410 UJ	360 U	160 J
DIBENZO(A,H)ANTHRACENE	350	44	4,300	NC	44	12 J	21 J	25 UJ	11 J	44 J
DIBENZOFURAN	NC	NC	NC	NC	NC	640 UJ	400 U	410 U	360 U	390 U
FLUORANTHENE	7,300,000	1,700,000	10,000,000	NC	1,700,000	640 UJ	2400	410 UJ	160 J	330 J
FLUORENE	2,700,000	1,400,000	200,000	120,000	120,000	640 UJ	400 U	410 U	360 U	390 U
INDENO(1,2,3-CD)PYRENE	3,500	440	43,000	NC	440	34 J	55	16 J	39	96
NAPHTHALENE	200,000	330,000	32,000	1,700	1,700	640 UJ	400 U	410 U	360 U	390 U
PENTACHLOROPHENOL	15,000	11,000	35,000	NC	11,000	58 U	37 U	38 U	32 U	36 U
PHENANTHRENE	3,600,000	1,200,000	470,000	97,000	97,000	640 UJ	1000	410 U	140 J	280 J
PYRENE	5,500,000	1,200,000	10,000,000	NC	1,200,000	640 UJ	2000	410 U	140 J	370 J
Pesticides/PCBs (ug/kg)										
4,4'-DDD	12,000	7,500	140,000	NC	7,500	1.6 J	2.7 J	0.99 J	3.6 U	23
4,4'-DDE	8,500	5,300	98,000	NC	5,300	3.8 J	92 J	7.1 J	1.1 J	95 J
4,4'-DDT	12,000	6,400	28,000	NC	6,400	11 J	120	4.2	1.8 J	14
ALPHA-CHLORDANE[3]	11,000	6,000	33,000	NC	6,000	3.3 UJ	2.1 U	2.1 U	1.8 U	2 U
ENDOSULFAN II	1,200,000	270,000	290,000	NC	270,000	6.4 UJ	4 U	4.1 U	3.6 U	3.9 U
ENDRIN	62,000	13,000	95,000	NC	13,000	6.4 UJ	4 U	4.1 U	3.6 U	3.9 U
ENDRIN ALDEHYDE	NC	NC	NC	NC	NC	6.4 UJ	4 U	4.1 U	3.6 U	3.9 U
GAMMA-CHLORDANE[3]	11,000	6,000	33,000	NC	6,000	3.3 UJ	2.1 U	2.1 U	1.8 U	2 U
HEPTACHLOR EPOXIDE	320	200	620	NC	200	3.3 UJ	2.1 UJ	2.1 UJ	1.8 UJ	2 UJ

TABLE 3-1

SUMMARY OF ANALYTICAL DATA[1] - SOIL
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

LOCATION	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs- Excavation or Construction Worker[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	TP-02-04	TP-02-05	TP-02-05	TP-02-06	TP-02-07
SAMPLE ID						TP-2-04-0304	TP-2-05-0102	TP-2-05-0708	TP-2-06-0102	TP-2-07-0304
TOP DEPTH						3	1	7	1	3
BOTTOM DEPTH						4	2	8	2	4
SAMPLE DATE						20081001	20081002	20081002	20081002	20081002
Inorganics (mg/kg)										
ALUMINUM	340,000	57,000	61,000	NC	57,000	4390	6210	5380	4970	8010
ANTIMONY	140	23	25	NC	23	0.4 J	0.33 J	0.25 J	0.44 J	1.2 J
ARSENIC	0.42	0.23	4	NC	0.23	**7.6**	**2.5**	**2.4**	**1.9**	**3.6**
BARIUM	10,000	10,000	10,000	NC	10,000	97	31.4	12.8	14	52.8
BERYLLIUM	680	110	120	NC	110	1.5	0.4 J	0.15 UJ	0.26 J	0.32 J
CADMIUM	19	3.6	3.9	NC	3.6	1.5 J	0.31 J	0.01 UJ	0.01 U	1.2 J
CALCIUM	NC	NC	NC	NC	NC	4160	1000	243	3190	901
CHROMIUM[4]	10,000	10,000	10,000	NC	10,000	6.8	7.8	3.9	8.4	12.1
COBALT	100	17	180	NC	17	5.3	3	0.76 J	3.2	2.7
COPPER	4,800	790	870	NC	790	27.6	10.2	4.9	7	47.8
IRON	240,000	40,000	43,000	NC	40,000	8400 J	7690 J	6400 J	7280 J	17800 J
LEAD	560	280	950	NC	280	9.6 J	17.8 J	24.3 J	228 J	56.5 J
MAGNESIUM	NC	NC	NC	NC	NC	373	880	232	1640	1210
MANGANESE	8,000	1,400	1,500	NC	1,400	88.4 J	114 J	21.6 J	134 J	116 J
MERCURY	100	17	190	NC	17	0.13	0.32	0.06	0.02 UJ	0.84
NICKEL	1,000	170	190	NC	170	17	7.4	2.1 J	7.8	14.6
POTASSIUM	NC	NC	NC	NC	NC	738	500	121	843	592
SILVER	1,700	280	310	NC	280	0.12 U	0.45 J	0.07 U	0.06 U	0.67 J
SODIUM	NC	NC	NC	NC	NC	174 J	62.1 UJ	36.2 UJ	55.7 UJ	48.8 UJ
VANADIUM	2,400	400	430	NC	400	21.5	17.4	8.8	11.8	13.7
ZINC	10,000	10,000	10,000	NC	10,000	322 J	42.8 J	8.5 J	18 J	606 J

Notes:

1. This table contains the detect and non-detect results for all parameters detected in at least one sample in this media subgroup. Complete results for all parameters are presented in Appendix E.
2. Maine RAGs - Maine Remedial Action Guidelines for Contaminated Soil, January 13, 2010 (Appendix 2 - Incremental Lifetime Cancer Risk = 1E-06; Hazard Quotent -0.2)
3. Value for Chlordane was substituted.
4. Value for Chromium (III) was substituted.

Black background/White print - Criteria Exceeded
Grey Background - Detected
U - Not Detected
UJ - Detection Limit Approximate
J - Quantitation Limit Approximate
NC - Criterion not available

TABLE 3-1

SUMMARY OF ANALYTICAL DATA[1] - SOIL
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

LOCATION	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs- Excavation or Construction Worker[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	TP-02-07	TP-02-08	TP-02-09	TP-02-10	TP-02-11	TP-02-11
SAMPLE ID						TP-2-07-0607	TP-2-08-0304	TP-2-09-0506	TP-2-10-0405	TP-2-11-0405	TP-2-11-0708
TOP DEPTH						6	3	5	4	4	7
BOTTOM DEPTH						7	4	6	5	5	8
SAMPLE DATE						20081002	20081002	20081002	20081002	20081002	20081002
Volatile Organics (ug/kg)											
2-BUTANONE	10,000,000	10,000,000	10,000,000	NC	10,000,000	18 U	16 J	17 U	10 J	11 J	17 U
ACETONE	10,000,000	10,000,000	10,000,000	NC	10,000,000	110	130	32	200	200	17 U
BENZENE	86,000	28,000	30,000	510	510	4 U	4 U	3 U	4 U	4 U	3 U
CARBON DISULFIDE	10,000,000	5,700,000	6,100,000	NC	5,700,000	4 U	4 U	3 U	4 U	4 U	3 U
CHLOROFORM	140,000	75,000	740,000	NC	75,000	4 U	4 U	3 U	4 U	4 U	3 U
ETHYLBENZENE	420,000	210,000	2,700,000	810	810	4 U	2 J	3 U	4 U	4 U	3 U
TETRACHLOROETHENE	8,800	4,400	10,000,000	430	430	4 U	4 U	3 U	4 U	4 U	3 U
TOLUENE	10,000,000	4,500,000	10,000,000	8,100	8,100	4 U	3 J	3 U	4 U	4 U	3 U
Semivolatile Organics (ug/kg)											
ACENAPHTHENE	2,000,000	1,600,000	110,000	170,000	110,000	390 U	420 U	400 U	420 U	400 U	350 U
ANTHRACENE	7,800,000	7,200,000	430,000	2,400,000	430,000	390 U	420 U	400 U	420 U	400 U	350 U
BENZALDEHYDE	NC	NC	NC	NC	NC	390 UJ	420 UJ	400 UJ	230 J	230 J	350 UJ
BENZO(A)ANTHRACENE	3,500	440	43,000	NC	440	24 U	7.1 J	24 U	16 J	34	21 U
BENZO(A)PYRENE	350	44	4,300	NC	44	24 U	9.4 J	24 U	23 J	41	21 U
BENZO(B)FLUORANTHENE	3,500	440	43,000	NC	440	24 UJ	25 UJ	24 UJ	25 U	79 J	21 UJ
BENZO(G,H,I)PERYLENE	5,500,000	1,200,000	10,000,000	NC	1,200,000	390 U	420 U	400 U	420 U	400 U	350 U
BENZO(K)FLUORANTHENE	35,000	4,400	430,000	NC	4,400	390 U	420 UJ	400 UJ	420 UJ	400 U	350 U
BIS(2-ETHYLHEXYL)PHTHALATE	210,000	130,000	2,400,000	NC	130,000	390 U	420 U	400 U	420 U	400 U	350 U
CARBAZOLE	NC	NC	NC	NC	NC	390 U	420 U	400 U	420 U	400 U	350 U
CHRYSENE	350,000	44,000	180,000	NC	44,000	390 UJ	420 U	400 U	420 U	400 UJ	350 UJ
DIBENZO(A,H)ANTHRACENE	350	44	4,300	NC	44	24 UJ	25 UJ	24 UJ	25 UJ	8.6 J	21 UJ
DIBENZOFURAN	NC	NC	NC	NC	NC	390 U	420 U	400 U	420 U	400 U	350 U
FLUORANTHENE	7,300,000	1,700,000	10,000,000	NC	1,700,000	390 UJ	420 U	400 U	420 U	400 UJ	350 UJ
FLUORENE	2,700,000	1,400,000	200,000	120,000	120,000	390 U	420 U	400 U	420 U	400 U	350 U
INDENO(1,2,3-CD)PYRENE	3,500	440	43,000	NC	440	8.5 J	15 J	24 U	28	45	21 U
NAPHTHALENE	200,000	330,000	32,000	1,700	1,700	390 U	420 U	400 U	420 U	400 U	350 U
PENTACHLOROPHENOL	15,000	11,000	35,000	NC	11,000	36 UJ	38 UJ	37 UJ	38 U	37 UJ	32 UJ
PHENANTHRENE	3,600,000	1,200,000	470,000	97,000	97,000	390 U	420 U	400 U	420 U	400 U	350 U
PYRENE	5,500,000	1,200,000	10,000,000	NC	1,200,000	390 U	420 U	400 U	420 U	400 U	350 U
Pesticides/PCBs (ug/kg)											
4,4'-DDD	12,000	7,500	140,000	NC	7,500	3.9 U	1.1 J	21 J	2.8 J	2.7 J	3.5 U
4,4'-DDE	8,500	5,300	98,000	NC	5,300	3.9 UJ	4.2 UJ	4.1 J	2 J	35 J	3.5 UJ
4,4'-DDT	12,000	6,400	28,000	NC	6,400	3.9 U	1.4 J	2 J	3.7 J	150	3.5 UJ
ALPHA-CHLORDANE[3]	11,000	6,000	33,000	NC	6,000	2 U	2.1 U	2.1 UJ	2.1 U	1.9 J	1.8 U
ENDOSULFAN II	1,200,000	270,000	290,000	NC	270,000	3.9 U	4.2 U	4 UJ	4.2 U	4 U	3.5 U
ENDRIN	62,000	13,000	95,000	NC	13,000	3.9 U	4.2 UJ	18 J	4.2 U	4 UJ	3.5 U
ENDRIN ALDEHYDE	NC	NC	NC	NC	NC	3.9 U	4.2 U	4 UJ	4.2 U	0.46 J	3.5 U
GAMMA-CHLORDANE[3]	11,000	6,000	33,000	NC	6,000	2 U	2.1 U	2.1 UJ	2.1 U	1.8 J	1.8 U
HEPTACHLOR EPOXIDE	320	200	620	NC	200	2 UJ	2.1 UJ	2.1 UJ	2.1 UJ	0.6 J	1.8 UJ

TABLE 3-1

SUMMARY OF ANALYTICAL DATA[1] - SOIL
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE
PAGE 12 OF 12

LOCATION	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs- Excavation or Construction Worker[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	TP-02-07	TP-02-08	TP-02-09	TP-02-10	TP-02-11	TP-02-11
SAMPLE ID						TP-2-07-0607	TP-2-08-0304	TP-2-09-0506	TP-2-10-0405	TP-2-11-0405	TP-2-11-0708
TOP DEPTH						6	3	5	4	4	7
BOTTOM DEPTH						7	4	6	5	5	8
SAMPLE DATE						20081002	20081002	20081002	20081002	20081002	20081002
Inorganics (mg/kg)											
ALUMINUM	340,000	57,000	61,000	NC	57,000	11800	9120	18000	7070	7620	4720
ANTIMONY	140	23	25	NC	23	0.17 J	0.13 J	0.22 UJ	0.25 J	3.6 J	0.09 J
ARSENIC	0.42	0.23	4	NC	0.23	**1.5**	**1.3**	**5.4**	**1.6**	**2.3**	**1.2**
BARIUM	10,000	10,000	10,000	NC	10,000	7.2	14.4	76.1	12.7	71.7	11.5
BERYLLIUM	680	110	120	NC	110	0.5	0.34 J	0.94	0.26 J	0.25 J	0.99
CADMIUM	19	3.6	3.9	NC	3.6	0.01 U	0.01 U	0.01 U	0.01 UJ	1.6 J	0.01 U
CALCIUM	NC	NC	NC	NC	NC	394	294	592	218	659	363
CHROMIUM[4]	10,000	10,000	10,000	NC	10,000	8.2	6.7	25.9	5.3	13.8	6.9
COBALT	100	17	180	NC	17	1.7 J	1.4 J	10.6	1.2 J	2.7 J	3.3
COPPER	4,800	790	870	NC	790	2.6	2.9	21	3.3	26.6	4.6
IRON	240,000	40,000	43,000	NC	40,000	7800 J	7020 J	22400 J	6560 J	12300 J	6650 J
LEAD	560	280	950	NC	280	4.5 J	5.6 J	8.1 J	8.7 J	45.1 J	2.7 J
MAGNESIUM	NC	NC	NC	NC	NC	749	588	5260	401	1310	1510
MANGANESE	8,000	1,400	1,500	NC	1,400	55.1 J	82.6 J	437 J	110 J	113 J	75.5 J
MERCURY	100	17	190	NC	17	0.05	0.07	0.02 U	0.06	**24.1**	0.02 UJ
NICKEL	1,000	170	190	NC	170	4	3.7 J	24.8	3.1 J	9.4	7.9
POTASSIUM	NC	NC	NC	NC	NC	321	297	3320	191	681	789
SILVER	1,700	280	310	NC	280	0.06 U	0.07 U	0.06 UJ	0.06 U	2.3 J	0.05 U
SODIUM	NC	NC	NC	NC	NC	36.1 UJ	41.2 UJ	101 UJ	27.3 UJ	47.1 UJ	42.3 UJ
VANADIUM	2,400	400	430	NC	400	15.2	13.7	35.5	11.2	17	10.4
ZINC	10,000	10,000	10,000	NC	10,000	12.6 J	13.5 J	45.4 J	12.9 J	727 J	14.1 J

Notes:

1. This table contains the detect and non-detect results for all parameters detected in at least one sample in this media subgroup. Complete results for all parameters are presented in Appendix E.
2. Maine RAGs - Maine Remedial Action Guidelines for Contaminated Soil, January 13, 2010 (Appendix 2 - Incremental Lifetime Cancer Risk = 1E-06; Hazard Quotent -0.2)
3. Value for Chlordane was substituted.
4. Value for Chromium (III) was substituted.

Black background/White print - Criteria Exceeded
Grey Background - Detected
U - Not Detected
UJ - Detection Limit Approximate
J - Quantitation Limit Approximate
NC - Criterion not available

TABLE 3-2

SUMMARY OF DIOXIN ANALYTICAL DATA[1]- SOIL
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

LOCATION	Toxicity Equivalent Factor[2]	Maine RAGs - Outdoor Commercial Worker[3]	Maine RAGs - Park User[3]	Maine RAGs- Excavation or Construction Worker[3]	Maine RAGs - Soil to GW Screening Level[3]	Minimum Screening Criteria	TP-02-02	TP-02-02	TP-02-02	TP-02-04	TP-02-05	TP-02-07	TP-02-08	TP-02-11
SAMPLE ID							TP-2-02-0102	TP-2-02-0102-AVG	TP-2-02-0102-D	TP-2-04-0304	TP-2-05-0708	TP-2-07-0304	TP-2-08-0304	TP-2-11-0405
TOP DEPTH							1	1	1	3	7	3	3	4
BOTTOM DEPTH							2	2	2	4	8	4	4	5
SAMPLE DATE							20081001	20081001	20081001	20081001	20081002	20081002	20081002	20081002
Dioxins/Furans (ng/kg)														
1,2,3,4,6,7,8,9-OCDD	0.0003	1.0E+05	5.7E+04	1.0E+06	NC	5.7E+04	73	81	89	36	16	740 J	34	200
1,2,3,4,6,7,8,9-OCDF	0.0003	1.0E+05	5.7E+04	1.0E+06	NC	5.7E+04	0.15 UJ	3.44 J	6.8 J	5.9	0.18 U	28	1.1 J	6.6
1,2,3,4,6,7,8-HPCDD	0.01	3.1E+03	1.7E+03	3.1E+04	NC	1.7E+03	8.1	8.85	9.6	4.8	2.2 U	120	2.9	28
1,2,3,4,6,7,8-HPCDF	0.01	3.1E+03	1.7E+03	3.1E+04	NC	1.7E+03	5.2 J	5.4 J	5.6	5.5	2.1 U	50	1.3 U	6.6
1,2,3,4,7,8,9-HPCDF	0.01	3.1E+03	1.7E+03	3.1E+04	NC	1.7E+03	0.2 U	0.205 J	0.31 J	0.16 J	0.41 J	2.6 J	0.11 J	0.37 J
1,2,3,4,7,8-HXCDD	0.1	3.1E+02	1.7E+02	3.1E+03	NC	1.7E+02	0.25 UJ	0.255 UJ	0.26 UJ	0.18 U	0.31 U	3	0.14 UJ	0.69 U
1,2,3,4,7,8-HXCDF	0.1	3.1E+02	1.7E+02	3.1E+03	NC	1.7E+02	0.26 UJ	0.385 UJ	0.51 UJ	0.36 U	0.47 U	8.3 J	0.18 UJ	0.74 UJ
1,2,3,6,7,8-HXCDD	0.1	3.1E+02	1.7E+02	3.1E+03	NC	1.7E+02	0.61 J	0.59 J	0.57 J	0.48 J	0.42 J	7.4 J	0.34 J	1.3 J
1,2,3,6,7,8-HXCDF	0.1	3.1E+02	1.7E+02	3.1E+03	NC	1.7E+02	0.92 UJ	1.06 UJ	1.2 UJ	0.52 U	1.2 U	7.8 J	0.37 U	1.7 UJ
1,2,3,7,8,9-HXCDD	0.1	3.1E+02	1.7E+02	3.1E+03	NC	1.7E+02	0.13 U	0.145 U	0.16 U	0.18 U	0.31 UJ	4.4 J	0.14 UJ	1.3 UJ
1,2,3,7,8-PECDD	1	3.1E+01	1.7E+01	3.1E+02	NC	1.7E+01	0.26 J	0.195 J	0.13 J	0.34 J	0.24 J	2.5 J	0.17 J	0.55 J
1,2,3,7,8-PECDF	0.03	1.0E+03	5.7E+02	1.0E+04	NC	5.7E+02	0.25 UJ	0.305 UJ	0.36 UJ	0.34 U	0.39 UJ	4.5 J	0.21 UJ	0.61 UJ
2,3,4,6,7,8-HXCDF	0.1	3.1E+02	1.7E+02	3.1E+03	NC	1.7E+02	0.56 U	0.675 U	0.79 U	0.34 UJ	0.35 UJ	8.8	0.14 UJ	0.88 UJ
2,3,4,7,8-PECDF	0.3	1.0E+02	5.7E+01	1.0E+03	NC	5.7E+01	0.28 UJ	0.36 UJ	0.44 U	0.16 UJ	0.36 UJ	7.9	0.15 U	0.99 U
2,3,7,8-TCDD	1	3.1E+01	1.7E+01	3.1E+02	NC	1.7E+01	0.11 U	0.265 UJ	0.42 UJ	0.11 U	0.15 UJ	1 J	0.11 UJ	1
2,3,7,8-TCDF	0.1	3.1E+02	1.7E+02	3.1E+03	NC	1.7E+02	1.2 UJ	1.1 J	1.6	0.79 UJ	0.71 UJ	5.1	0.91 UJ	2.1 J
TOTAL HPCDD	NA	NC	NC	NC	NC	NC	8.1 J	14.6 J	21 J	11	5.4	280	3.3	66
TOTAL HPCDF	NA	NC	NC	NC	NC	NC	5.2	5.4	5.6	5.5	2.1 U	52	2.4 U	7.7
TOTAL HXCDD	NA	NC	NC	NC	NC	NC	0.91 J	2.9 J	4.9 J	0.2 U	2.6	96	0.11 U	8.9
TOTAL HXCDF	NA	NC	NC	NC	NC	NC	0.56 UJ	2.19 J	4.1 J	0.52 U	1.7 U	60	2.8	17
TOTAL PECDD	NA	NC	NC	NC	NC	NC	0.2 U	0.285 UJ	0.37 UJ	0.19 U	1.4 J	21	0.14 U	0.2 U
TOTAL PECDF	NA	NC	NC	NC	NC	NC	14	15	16	0.34 J	21	59	0.35 J	42
TOTAL TCDD	NA	NC	NC	NC	NC	NC	0.35 J	0.725 J	1.1 J	0.62 J	0.94 J	35 J	1 U	2.7
TOTAL TCDF	NA	NC	NC	NC	NC	NC	19	16	13	13	26	130 J	1.9 J	140
Miscellaneous Parameters (%)														
PERCENT MOISTURE		NC	NC	NC	NC	NC	49.3	50.4	51.6	50.2	22.6	17	19.2	21.2
PERCENT SOLIDS		NC	NC	NC	NC	NC	50.7	49.6	48.4	49.8	77.4	82	80.8	78.8

Notes:

1. This table contains the detect and non-detect results for all parameters detected in at least one sample in this media subgroup. Complete results for all parameters are presented in Appendix D.

2. Source of Toxicity Equivalent Factors (TEFs): van den Berg, and others, 2006, *The 2005 World Health Organization Re-evaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds.* ToxSci Advance Access, Oxford University Press (on behalf of the Society of Toxicology). July 7.

3. Maine RAGs - Maine Remedial Action Guidelines for Contaminated Soil, January 13, 2010 (Appendix 2 - Incremental Lifetime Cancer Risk = 1E-06; Hazard Quotent -0.2). Toxicity Equivalent (TEQ) for Dioxin and Dioxin-like Compounds is 31 ng/kg for Commercial Worker, 17 ng/kg for Park User, and 310 ng/kg for Excavation or Construction Worker. Commercial Worker Criteria = 31/TEF; Park User Criteria = 17/TEF, and Excavation or Construction Worker Criteria = 310/TEF.

Black background/White print - Criteria Exceeded
Grey Background -
UJ - Detection Limit
NC - No Critieria

U - Not Detected
J - Quantitation

TABLE 3-3

SUMMARY OF ANALYTICAL DATA - GROUNDWATER[1]
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

LOCATION SAMPLE ID SAMPLE DATE	**Maine MEGs[2]**	**EPA MCL[3]**	**Minimum Screening Criteria**	GW-02-301 GW-2-301-102108 20081021	GW-02-302 GW-2-302-102108 20081021	GW-02-303 GW-2-303-102108 20081021	GW-02-303 GW-2-303-102108-AVG 20081021	GW-02-303 GW-2-303-102108-D 20081021	GW-02-304 GW-2-304-102108 20081021	GW-02-305 GW-2-305-102008 20081020	GW-02-306 GW-2-306-102008 20081020	GW-02-307 GW-2-307-102008 20081020	GW-02-308 GW-2-308-102008 20081020	GW-02-309 GW-2-309-102208 20081022	GW-02-310 GW-2-310-102108 20081021
Volatile Organics (ug/L)															
ACETONE	6000	NC	6000	5 U	5 U	5 J	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ	5 U	5 U	5 J
BENZENE	4	5	4	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ	1 U	1 U	0.5 J
CHLOROMETHANE	20	NC	20	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.3 J
Pesticides/PCBs (ug/L)															
4,4'-DDD	1	NC	1	0.013 U	0.0097 U	0.011 UJ	0.011 U	0.011 U	0.011 UJ	0.011 UJ	0.0094 U	0.0095 U	0.0015 J	0.01 U	0.01 U
Inorganics (ug/L)															
ALUMINUM	7000	NC	7000	26.5 J	36.7 J	191 J	181 J	181 J	14.6 U	126 J	659	157 J	575	316	291 J
ANTIMONY	3	6	3	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.14 J	0.14 J	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
ARSENIC	10	10	10	1.69 U	1.69 U	4.6 UJ	5 UJ	5 UJ	1.69 U	9.8	1.69 U	1.69 U	1.8 UJ	3 UJ	3.1 UJ
BARIUM	1000	2000	1000	3.4 J	10.8	51.3	50.7	50.7	50.4	13.1	92.8	41.2	64.6	4.3 J	28.8
BERYLLIUM	10	4	4	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.37 J	0.05 UJ	0.05 J	0.05 UJ	0.05 UJ
CADMIUM	1	5	1	0.1 U	0.1 U	0.1 J	0.11 J	0.11 J	0.1 U	0.1 U	0.12 J	0.1 U	0.1 U	0.1 U	0.1 U
CALCIUM	NC	NC	NC	7310	14100	19300	18900	18900	46000	21300	11100	10900	4990	8410	6950
CHROMIUM	20	100	20	0.84 UJ	0.98 UJ	1.4 UJ	1.4 UJ	1.4 UJ	1.2 UJ	1.5 UJ	1 UJ	0.71 UJ	1.4 UJ	0.7 UJ	6 J
COBALT	10	NC	10	0.24 UJ	0.24 UJ	**16.4 J**	**16 J**	**16 J**	0.24 UJ	**24.6 J**	1 J	0.25 J	0.68 J	0.32 J	2.8 J
COPPER	500	1300	500	1.3 J	1.1 J	0.96 J	1.4 J	1.4 J	1.8 J	4.1 J	0.75 UJ	0.85 J	1.2 J	0.75 UJ	0.75 UJ
IRON	5000	NC	5000	9 U	23.6 J	**12400**	**12300**	**12300**	207	**41800**	26.6 J	9 U	1050	940	**90200**
LEAD	10	15	10	0.97 U	1.1 J	0.97 U	0.97 U	0.97 U	0.97 U	1.7 J	0.97 U	1.1 J	0.97 U	0.97 U	0.97 U
MAGNESIUM	NC	NC	NC	1380	3580	3130	3120	3120	3820	5300	1340	1690	445	5320	2950
MANGANESE	500	NC	500	26.2	195	**871**	**865**	**865**	424	**9690**	495	447	439	288	**2270**
POTASSIUM	NC	NC	NC	998 J	1780	4550	4470	4470	5810	3560	3270	3220	3560	2570	7120
SODIUM	20000	NC	20000	4450	15500	**28800**	**28700**	**28700**	**20700**	7390	16400	11900	13300	**20800**	13600
VANADIUM	200	NC	200	0.58 J	0.46 J	2.2 J	2 J	2 J	0.59 J	0.38 U	0.38 U	0.38 U	0.54 J	0.74 J	5.2 J
ZINC	2000	NC	2000	4.2 J	6 J	9.6 J	9.6 J	9.6 J	12.8 J	7 J	6.8 J	11.3 J	7.3 J	3.4 J	69.5

Notes:

1. This table contains the detect and non-detect results for all parameters detected in at least one sample in media subgroup. Complete results for all parameters are presented in Appendix D.
2. Maine CDC, February 4, 2011. Maximum Exposure Guidelines (MEGs) for Drinking Water.
3. USEPA, Maximum Contaminant Levels (www.epa.gov/safewater/contaminants/index.html) (February 2010)

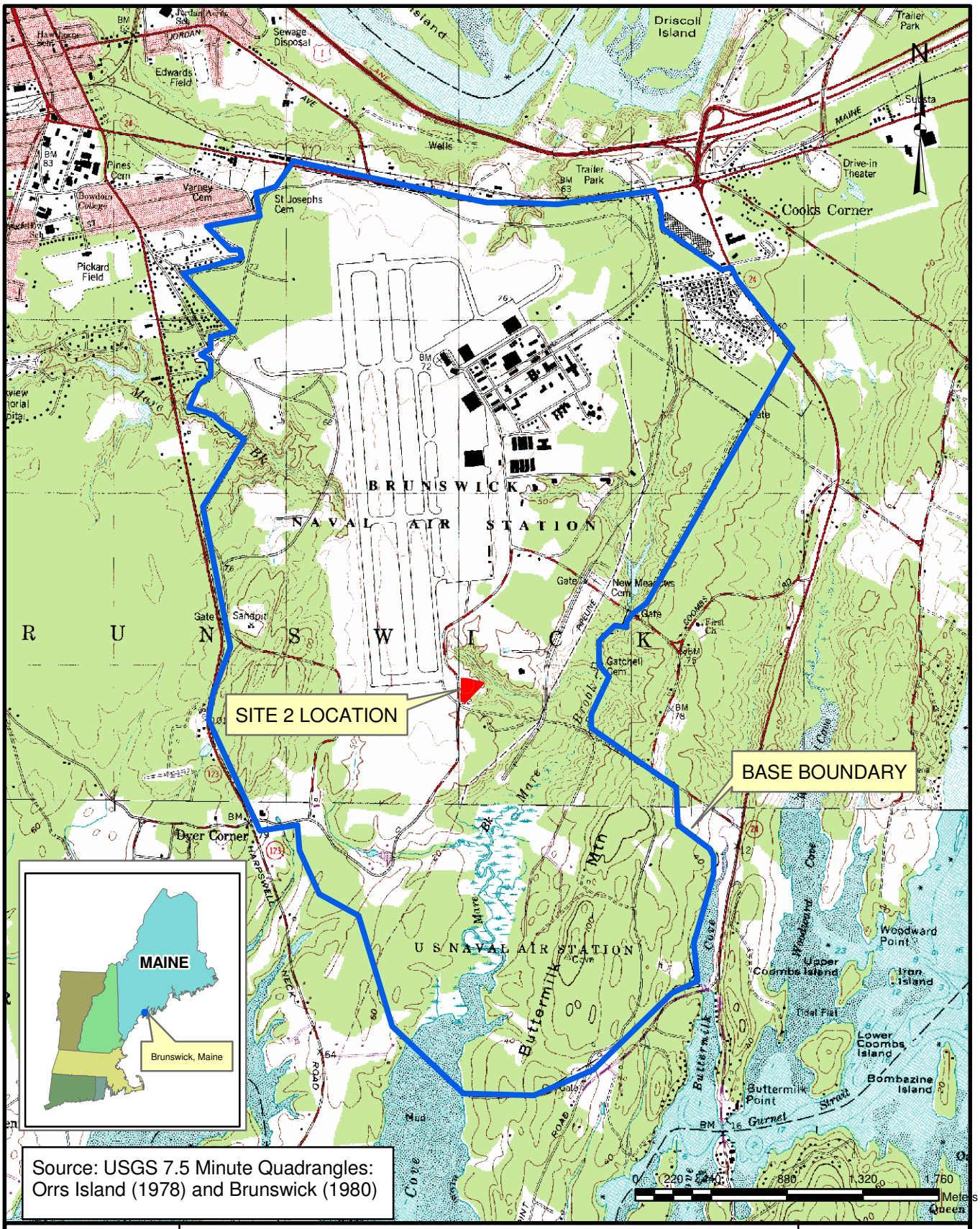
Black background/White print - Criteria Exceeded

Grey Background - Detected

UJ - Detection Limit Approximate

FIGURES

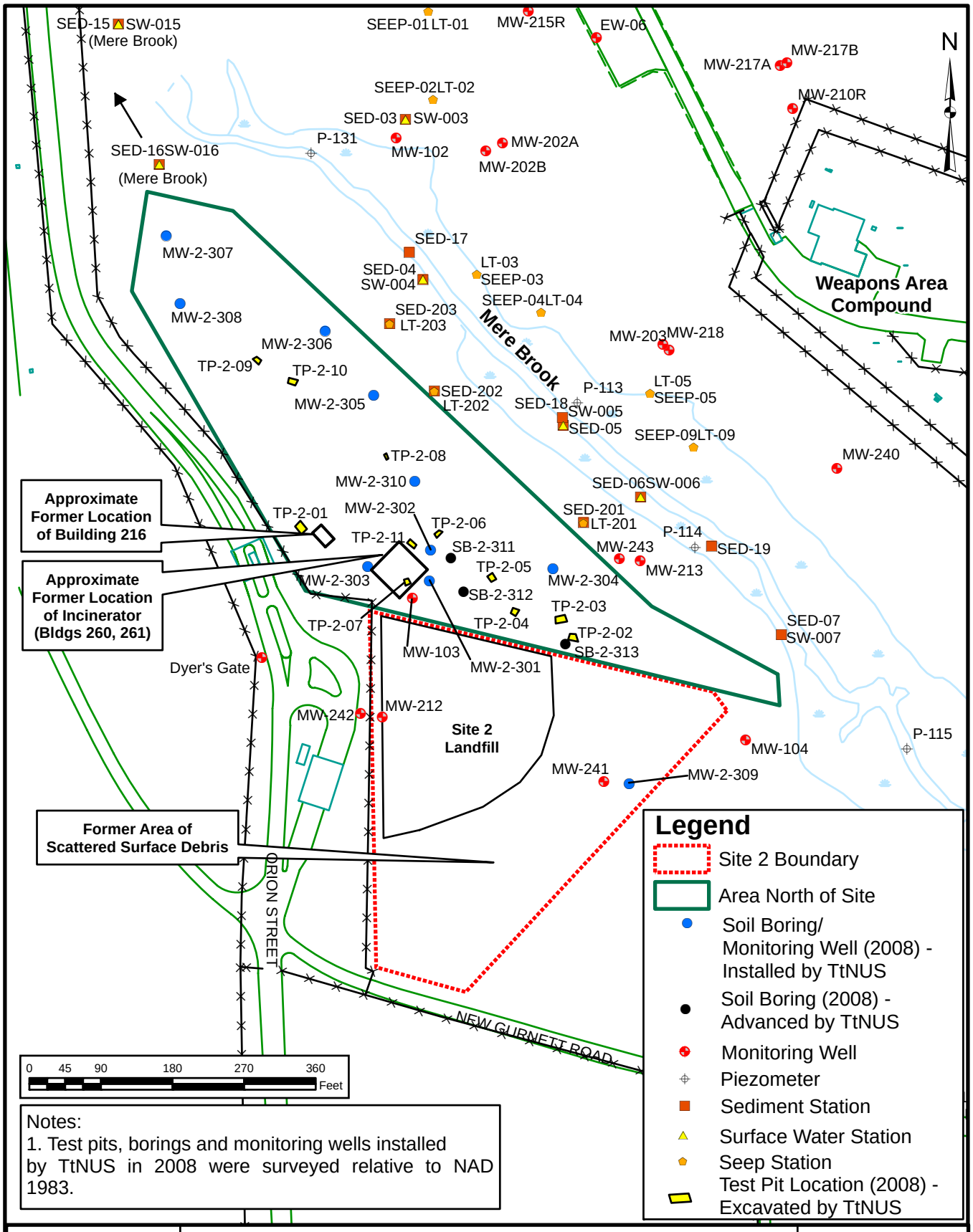
I:\00958\0667\SITE_2_LOCUS.MXD DWM 07/14/09



Tetra Tech NUS, Inc.

SITE 2
SITE LOCATION MAP
NAVAL AIR STATION
BRUNSWICK, MAINE

SCALE	
AS NOTED	
FILE	
I:\..\SITE_2_LOCUS.MXD	
REV	DATE
0	07/14/09
FIGURE NUMBER	
1-1	



Notes:
1. Test pits, borings and monitoring wells installed by TtNUS in 2008 were surveyed relative to NAD 1983.

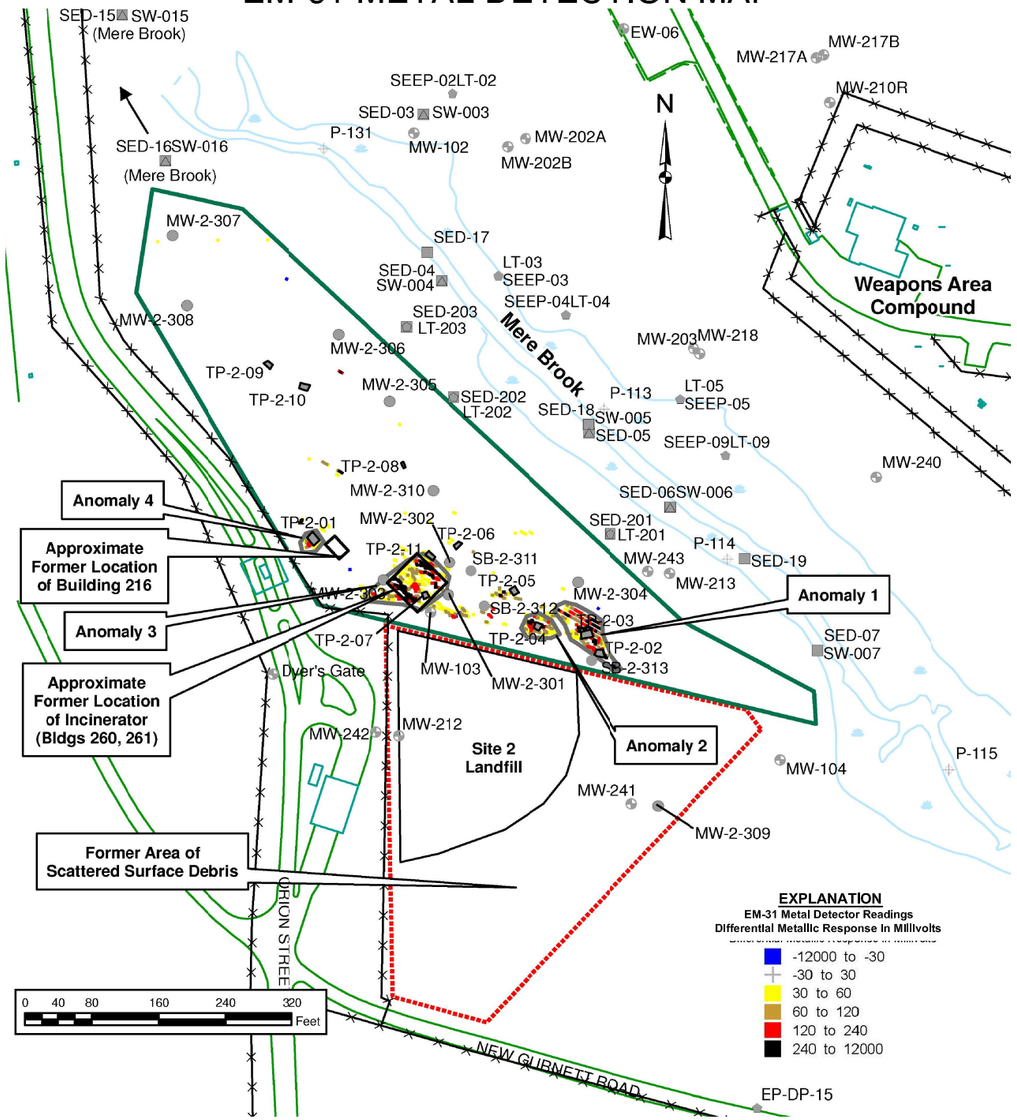
Tetra Tech NUS, Inc.

SITE MAP
SITE 2 AND AREA NORTH OF SITE 2
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE

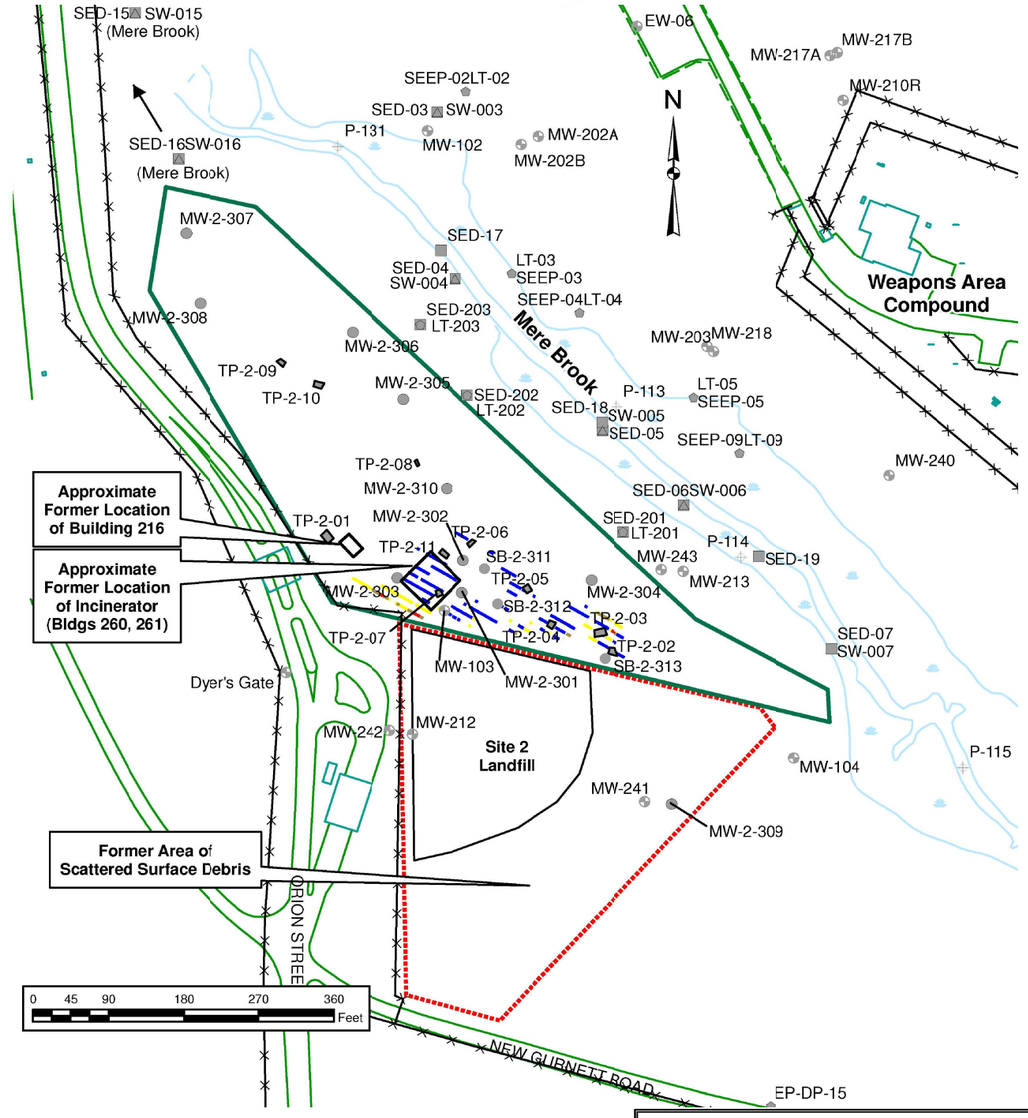
SCALE	AS NOTED
FILE	\...\SITE_2_SAMP_LOCS.MXD
REV	0
DATE	01/10/11
FIGURE NUMBER	1-2

ACAD: \00958\0687\SITE_2_EM_RESULT.DWG 01/22/11 DWM

EM-61 METAL DETECTION MAP



EM-31 CONDUCTIVITY MAP



Legend

- Site 2 Boundary
- Area North of Site
- Soil Boring/ Monitoring Well (2008) - Installed by TtNUS
- Soil Boring (2008) - Advanced by TtNUS
- Monitoring Well
- Piezometer
- Sediment Station
- Surface Water Station
- Seep Station
- Test Pit Location (2008) - Excavated by TtNUS

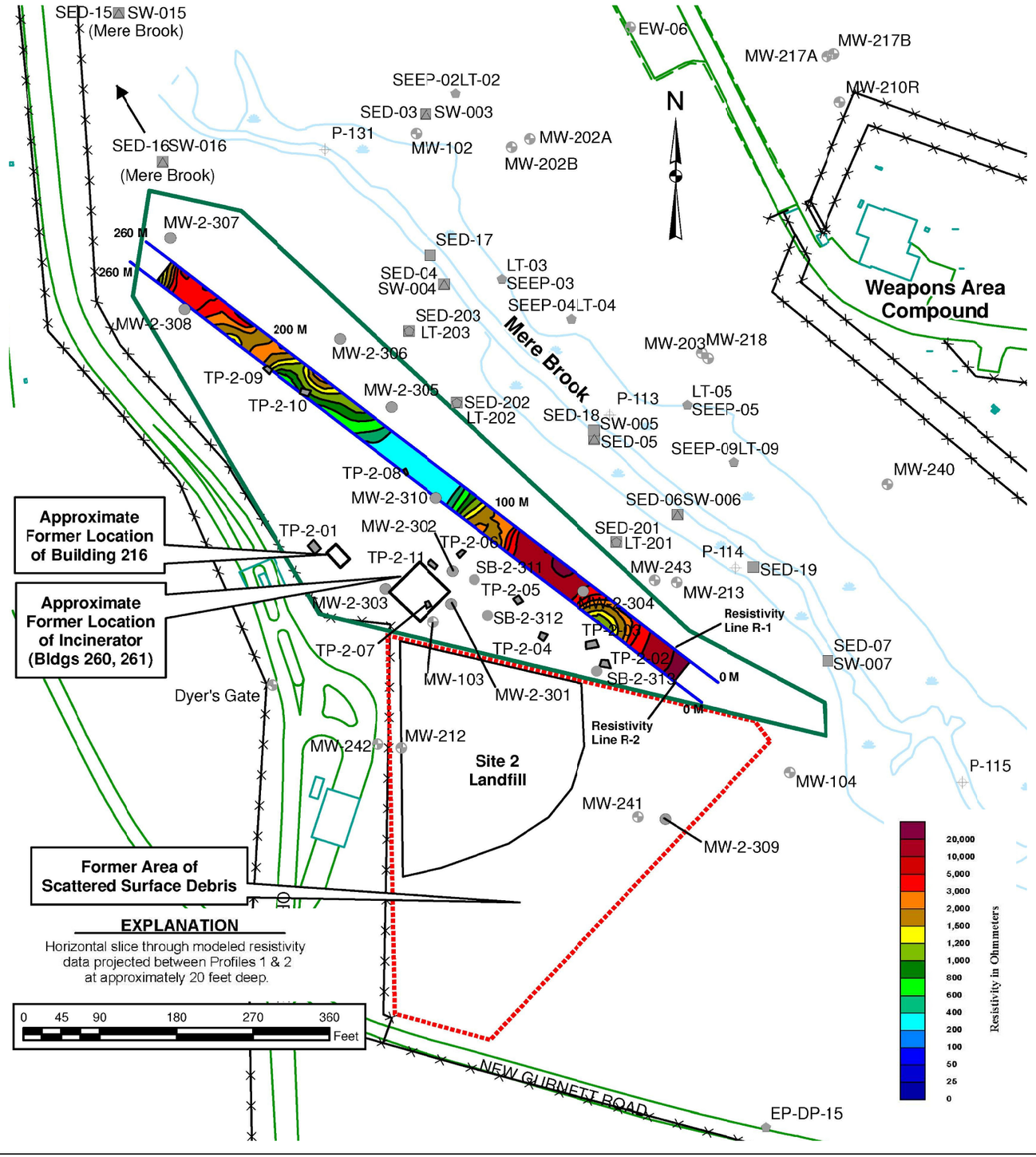
TETRA TECH NUS, INC.

EM-31 AND EM-61 AREAS
SITE 2 AND AREA NORTH OF SITE 2
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE

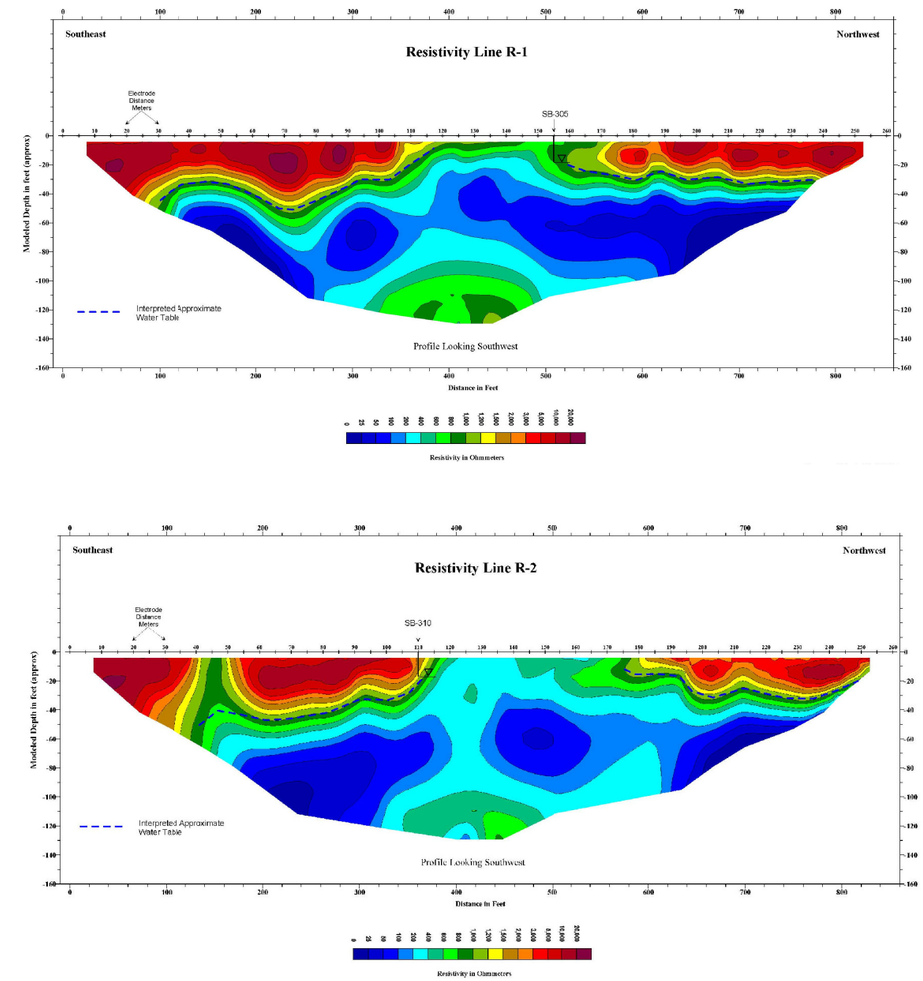
FILE	SCALE
\..\SITE_2_EM_RESULT.DWG	AS NOTED
FIGURE NUMBER 2-1A	REV 0 / DATE 01/22/11

ACAD: \00958\0687\SITE_2_EM_RESULT.DWG 01/22/11 DWM

2D RESISTIVITY MAP



MODELED RESISTIVITY - SCHLUMBERGER ARRAY



Legend

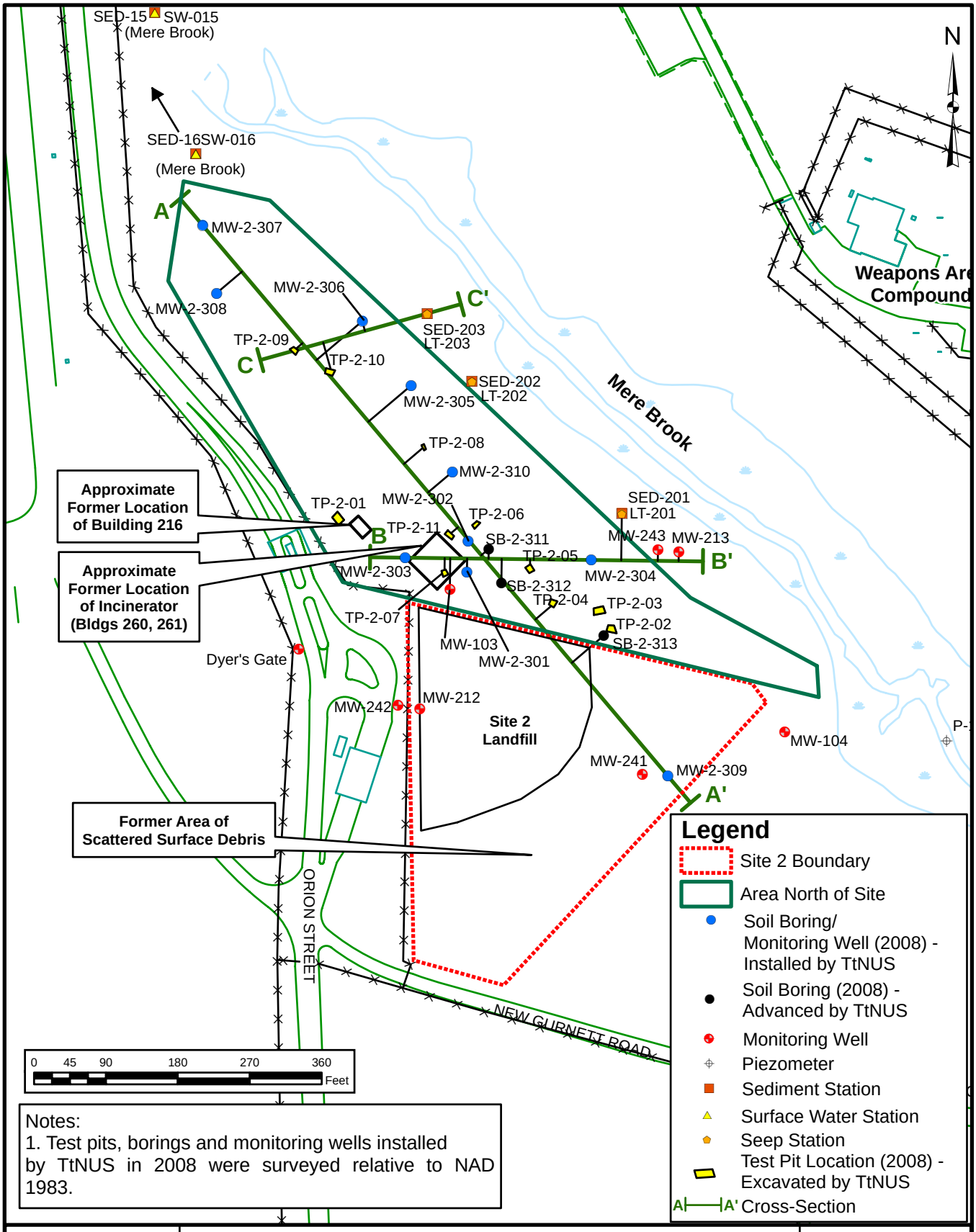
- Site 2 Boundary
- Area North of Site
- Soil Boring/ Monitoring Well (2008) - Installed by TtNUS
- Soil Boring (2008) - Advanced by TtNUS
- Monitoring Well
- Piezometer
- Sediment Station
- Surface Water Station
- Seep Station
- Test Pit Location (2008) - Excavated by TtNUS

TETRA TECH NUS, INC.

RESISTIVITY PROFILING RESULTS
SITE 2 AND AREA NORTH OF SITE 2
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE

FILE	SCALE
\..\SITE_2_EM_RESULT.DWG	AS NOTED

FIGURE NUMBER	REV	DATE
2–1B	0	01/22/11



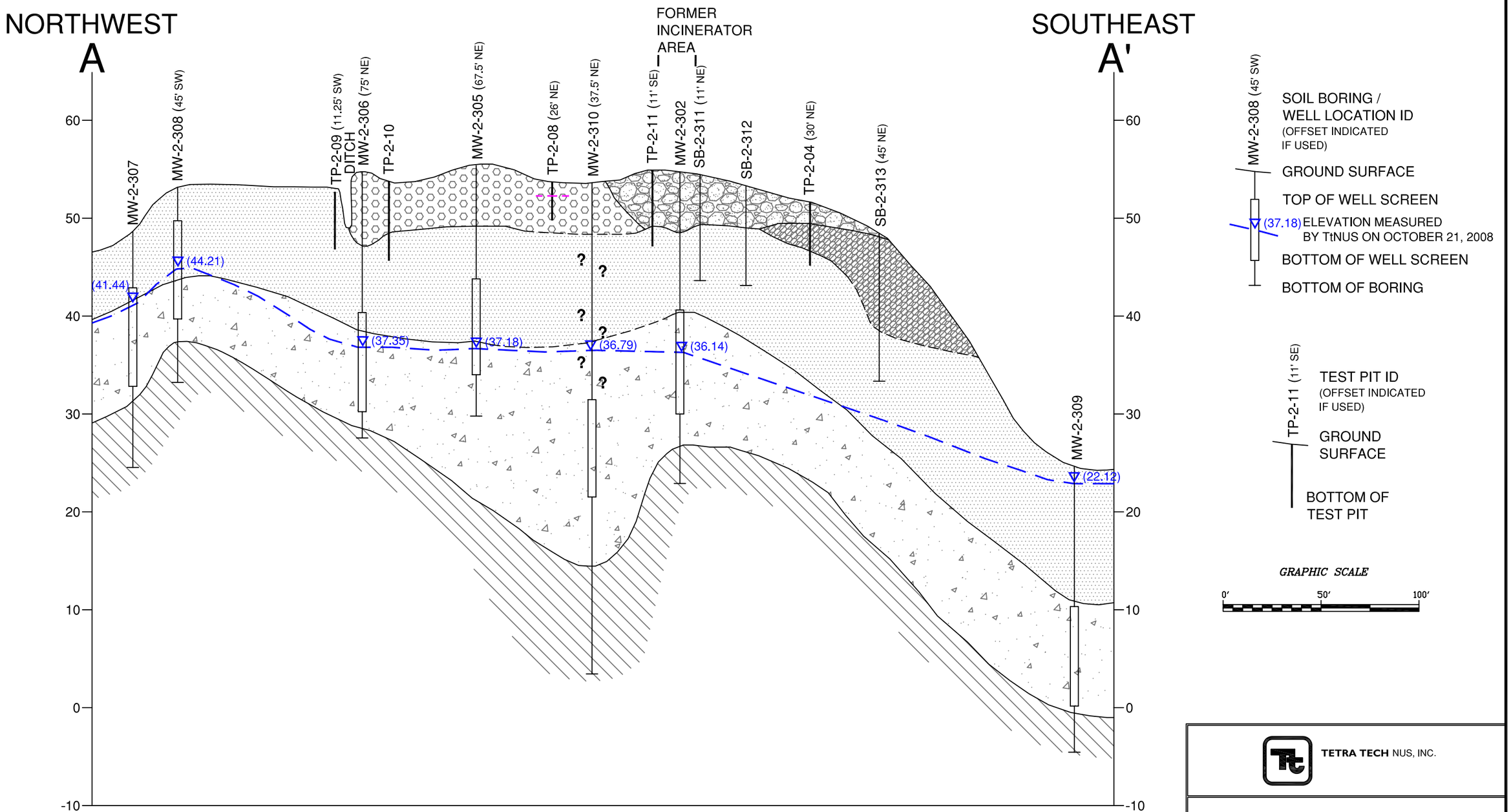
Notes:
1. Test pits, borings and monitoring wells installed by TttNUS in 2008 were surveyed relative to NAD 1983.

Tetra Tech NUS, Inc.

GEOLOGIC CROSS SECTION LOCATIONS
SITE 2 AND AREA NORTH OF SITE 2
NAVAL AIR STATION
BRUNSWICK, MAINE

SCALE	
AS NOTED	
FILE \...\SITE_2_X_SECTIONS.MXD	
REV	DATE
0	01/22/11
FIGURE NUMBER	
3-1A	

ACAD: \00958\0667\SITE_2_X-SECTIONS.DWG 03/02/09 DWM



SAND (UPPER SAND)

SAND AND SILT (TRANSITION UNIT)

CLAY (PRESUMPSCOT FORMATION)

SAND, SAND W/ SILT (FILL)

FILL WITH LAYERS OF VERY FINE GRAIN BLACK MATERIAL (SUSPECTED ASH)

FILL WITH DEBRIS

GROUNDWATER ELEVATION (ESTIMATED) (OCTOBER 21, 2008)

PERCHED WATER TABLE

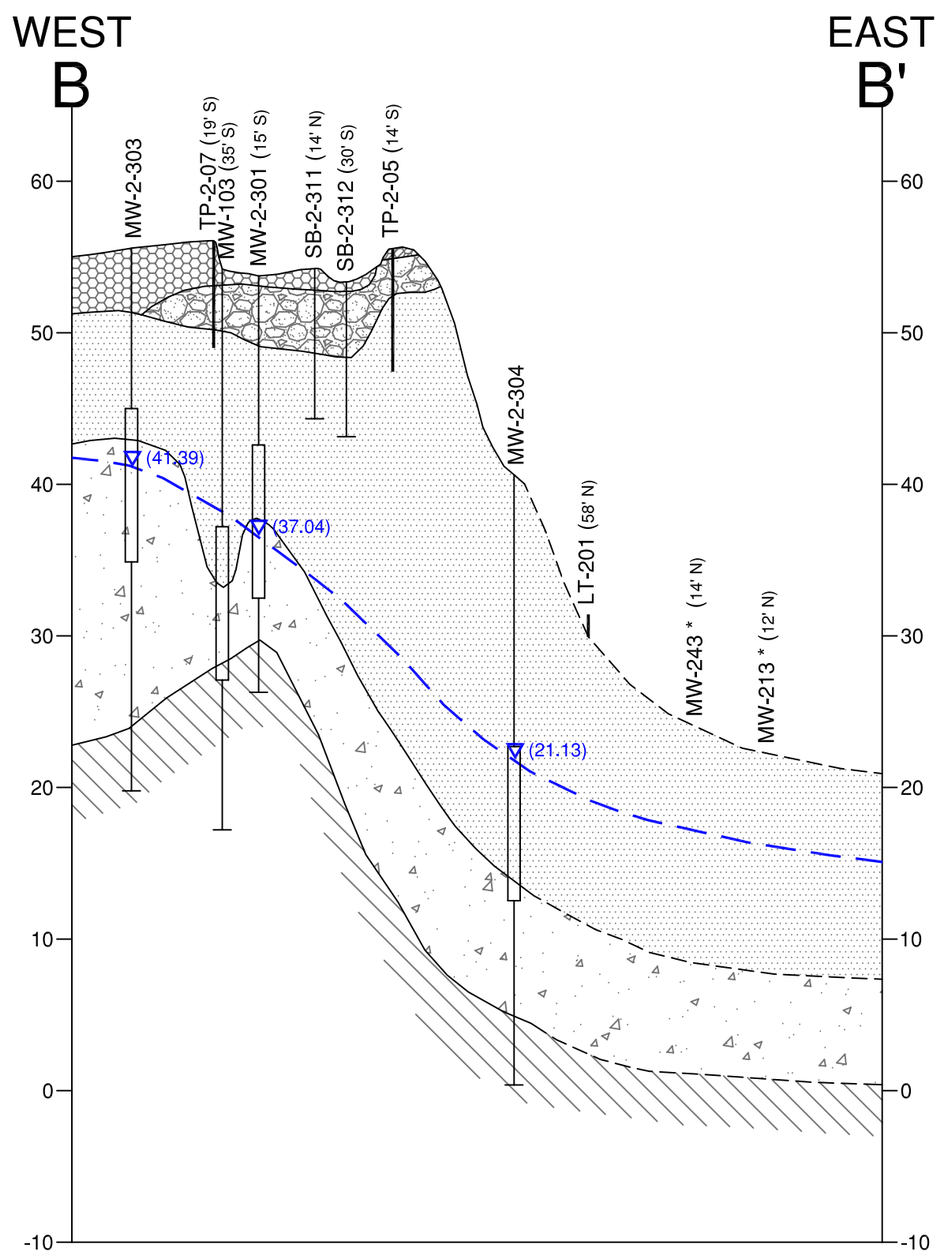
? - POOR RECOVERY TO NO RECOVERY

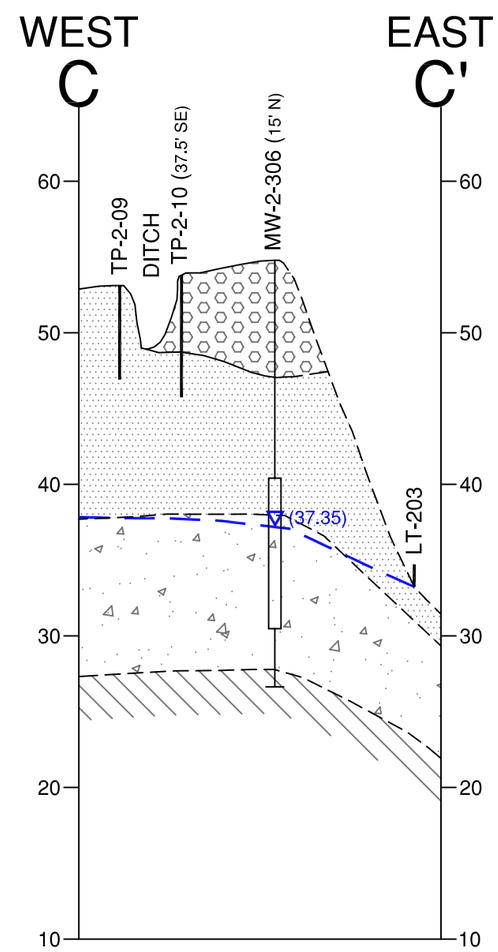
TETRA TECH NUS, INC.

GEOLOGICAL CROSS-SECTION A-A'
SITE 2 AND AREA NORTH OF SITE 2
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE

FILE	SCALE
\..\SITE_2_X-SECTIONS.DWG	AS NOTED
FIGURE NUMBER 3-1B	REV 0 / DATE 03/02/09

ACAD: \00958\0667\SITE_2_X-SECTIONS.DWG 01/08/10 DWM





MW-2-308 (45' SW) — SOIL BORING / WELL LOCATION ID (OFFSET INDICATED IF USED)

GROUND SURFACE

TOP OF WELL SCREEN

(37.35) ELEVATION MEASURED BY TtNUS ON OCTOBER 21, 2008

BOTTOM OF WELL SCREEN

BOTTOM OF BORING

TP-2-11 (11' SE) — TEST PIT ID (OFFSET INDICATED IF USED)

GROUND SURFACE

BOTTOM OF TEST PIT

LT-201 — SEEP STATION ID

GROUND SURFACE

SAND (UPPER SAND)

SAND AND SILT (TRANSITION UNIT)

CLAY (PRESUMPSCOT FORMATION)

SAND, SAND W/ SILT (FILL)

FILL WITH LAYERS OF VERY FINE GRAIN BLACK MATERIAL (SUSPECTED ASH)

FILL WITH DEBRIS

GRAPHIC SCALE

0' 50' 100'

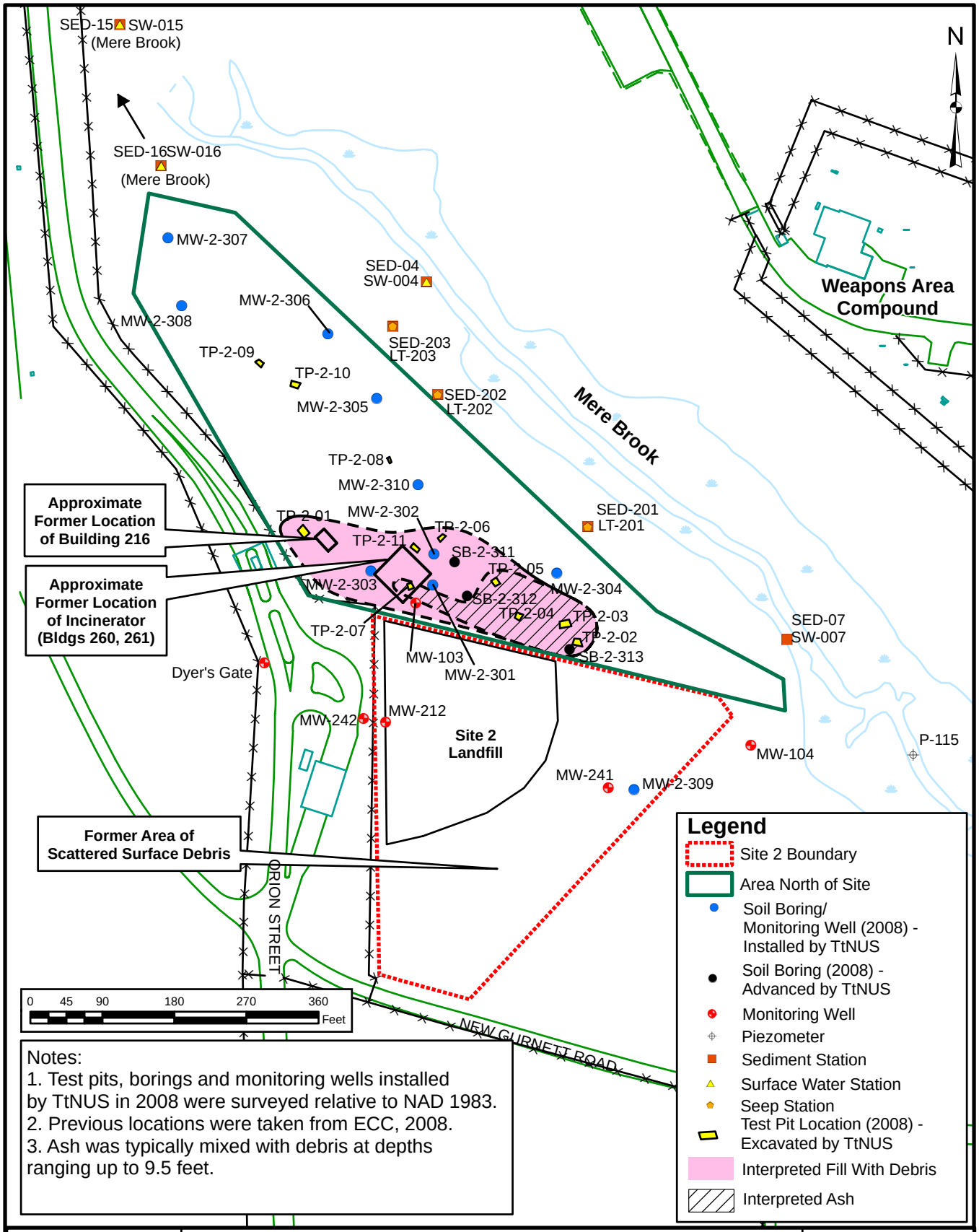
GROUNDWATER ELEVATION (ESTIMATED) (OCTOBER 21, 2008)

* - NO AVAILABLE SOIL BORING LOGS OR WELL CONSTRUCTION DATA

TETRA TECH NUS, INC.

GEOLOGICAL CROSS-SECTIONS B-B' AND C-C'
SITE 2 AND AREA NORTH OF SITE 2
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE

FILE	SCALE
\..\SITE_2_X-SECTIONS.DWG	AS NOTED
FIGURE NUMBER 3-1C	REV 0 / DATE 01/08/10



Notes:
1. Test pits, borings and monitoring wells installed by TtNUS in 2008 were surveyed relative to NAD 1983.
2. Previous locations were taken from ECC, 2008.
3. Ash was typically mixed with debris at depths ranging up to 9.5 feet.

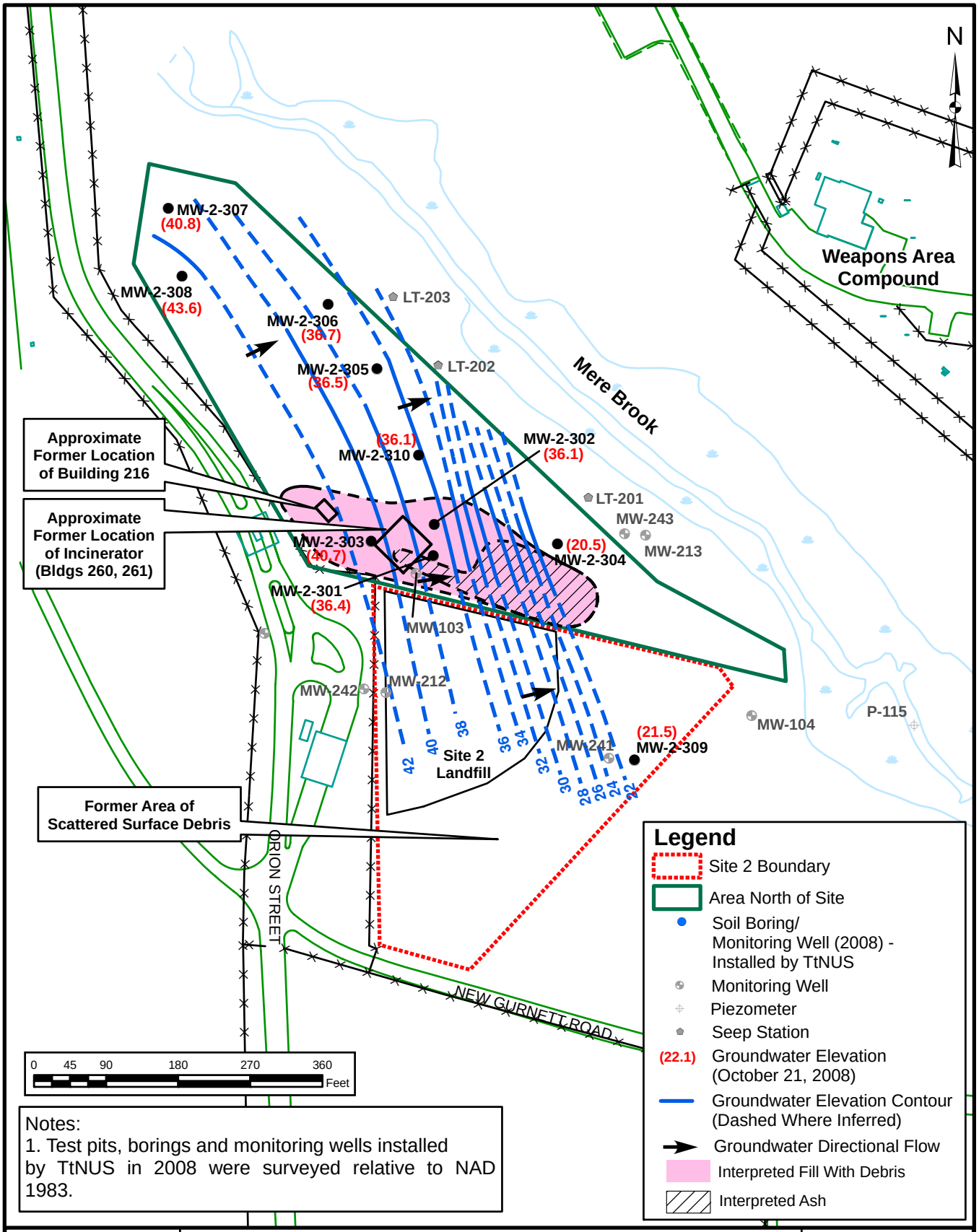
Tetra Tech NUS, Inc.

APPROXIMATE EXTENT OF INTERPRETED SURFICIAL FILL AND ASH
SITE 2 AND AREA NORTH OF SITE 2
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE

SCALE	
AS NOTED	
FILE \...\SITE_2_FILL_ASH.MXD	
REV	DATE
0	01/22/11
FIGURE NUMBER	
3-2	

I:\0095890687\SITE_2_FILL_ASH.MXD DWM 01/22/11

I:\009580\0667\SITE_2_GW_CONTOUR.MXD DWM 07/24/09



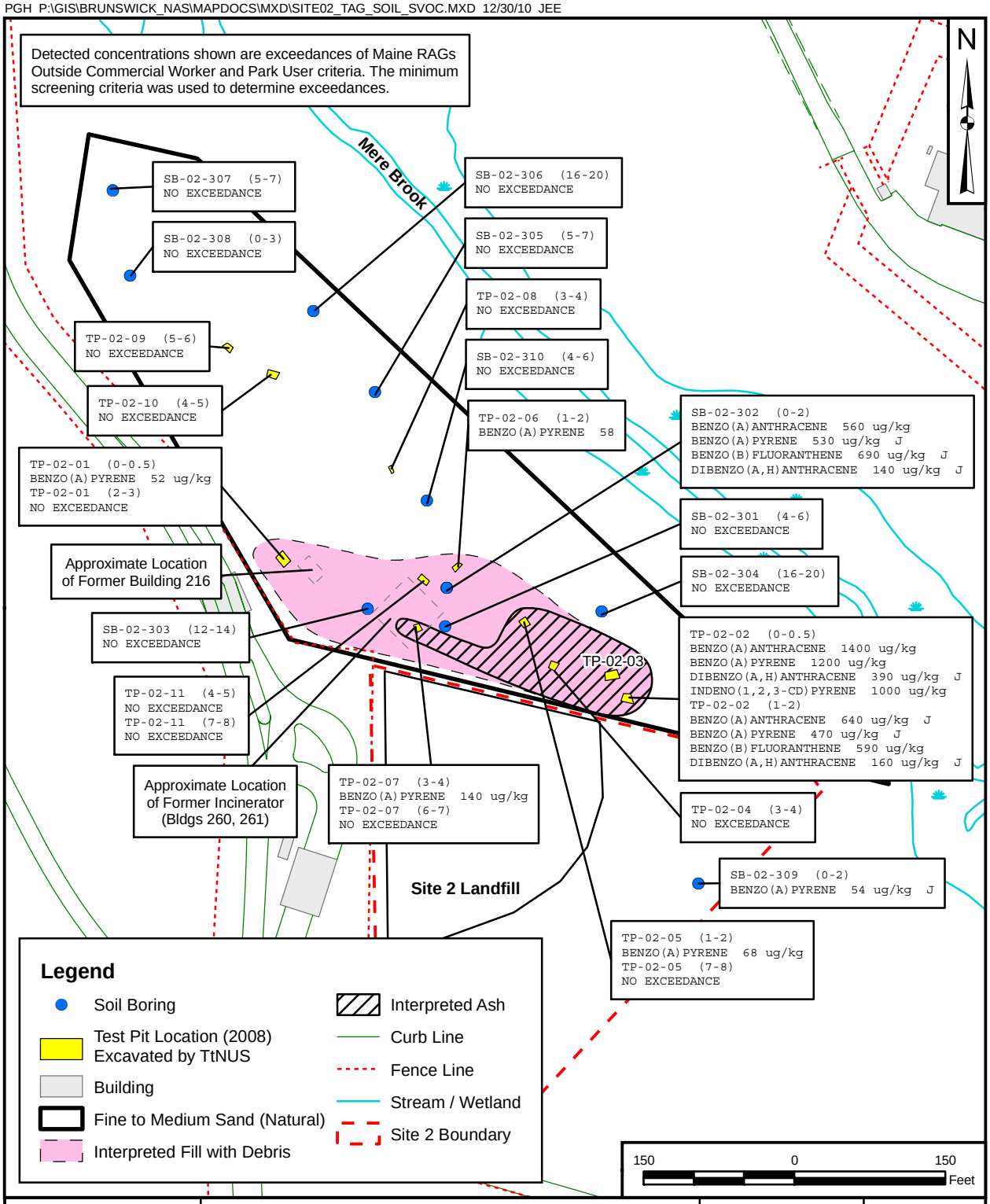
Notes:
1. Test pits, borings and monitoring wells installed by TtNUS in 2008 were surveyed relative to NAD 1983.

Tetra Tech NUS, Inc.

GROUNDWATER FLOW DIRECTIONS - OCTOBER 21, 2008
SITE 2 AND AREA NORTH OF SITE 2
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE

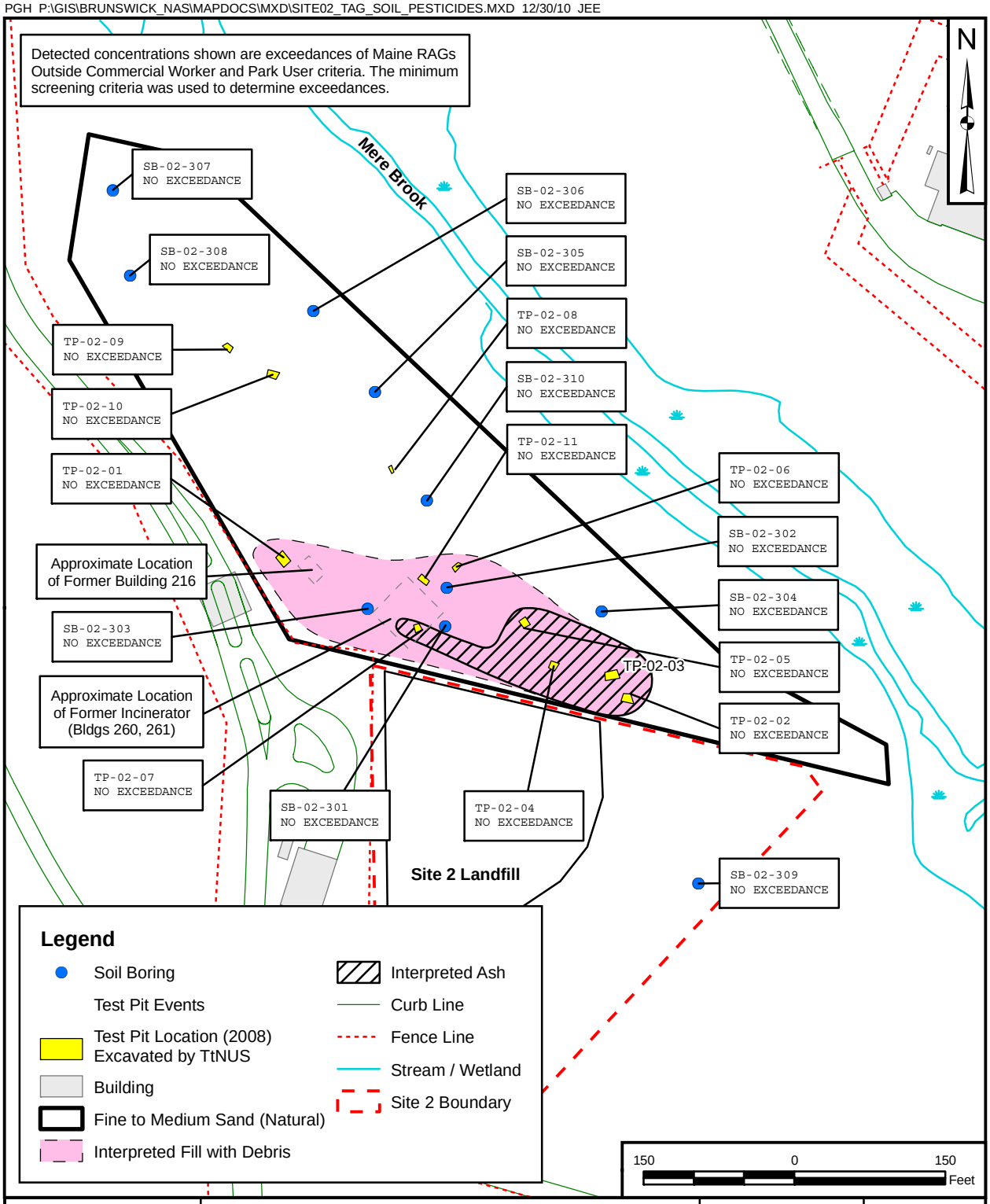
SCALE	
AS NOTED	
FILE \...\SITE_2_GW_CONTOUR.MXD	
REV	DATE
0	07/24/09
FIGURE NUMBER	
3-3	

PGH P:\GIS\BRUNSWICK_NAS\MAPDOCS\MXD\SITE02_TAG_SOIL_SVOC.MXD 12/30/10 JEE



DRAWN BY J. ENGLISH — DATE 12/30/10	TETRA TECH	CONTRACT NUMBER 00958	CTO NUMBER ___
CHECKED BY C. RACE — DATE 12/30/10	SOIL SVOC EXCEEDANCES SITE 02 NAVAL AIR STATION BRUNSWICK BRUNSWICK, MAINE	APPROVED BY ___ — DATE ___	
REVISED BY ___ — DATE ___		APPROVED BY ___ — DATE ___	
SCALE AS NOTED		FIGURE NO. FIGURE 3-4	REV 0

PGH P:\GIS\BRUNSWICK_NAS\MAPDOCS\MXD\SITE02_TAG_SOIL_PESTICIDES.MXD 12/30/10 JEE



DRAWN BY	DATE	TETRA TECH	CONTRACT NUMBER	CTO NUMBER
J. ENGLISH	12/30/10		00958	___
CHECKED BY	DATE	SOIL PESTICIDE EXCEEDANCES	APPROVED BY	DATE
C. RACE	12/30/10	SITE 02	___	___
REVISED BY	DATE	NAVAL AIR STATION BRUNSWICK	APPROVED BY	DATE
___	___	BRUNSWICK, MAINE	___	___
SCALE			FIGURE NO.	REV
AS NOTED			FIGURE 3-5	0

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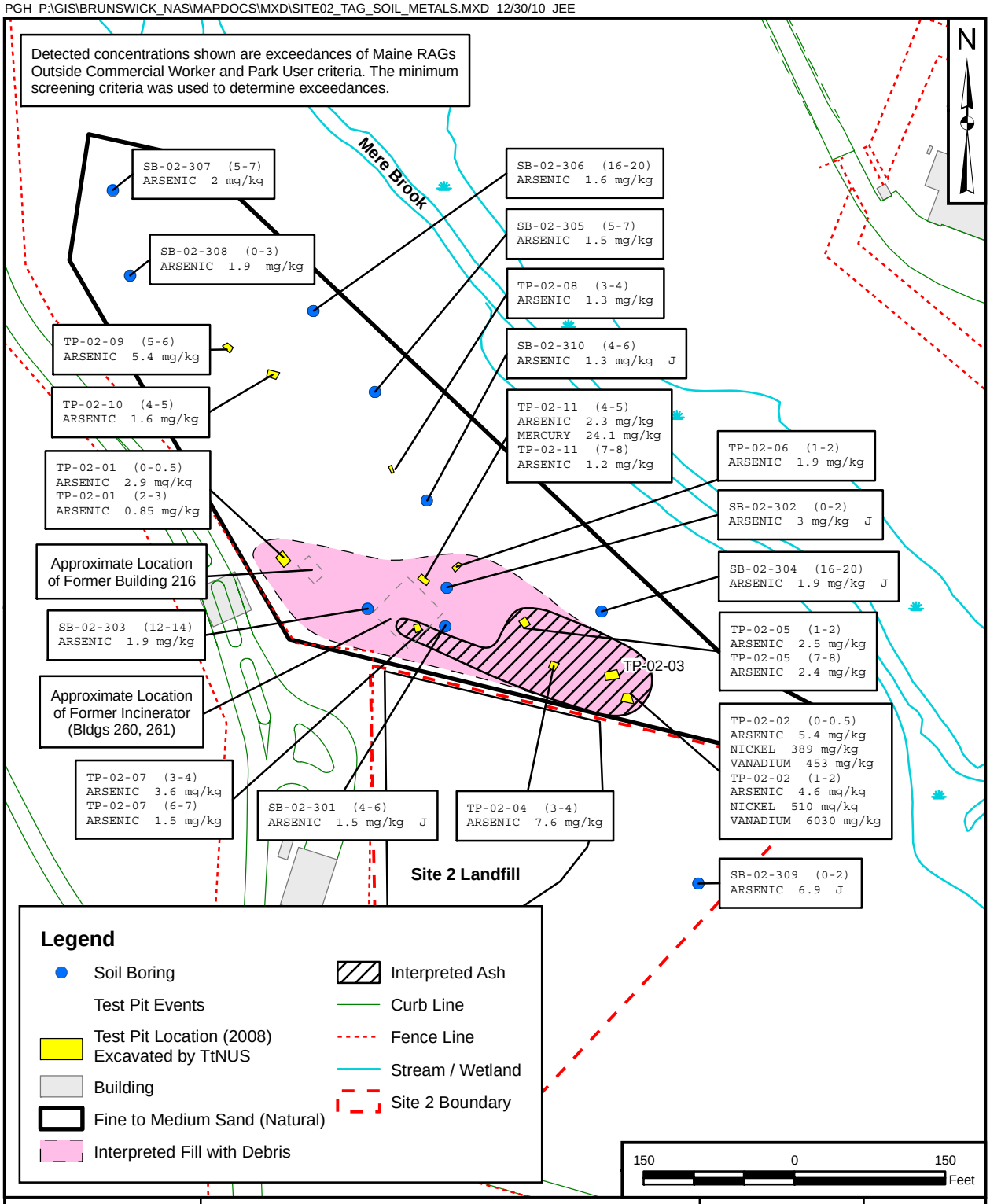
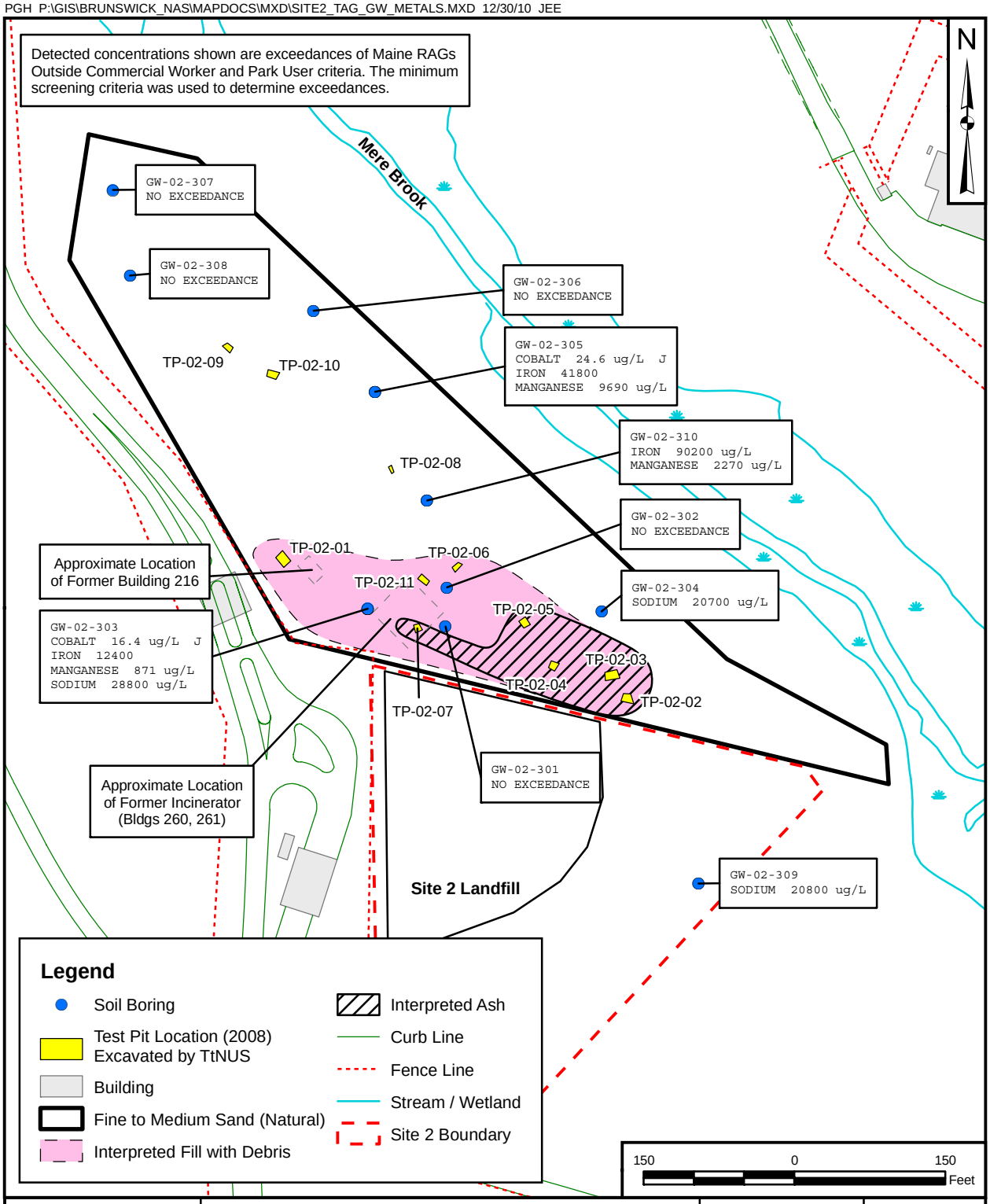
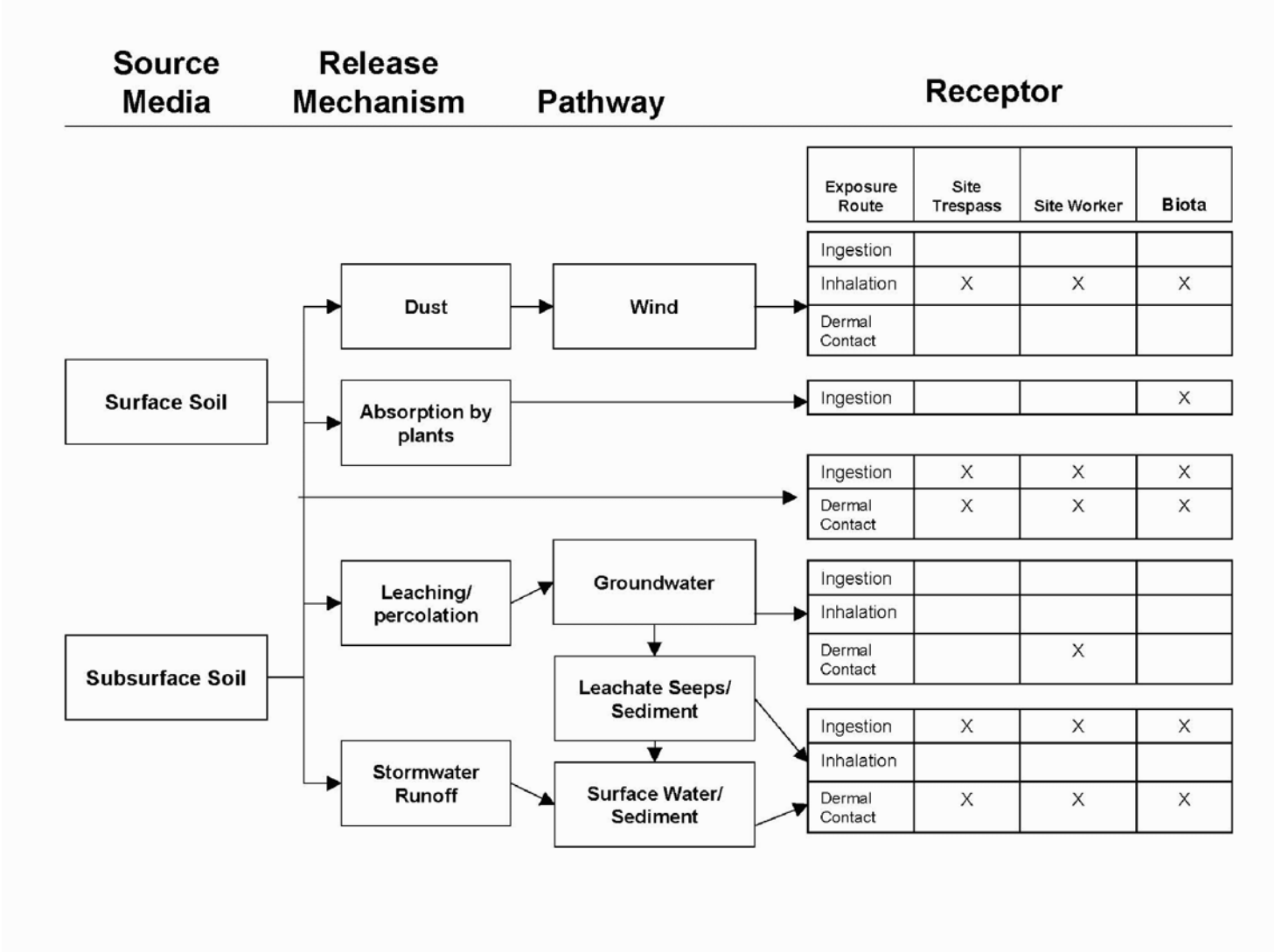


DRAWN BY	DATE	TETRA TECH	CONTRACT NUMBER	CTO NUMBER
J. ENGLISH	12/30/10		00958	___
CHECKED BY	DATE	SOIL METAL EXCEEDANCES	APPROVED BY	DATE
C. RACE	12/30/10	SITE 02	___	___
REVISED BY	DATE	NAVAL AIR STATION BRUNSWICK	APPROVED BY	DATE
___	___	BRUNSWICK, MAINE	___	___
SCALE			FIGURE NO.	REV
AS NOTED			FIGURE 3-6	0

PGH P:\GIS\BRUNSWICK_NAS\MAPDOCS\MXD\SITE2_TAG_GW_METALS.MXD 12/30/10 JEE



DRAWN BY J. ENGLISH	DATE 12/30/10	TETRA TECH	CONTRACT NUMBER 00958 / CTO NUMBER ___
CHECKED BY C. RACE	DATE 12/30/10	GROUNDWATER METAL EXCEEDANCES SITE 02 NAVAL AIR STATION BRUNSWICK BRUNSWICK, MAINE	APPROVED BY ___ / DATE ___
REVISED BY ___	DATE ___		APPROVED BY ___ / DATE ___
SCALE AS NOTED			FIGURE NO. FIGURE 3-7 / REV 0



TETRA TECH NUS, INC.

CONCEPTUAL SITE MODEL
SITE 2 AND AREA NORTH OF SITE 2
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE

SCALE: AS NOTED
FILE: \..\FIG_3-8.DWG
REV: 0
DATE: 07/23/09
FIGURE NUMBER: 3-8

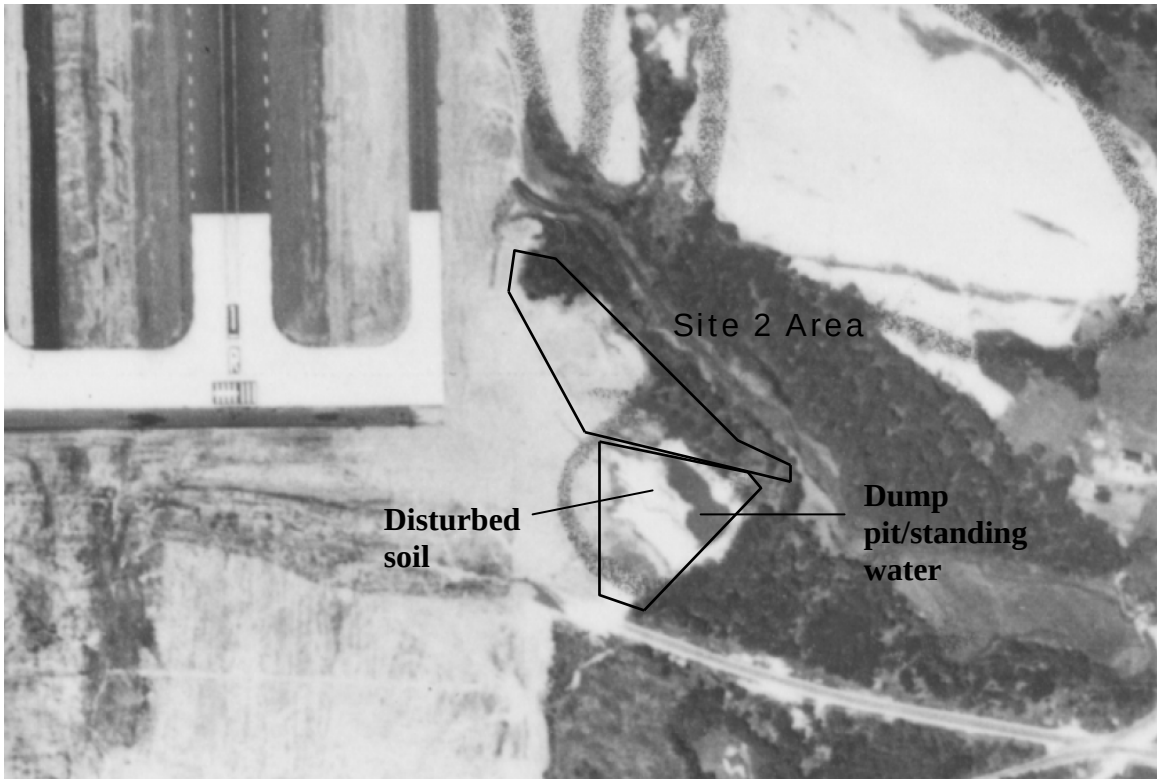
APPENDIX A

AERIAL PHOTOGRAPHS

Figure A-1

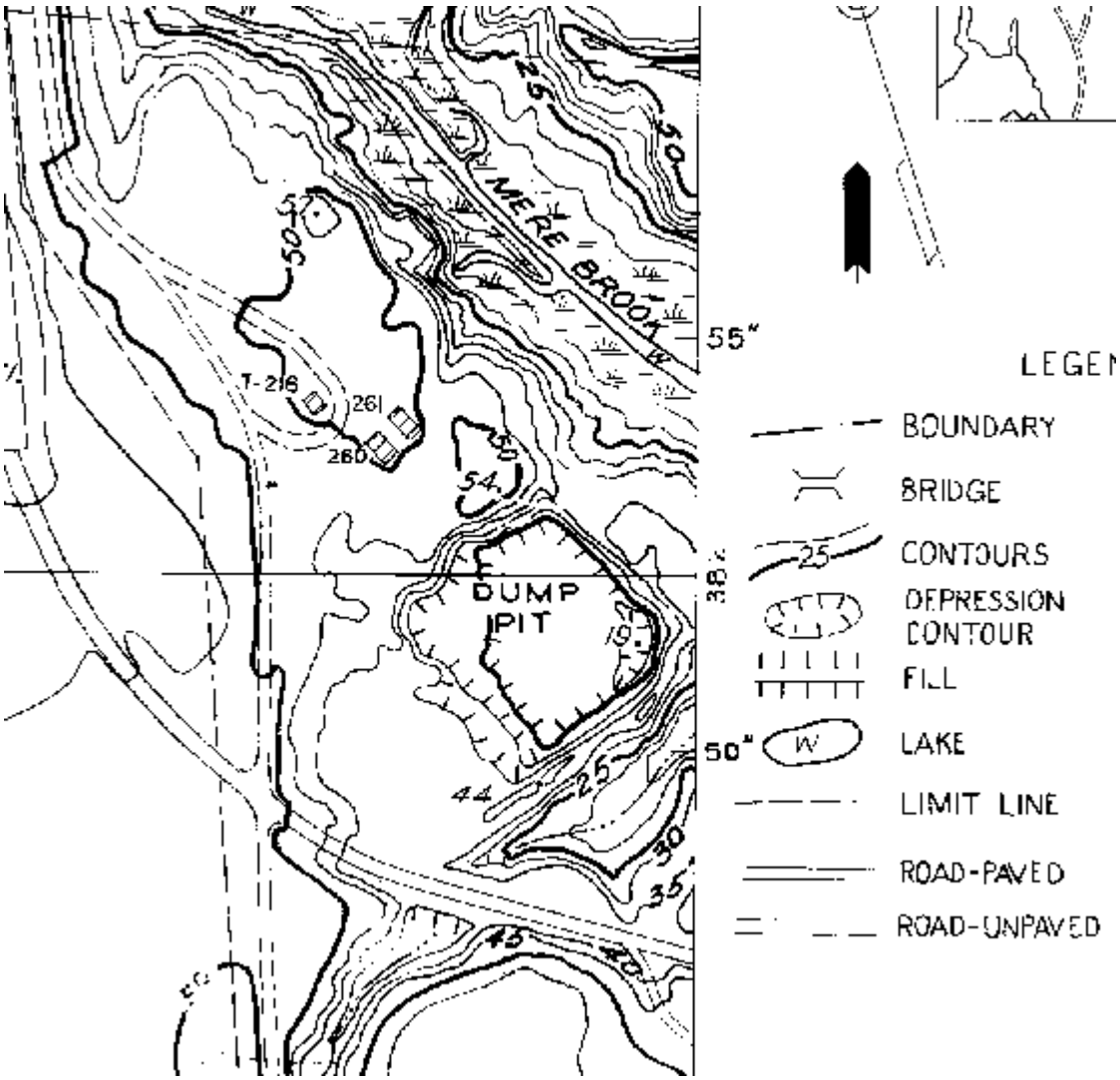
1940 Aerial Photograph-Brunswick NAS, Site 2 – Approximate Area of Site 2 shown in black outline. Mere Brook shown to the east. Site 2 appears to be vegetated and undeveloped.

Figure A-2



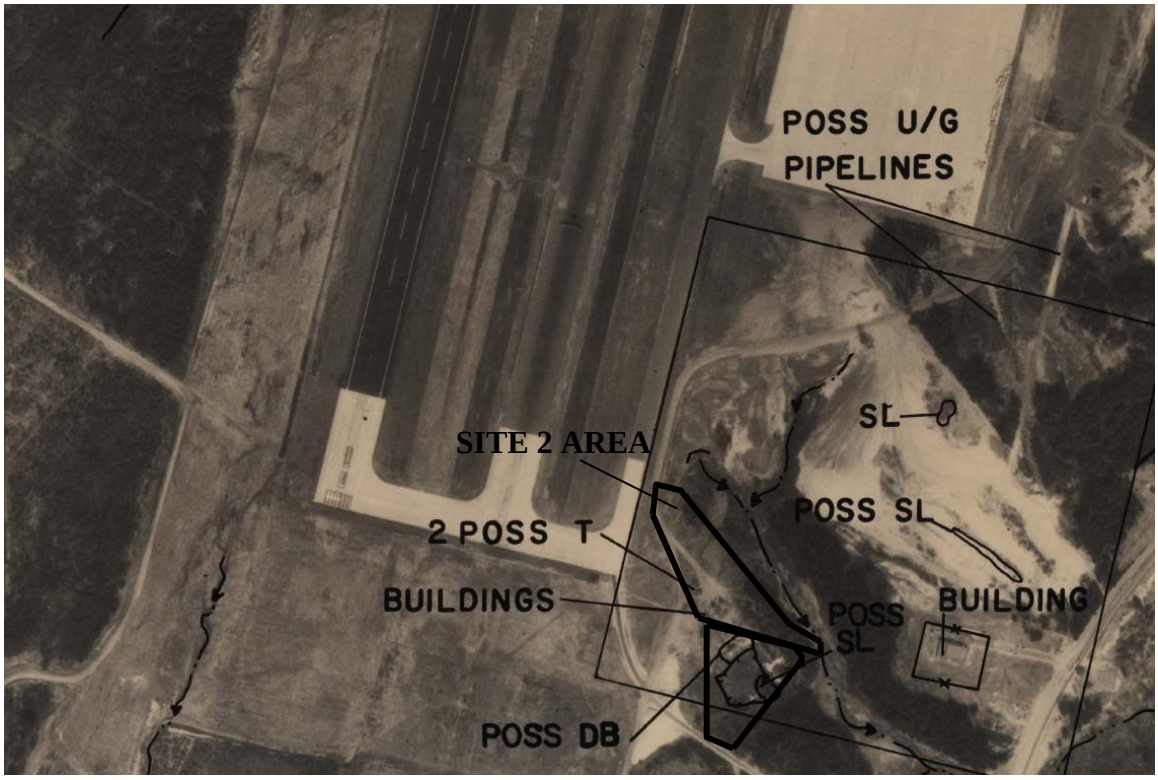
1953 Aerial Photograph- Brunswick NAS, Site 2- Disturbed soil is visible in the southwestern and western most portion of Site 2. Dump pit or area of standing water in southeastern portion of the Site.

Figure A-3



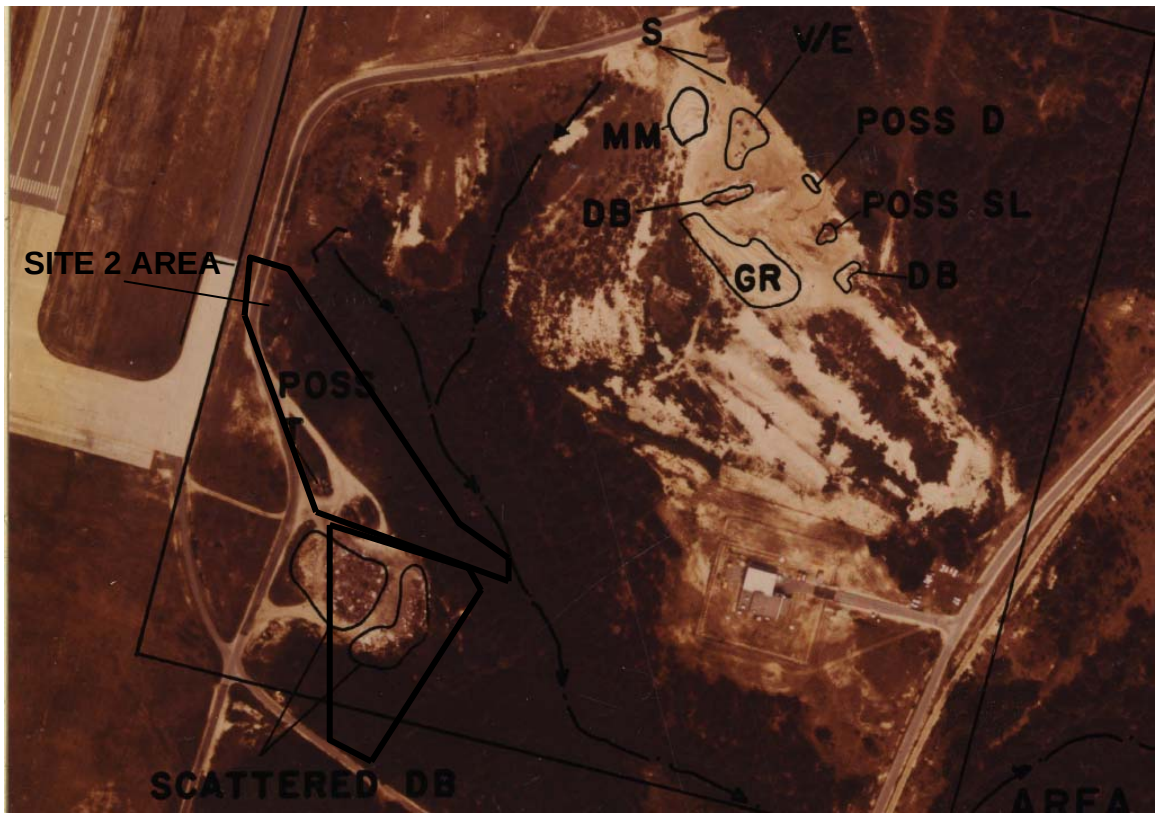
1957 Topography Map- Brunswick NAS, Site 2-The dump pit is outlined in the southeastern portion of the map and three buildings (216, 260, and 261) are shown in the northwestern portion of the map. According to this map, there is over thirty feet of elevation change between the Mere Brook area and the building areas.

Figure A-4



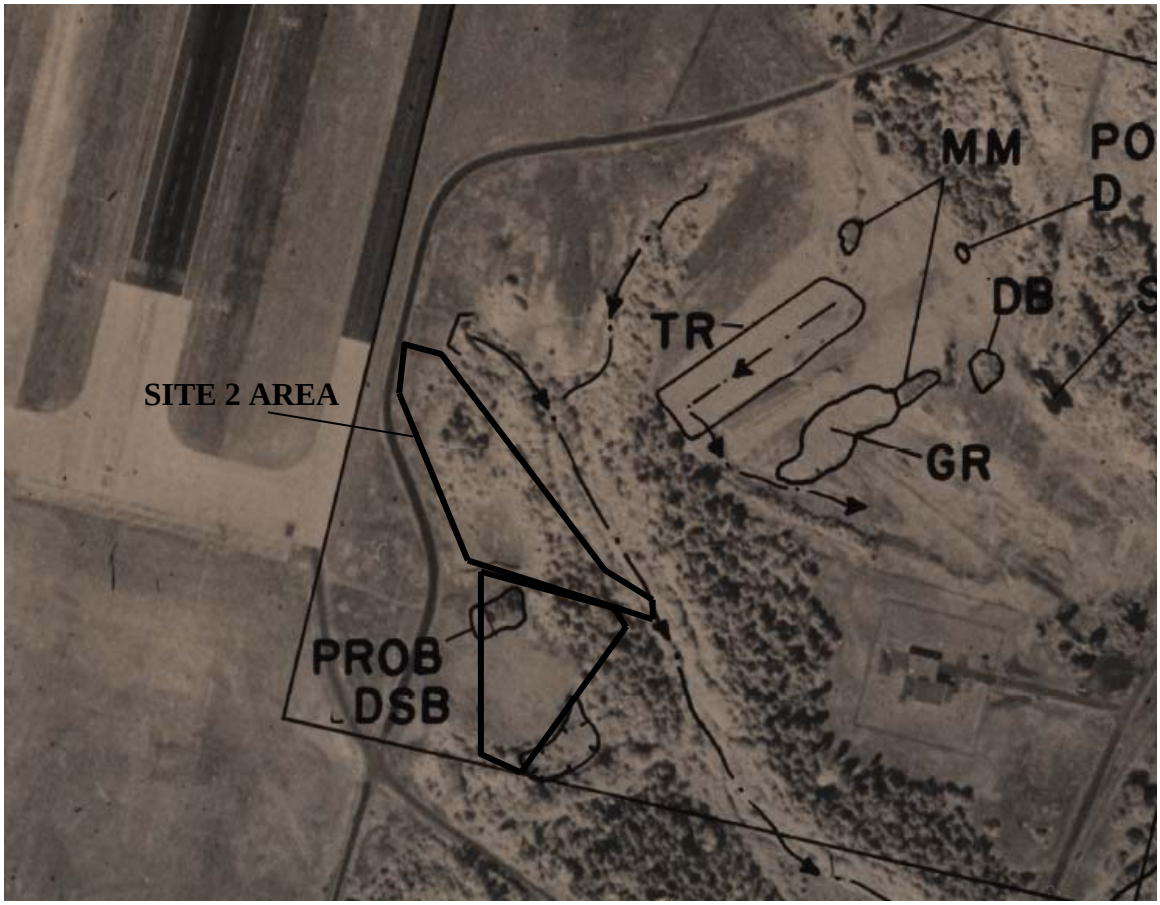
1959 Aerial Photograph- Brunswick NAS, Site 2- The dump area is outlined in the southeastern portion. Three buildings are located in the northeastern portion and 2 possible ASTs are located northwest of the buildings.

Figure A-5



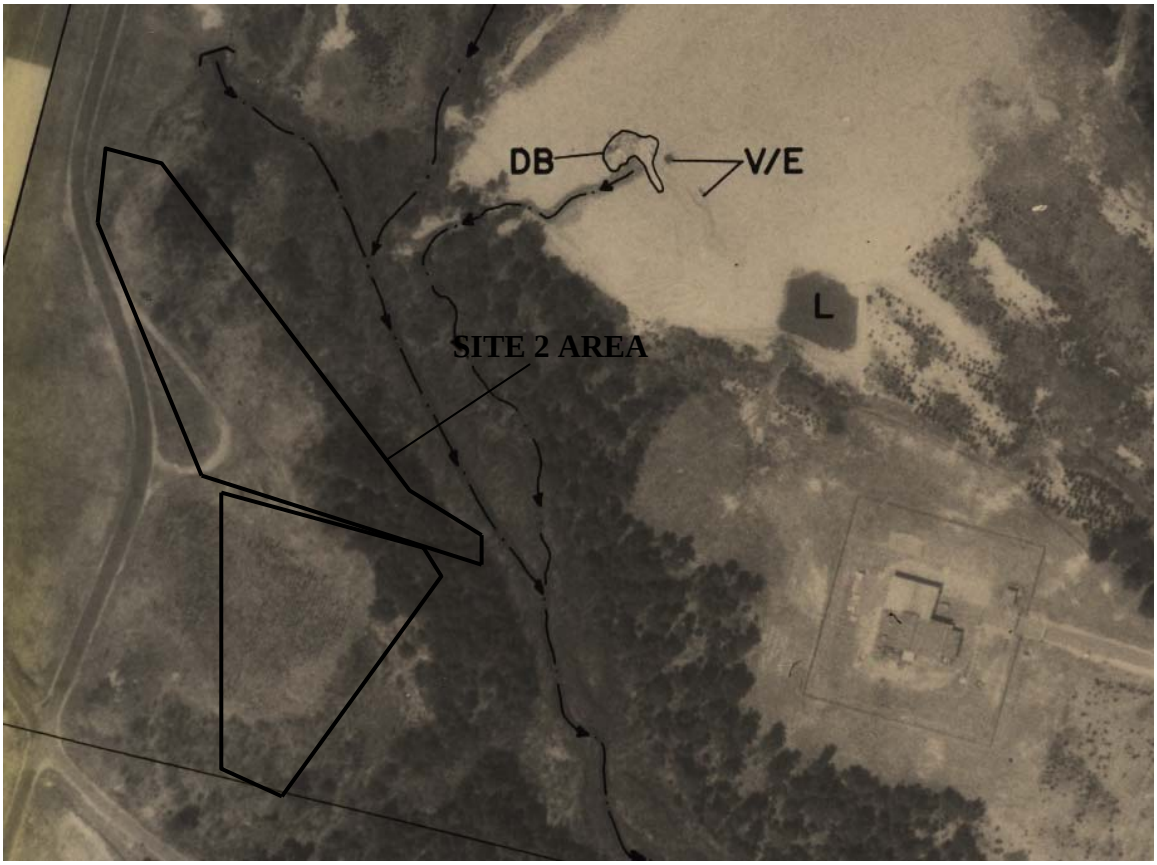
1965 Aerial Photograph- Brunswick NAS, Site 2- Two possible ASTs are pointed out in the northwestern portion of the Site. The dirt road is visible that begins at Orion Rd and terminates at the incinerator buildings. Scattered debris is noted in the southern portion of the Site.

Figure A-6



1966 Aerial Photograph- Brunswick NAS, Site 2- ASTs and buildings are no longer visible. Possible debris is noted in the photograph.

Figure A-7

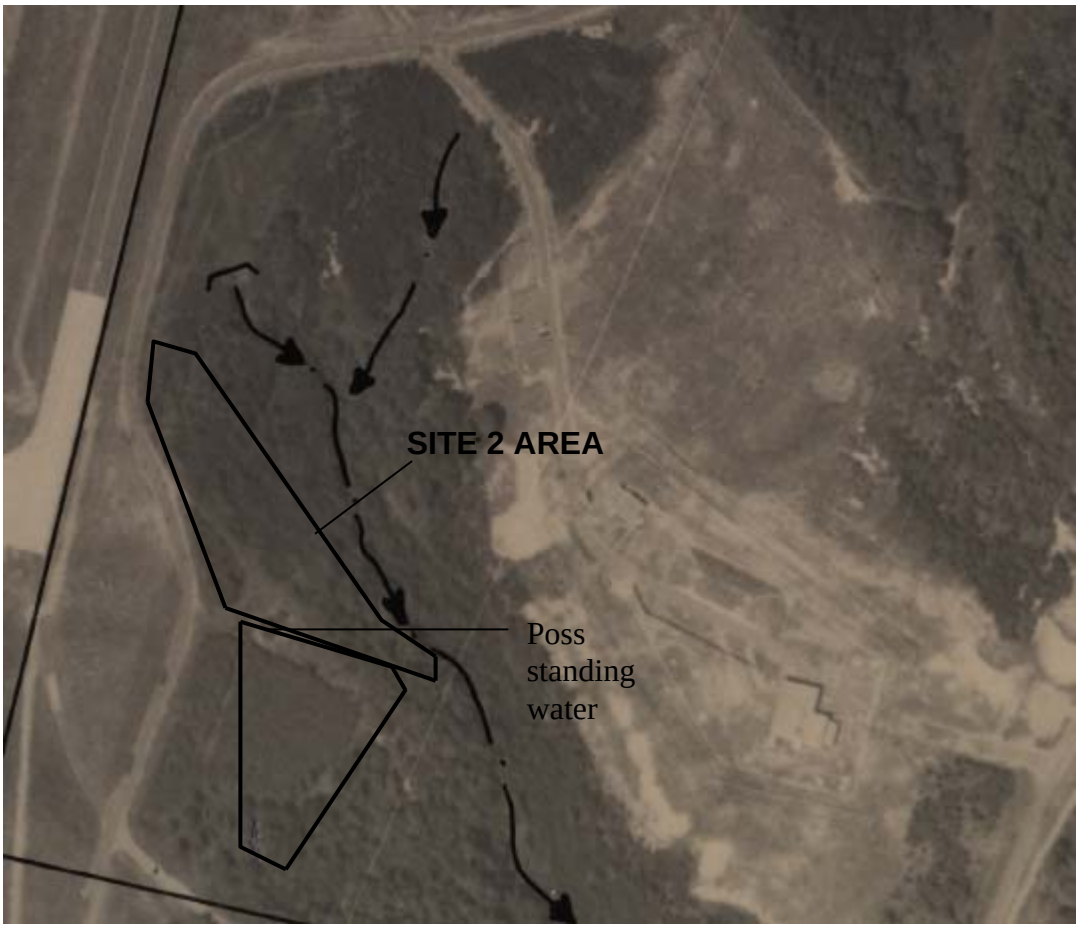


1972 Aerial Photograph- Brunswick NAS, Site 2- No debris is noted in this photograph. According to EPA (1987) land filling activities are visible and standing liquid is observable draining from the landfill area into Mere Brook.

Figure A-8

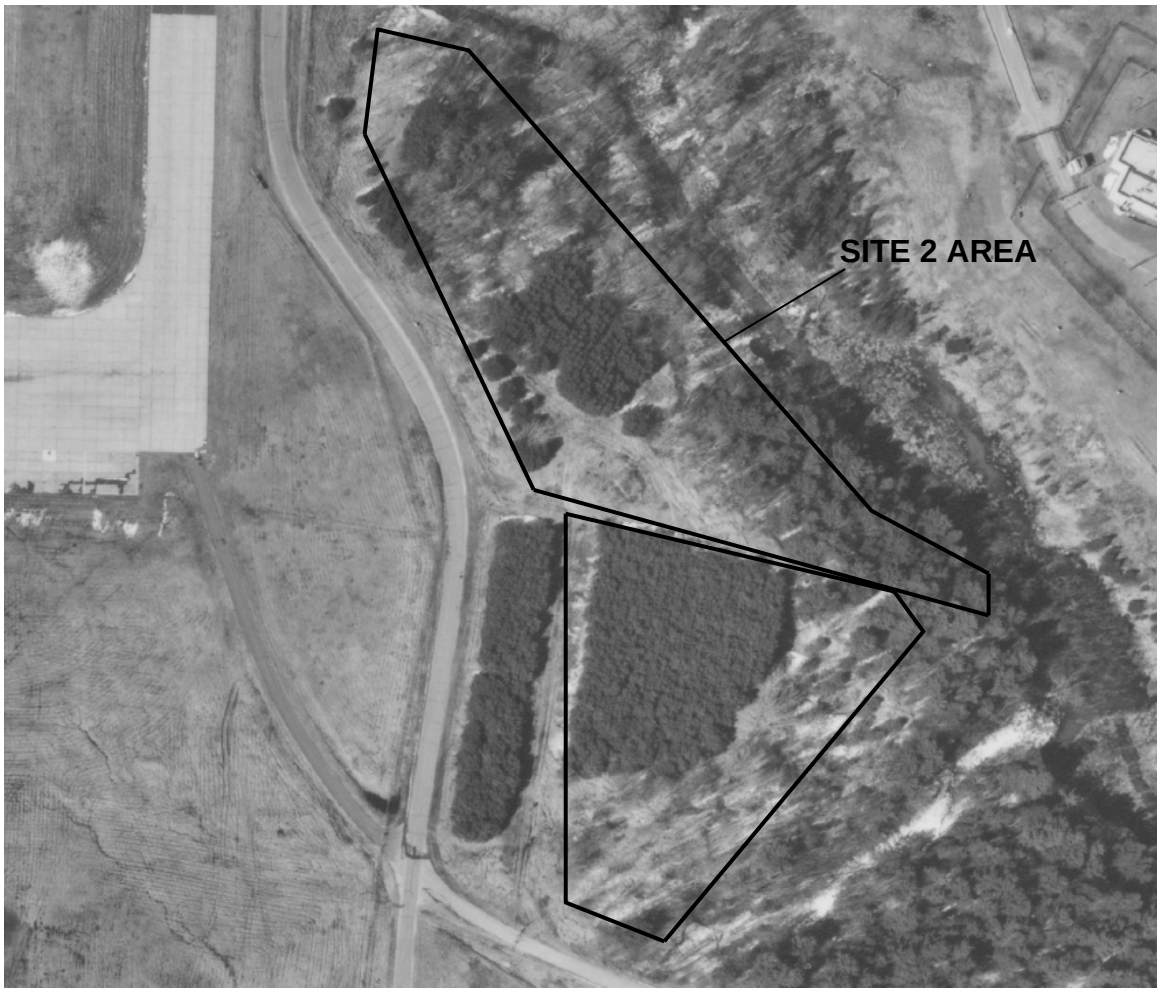
1978 Aerial Photograph- Brunswick NAS, Site 2- Debris is not visible in this photograph. Either tress or possible standing liquid is visible southeast of the dirt road.

Figure A-9



1980 Aerial Photograph- Brunswick NAS, Site 2- No debris noted. Either trees or possible standing liquid is visible southeast of the dirt road in this photograph.

Figure A-10



1989 Aerial Photograph- Brunswick NAS, Site 2- vegetation has replaced the dirt road. Landfill activities appear to have ceased.

APPENDIX B

NORTHEAST GEOPHYSICAL REPORT

Northeast Geophysical Services

METAL DETECTION, TERRAIN CONDUCTIVITY AND RESISTIVITY SURVEYS NORTH OF THE SITE 2 LANDFILL, NAS BRUNSWICK, BRUNSWICK, MAINE

For:
TETRA TECH NUS, INC.

December, 2008

METAL DETECTION, TERRAIN CONDUCTIVITY AND RESISTIVITY SURVEYS NORTH OF THE SITE 2 LANDFILL, NAS BRUNSWICK, BRUNSWICK, MAINE

INTRODUCTION

At the request of Tetra Tech NUS, Inc. metal detection (EM-61), terrain conductivity (EM-31) and 2D resistivity surveys were conducted in the area north of the Site 2 Landfill at NAS Brunswick in Brunswick, Maine. The main objectives of the surveys were to: locate possible buried metal objects at the site, determine the northern limits of the Site 2 Landfill, and locate high-conductivity groundwater plumes that may be associated with leachate seeps that occur northeast of the survey area. The survey was conducted on August 21-24, 2006 by Mike Scully of Northeast Geophysical Services (NGS) with the assistance of Chelsea Fellows-Swenson, Johanna Traut and Charles Race of Tetra Tech. This report summarizes site conditions, methods used, and the results of the geophysical surveys.

SITE LOCATION AND CONDITIONS

Brunswick Naval Air Station is located in Brunswick, Maine and is approximately 3,094 acres in size. It is currently an active base that is scheduled for closure in 2011. Site 2 was used as a landfill from 1945 to 1955 and is located in a now wooded area just east of the southern end of the base runways.

The survey site consists of an irregular-shaped area just north of the Site 2 Landfill. It is approximately 4 acres in size – approximately 1,000 feet long and ranging from 80 feet to 230 feet wide as shown on Figure 1. The area is about two-thirds wooded and one third brushy open area. The somewhat irregular surface topography in the survey area suggests that portions of the site may have been excavated and/or filled in the past. The very southeast and northwest ends of the survey area appear to be the most undisturbed parts of the site. The trees in the central portion of the wooded area were obviously planted as they occur in straight rows.

METHODS AND INSTRUMENTATION

EM-61 Metal Detector: A Geonics EM-61 metal detector was also used for the metal detection surveys. The EM-61 is a portable time-domain instrument with a coincident transmitter/receiver coil and second parallel receiver coil for depth to target estimation and rejection of surface metal response. The instrument measures the secondary electromagnetic field response in milli-volts (mV). The EM-61 is designed specifically to locate medium to large buried metal objects such as drums and tanks while being relatively insensitive to above-surface metallic objects such as fences, buildings and power lines. The technique is sensitive to conductive metal up to a depth of approximately 12 feet. The size and burial depth of the metal determine the strength of the response. The EM-61 transmitter/receiver coils can either be carried by the operator using a harness, or pulled on wheels. EM data is digitally recorded on an Allegro CX field computer. Readings can be triggered automatically, manually or, if the wheel mode is used, readings can be recorded at regular intervals controlled by the rotation of the wheels.

In the more open portions of the site the EM-61 readings were triggered automatically at the rate of 5 per second and the locations of the readings were recorded in real time using a Trimble AG132 GPS system with real time differential corrections. In the wooded portions of the site the GPS receiver would not work adequately so the wheel mode was used and the EM-61 readings were recorded every .63 feet along grid lines spaced 5 feet apart. Approximately 51,110 EM-61 readings were recorded at this site.

EM-31 Terrain Conductivity: Terrain conductivity (EM-31) measurements are made by inducing an electromagnetic current into the ground from a transmitter coil, and recording the resulting secondary electromagnetic field at a receiver coil a fixed distance away. The strength of the secondary field depends upon the conductivity of materials in the ground. Measurements are recorded in units of conductivity called milli-Siemens per meter (mS/m).

Terrain conductivity may be affected by a number of factors including moisture content, mineralogy, and soil thickness. The conductivity of groundwater, however, is the primary factor. Large increases in conductivity are likely due to increased ion concentration (total dissolved solids) in the groundwater.

In addition to conductivity readings, measurements of the inphase component of the electromagnetic field are recorded. The inphase measurement is sensitive to the presence of metallic conductors and this measurement is used for metal detection. Abrupt negative spikes in the inphase and conductivity measurements are indicative of metallic conductors.

A Geonics EM-31 terrain conductivity meter was used for this survey. The EM-31 is a one-person device containing both transmitter and receiver coils on a 3.7-meter frame. Effective exploration depth for this instrument is about 18 feet.

EM-31 measurements were done in the southern portion of the area surveyed by EM-61. This was done as an attempt to better define the northern limits of the Site 2 Landfill. EM-31 readings were measured at 5-foot intervals along survey lines spaced 10 feet apart. A total of 1,180 terrain conductivity measurements were recorded.

Electrical Resistivity: Electrical resistivity is the resistance (in ohms) to the flow of electricity across a volume of material. Resistivity values are commonly expressed in ohmmeters. The resistivity of earth material is determined by measuring the voltage drop between two electrodes when current is applied into the earth through two other electrodes located a set distance away. Resistivity is calculated by dividing the voltage by the current multiplied by a constant. This constant is determined by the electrode spacing and configuration.

The resistivity of earth material is primarily determined by its water content and the water salinity. Lower resistivities can be caused by increasing the water content or by increasing the water salinity or both. Thus, dry soil or rock typically has a higher resistivity than if it is saturated. And generally, the more porous or highly fractured that saturated material is, the lower its resistivity will be. The following table shows some general ranges in resistivity of some common earth materials.

Material	Resistivity (ohmmeters)
Wet to moist clayey soil and wet clay	1s to 10s
Wet to moist silty soil and silty clay	Low 10s
Wet to moist silty and sandy soils	10s to 100s
Sand and gravel with layers of silt	Low 1000s
Course dry sand and gravel deposits	High 1000s
Well-fractured to slightly fractured saturated rock	100s
Slightly fractured rock with dry, soil filled cracks	Low 1000s
Massively bedded rock	High 1000s

(from Burger, H. R., 1992, Exploration Geophysics of the Shallow Subsurface pp. 295 Prentice Hall, Inc., Englewood Cliffs, New Jersey 07632)

At this site the resistivity data was collected using an ABEM Terrameter SAS 1000 resistivity meter with an ABEM LUND ES464 electrode selector. This is an automated multi-electrode resistivity system. The surveys were conducted using the Schlumberger configuration. This configuration consists of two current electrodes separated in line by a pair of potential electrodes. For each set of measurements, the spacing of each current-potential pair stays the same, while the spacing between pairs varies. Depth of investigation is determined by the spacing width between the electrode pairs with the wider electrode spacing penetrating more deeply into the earth.

With this equipment one standard field spread consists of either 41 or 61 electrodes spaced 5 to 10 meters apart for a total spread length of either 200 meters (656 feet) or 400 meters (1,312 feet) each. The Lund electronic switching mechanism allows the instrument to measure resistivities between electrode pairs along the line spaced progressively further apart. In this manner 414 resistivity measurements (for the 200-meter setup) or 770 resistivity measurements (for the 400-meter setup) are made on each spread. The modeled depth of investigation is about 130 feet for the 200-meter setup and 260 feet for the 400-meter setup. For the current work at NAS Brunswick Site 2 both resistivity survey lines were 260 meters long.

The resistivity data were interpreted using the RES2DINV interpretation software written by M.H. Loke. The program creates a 2-dimensional model of the subsurface resistivity based on the apparent resistivities measured at the surface. The effectiveness of the model to match the surface measurements is calculated as a percentage of the root-mean-square (% RMS) difference between the modeled and actual measurements. In general, a RMS value of 10% or less is considered a close match between the model and field measurements. At Site 2 the models generally matched the field measurements well with the RMS values of 7.1% for Line 1 and 8.9% for Line 2.

The interpreted data was then contoured using the Surfer contouring program by Golden Software and presented as color vertical sections of apparent resistivity for each line. The colors in these sections depict the modeled resistivity with red to dark red-brown representing areas of higher resistivity (3,500 to >20,000 ohmmeters) and very low resistivities (below 150 ohmmeters) shown in blue shades. Intermediate resistivities from are shown as green to yellow to brown tones.

At this site the areas of highest resistivity (greater than 3,500 ohmmeters) are interpreted to represent dry soil. Areas of intermediate resistivity (150 to 3,500 ohmmeters) are interpreted to represent partially saturated to saturated sandy soil. Very low resistivities of below 150 ohmmeters are interpreted to represent saturated silty to clayey soils or groundwater that has been impacted by conductive landfill leachate.

Field Survey Procedures

Prior to the survey much of the site was inaccessible to the survey equipment due to thick brush, low hanging branches and fallen trees. A crew of four people spent approximately 3 days clearing the site using power and hand tools. Once the site was cleared a field survey grid was established using tape measures and pin flags. An arbitrary numbering system was used for the grid. Several grid points were later surveyed using DGPS so that the grid survey results could be translated to real world coordinates as shown on Figures 1 through 3.

In the more open portions of the site the EM-61 readings were triggered automatically at the rate of 5 per second and the locations of the readings were recorded in real time using a Trimble AG132 GPS system with real time differential corrections. In the wooded portions of the site the GPS receiver would not work adequately so the wheel mode was used and the EM-61 readings were recorded every .63 feet along grid lines spaced 5 feet apart. EM-31 measurements were done in the southern portion of the area surveyed by EM-61. EM-31 readings were measured using the field grid at 5-foot intervals along lines spaced 10 feet apart.

RESULTS OF THE SURVEY

<u>EM-61 Metal Detection:</u> Figure 1 shows the site layout and the results of the metal detection survey at the site. The figure indicates the distribution of metal within approximately 12 feet of the ground surface. The strength of the metal response shown is directly proportional to the total surface area of metal under the instrument and inversely proportional to the depth of the metal. Zero or very low metal responses are shown as small gray plus marks. These also show the track of the instrument during the survey. Increasing metallic responses are indicated by colored blocks progressing from yellow to gold to red to black as shown in the explanation of Figure 1. Significant buried metal anomalies are generally indicated by high positive readings on this figure. Blue colored blocks indicate negative values which are generally caused by metal objects that are at or above the ground surface.

Four areas of high metal response are indicated as anomalous on Figure 1. These are relatively contiguous areas of elevated metallic response that may be caused by significant amounts of buried metal at these locations. Other small spots of metal response seen on Figure 1 are likely caused by small individual objects that are buried less than a foot deep. Anomaly 1 occurs at the southeast end of an area that appears to have been filled above natural ground. The ground surface drops down steeply about 15 feet along the east and north sides of the anomaly and several broken pieces of reinforced concrete are exposed on the slopes. Other miscellaneous pieces of metal debris are partially exposed on the surface here including an old metal bed spring. Anomaly 2 occurs just to the west of Anomaly 1. No obvious metal was exposed on the surface here, but it is likely caused by more of the same type of debris that causes Anomaly 1.

Anomaly 3 is a large, roughly rectangular area of metal response that ranges from weak to very strong. Two approximately parallel linear areas of very strong (black) metal response within Anomaly 3 are associated with reinforced concrete walls or footings that are visible on the ground surface. These concrete structures may have been associated with a former incinerator that is known to have been at about this location. The remaining lesser metal responses within Anomaly 3 may be caused by other remnants of the incinerator structure or possibly by metallic remnants of trash that was incinerated there.

Anomaly 4 is a small area of generally moderate metal response that occurs along the west side of the survey area. There was no exposed metal here at the time of the EM survey. It is likely caused by a few pieces of metallic trash that is buried less than a foot or two deep.

EM-31 Terrain Conductivity: Figure 2 shows the results of the EM-31 survey. EM-31 measurements were done in the southern portion of the area surveyed by EM-61. This was done as an attempt to better define the northern limits of the Site 2 Landfill. The results of this limited survey were mainly that it confirmed the metal anomalies identified by the EM-61 survey. From the results, it appears likely that the metal occurrences within the survey area were isolated piles of debris that were not part of the main Site 2 landfill.

Resistivity: The results of the 2D resistivity surveys are shown on the attached profiles of the modeled resistivity for survey Lines 1 and 2 (Figures 4 and 5). The lines are both 260 meters (853 feet) long and run from southeast to northwest as shown on Figure 3. Figure 3 also shows a horizontal slice through the resistivity model at approximately 20 feet deep projected between Profiles 1 and 2. The lines are 30 feet apart and run parallel to each other. The purpose of the resistivity surveys was to try to locate high-conductivity groundwater plumes that may be associated with leachate seeps that occur along the banks of the stream northeast of the survey area. As discussed above the areas of highest resistivity (greater than 3,500 ohmmeters) are interpreted to represent dry sandy soil. Areas of intermediate resistivity (150 to 3,500 ohmmeters) are interpreted to represent partially saturated to saturated sandy soil. Very low resistivities of below 150 ohmmeters are interpreted to represent saturated silty to clayey soils or groundwater that has been impacted by conductive landfill leachate.

The modeled resistivity results for Lines 1 and 2 are quite similar because the lines are fairly close together. Both profiles show a discontinuous upper layer of high resistivity that ranges from zero to about 12 meters (40 feet) thick. This high-resistivity surface layer is absent in the center of the profiles from about 110 to about 165 meters. This high resistivity layer likely represents dry sandy soils. Below the upper high resistivity layer a low resistivity layer runs across the middle levels of both profiles. Within this layer there are three or four areas where the resistivities are very low as indicated by the darkest blue contours on the profiles. The low resistivity layer generally occurs in the range of 35 to 115 feet deep although it tends to be shallower in the middle of the profiles and deeper at the ends of the profiles. The very low resistivity zones generally occur in the range of 45 to 110 feet deep. The low resistivity layer in general likely represents saturated silty soils. The very low resistivity zones within the layer may represent areas where the groundwater has been impacted by high conductivity (low resistivity) landfill leachate. At the bottom of both profiles the resistivity appears to be increasing again.

This may be caused by a change from silt to sand and gravel or possibly fractured bedrock. Although the resistivity of saturated earth materials can vary significantly, an approximate water table has been interpreted and is shown on the resistivity profiles.

The area in the center of the profiles where the high resistivity surface layer is absent as mentioned above (110 – 165 meters) may indicate that there is a significant change in the soil there. This is a flat, somewhat elevated area where the trees were planted in straight rows. It is possible that this area was filled with material that either has a higher clay content or a higher metallic ion content than the surrounding, presumably natural soils.

LIMITATIONS OF THE SURVEYS

The EM-61 metal detection survey provides an indication of where buried metal exists at the site surveyed. The instrument provides indirect measurements of subsurface conditions to a depth of approximately 12 feet. The EM-31 terrain conductivity method can detect buried metal objects and high-conductivity groundwater plumes to a maximum depth of approximately 18 feet. The 2D resistivity profiling method uses small electrical currents to model the electrical resistivity of subsurface materials. The actual cause of the features depicted on Figures 1 through 5 can only be conclusively determined by direct observation.

The interpreted resistivity sections in this report provide an indication of subsurface conditions at the survey area. Electrical resistivity is an effective tool for mapping subsurface conditions such as saturated sediment or bedrock fracture zones. However, as with any indirect measurement, there are limitations to this method that should be kept in mind. First, it is possible that erroneous or bad data points may have been collected. Bad data would result in incorrect interpretations of the subsurface. A common difficulty in resistivity surveys is high contact resistance between the electrodes and the ground. Ideally, contact resistance should be about 1,000 ohms.

The data quality at Site 2 was generally very good. This was assessed in two ways. During data acquisition the instrument makes resistivity readings at each point using forward and reversed polarities (pulsing from electrode A to electrode B and then pulsing from B to A). Unless the data is noisy, these readings should repeat to within 2%. The difference between the forward and reversed polarity measurements in the resistivity readings at Johnstown sites was generally less than 2%.

After the data had been collected, profiles of the apparent resistivity for each “n” level on each of the lines surveyed were examined. Normally, these resistivity profiles should be relatively flat or smoothly varying. Bad data points can be identified as data points that abruptly deflect either upwards or downwards from the profile. Those points that were identified as bad were removed a few at a time and the resistivity was modeled after each phase of point removal. The overall pattern of modeled resistivity did not change appreciably as the noisy data points were removed, so the resistivity models presented should be considered quite robust.

The modeled resistivity sections presented in this report are interpretations of the subsurface that closely agree mathematically with the field measurements. However, it is possible that other models of the subsurface exist that could also match the field measurements. Also, it should be

kept in mind that the modeled interpretation assumes that changes in resistivity occur in two dimensions, either with depth or distance along the line. In reality the resistivity measurements also measure material to the left and right of the survey line. Thus it is possible that the program might model a feature that is not actually directly below the electrodes.

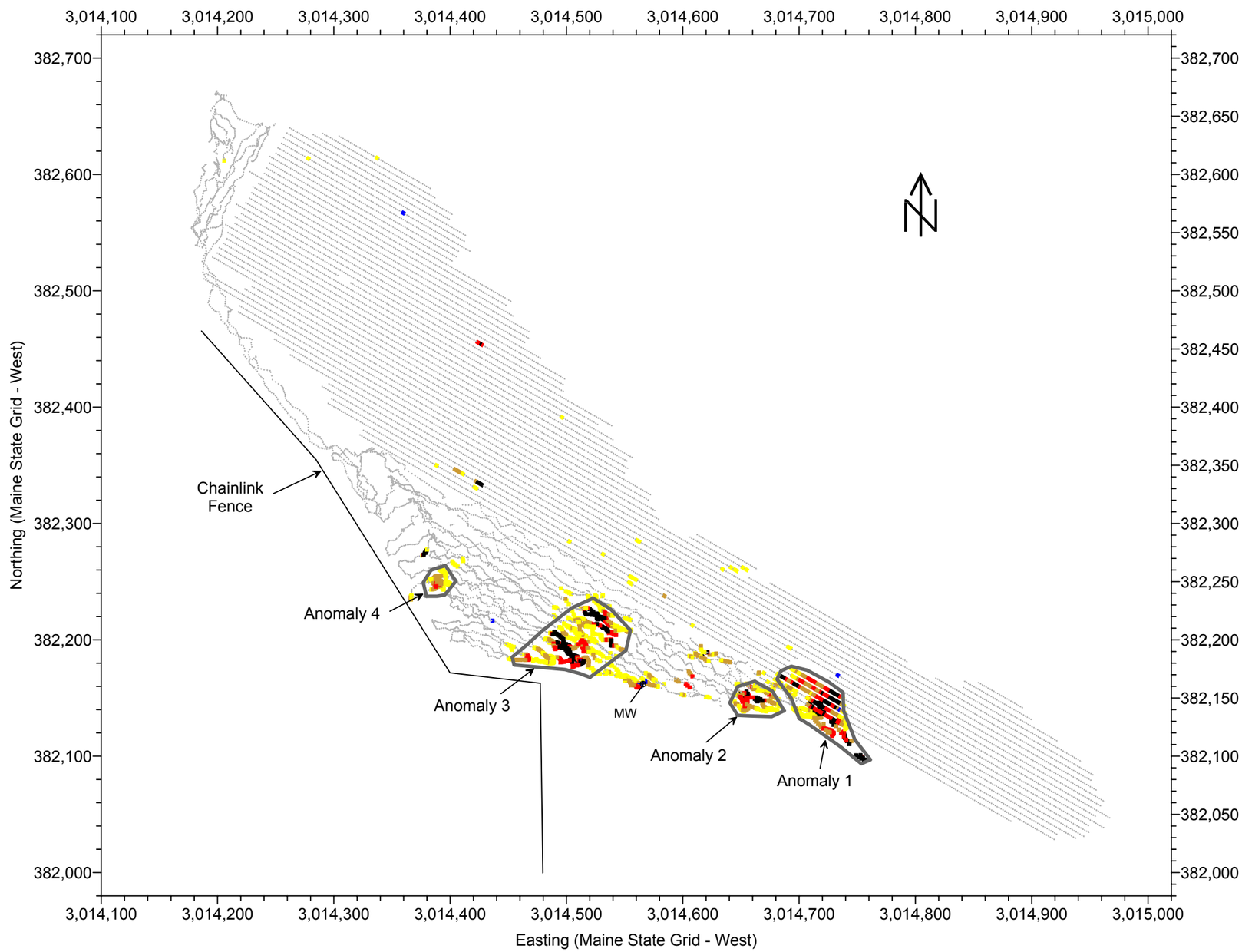


FIGURE 1

METAL DETECTION SURVEY MAP

SITE 2

NAS BRUNSWICK

BRUNSWICK, ME

For:

Tetra Tech NUS, Inc.

EXPLANATION

EM-61 Metal Detector Readings
Differential Metallic Response in Millivolts

- -12000 to -30
- -30 to 30
- 30 to 60
- 60 to 120
- 120 to 240
- 240 to 12000

Scale in Feet

0 50 100 150 200

Surveyed September 25, 2008 by:

NORTHEAST GEOPHYSICAL SERVICES

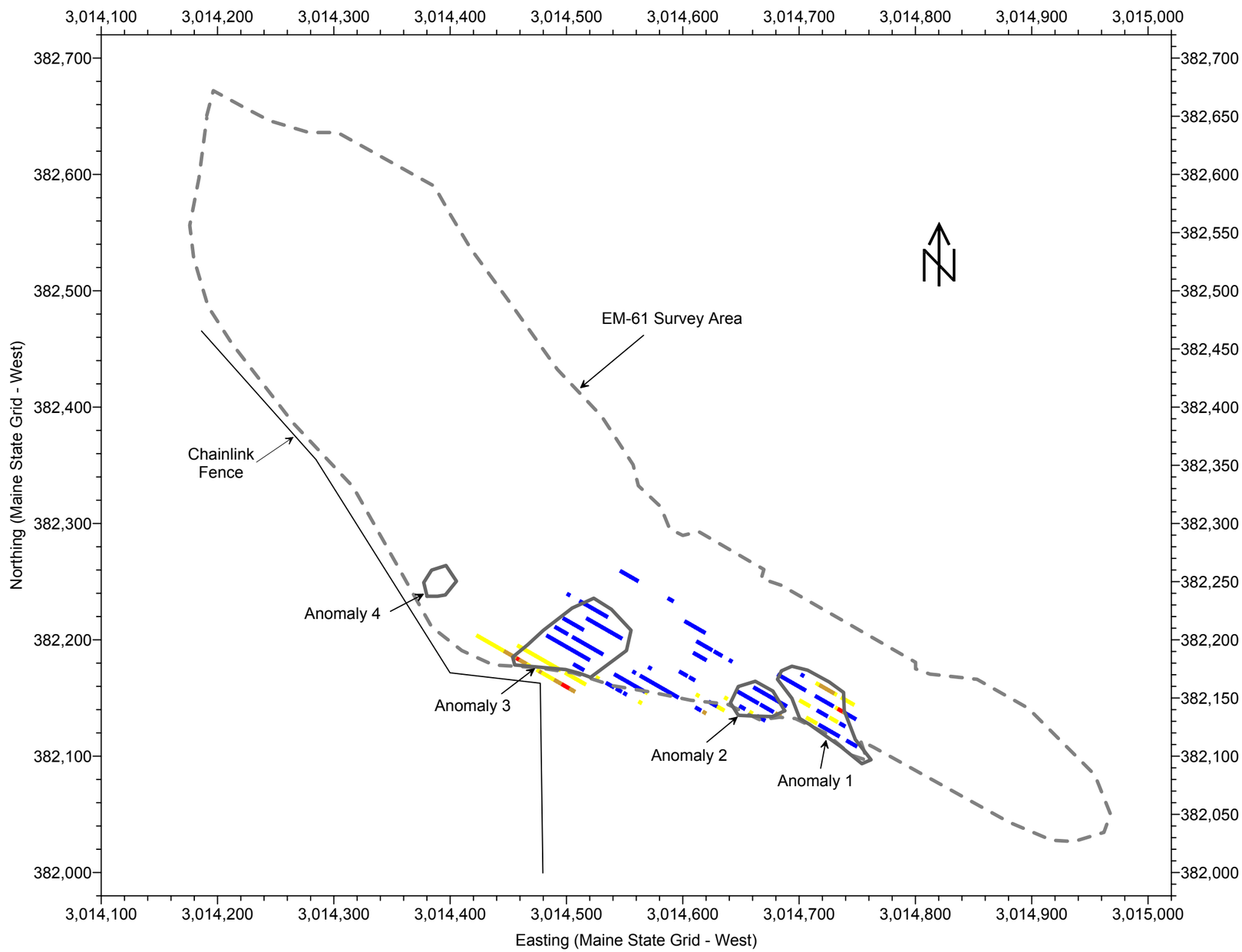


FIGURE 2

EM-31 CONDUCTIVITY MAP

SITE 2

NAS BRUNSWICK

BRUNSWICK, ME

For:

Tetra Tech NUS, Inc.

EXPLANATION

EM-31 Terrain Conductivity Readings
Conductivity Readings in millimhos/M

- -100 mS to -3 mS
- -3 mS to 6.5 mS
- 6.5 mS to 15 mS
- 15 mS to 30 mS
- 30 mS to 60 mS
- 60 mS to 300 mS

Scale in Feet

0 50 100 150 200

Surveyed September 25, 2008 by:

NORTHEAST GEOPHYSICAL SERVICES

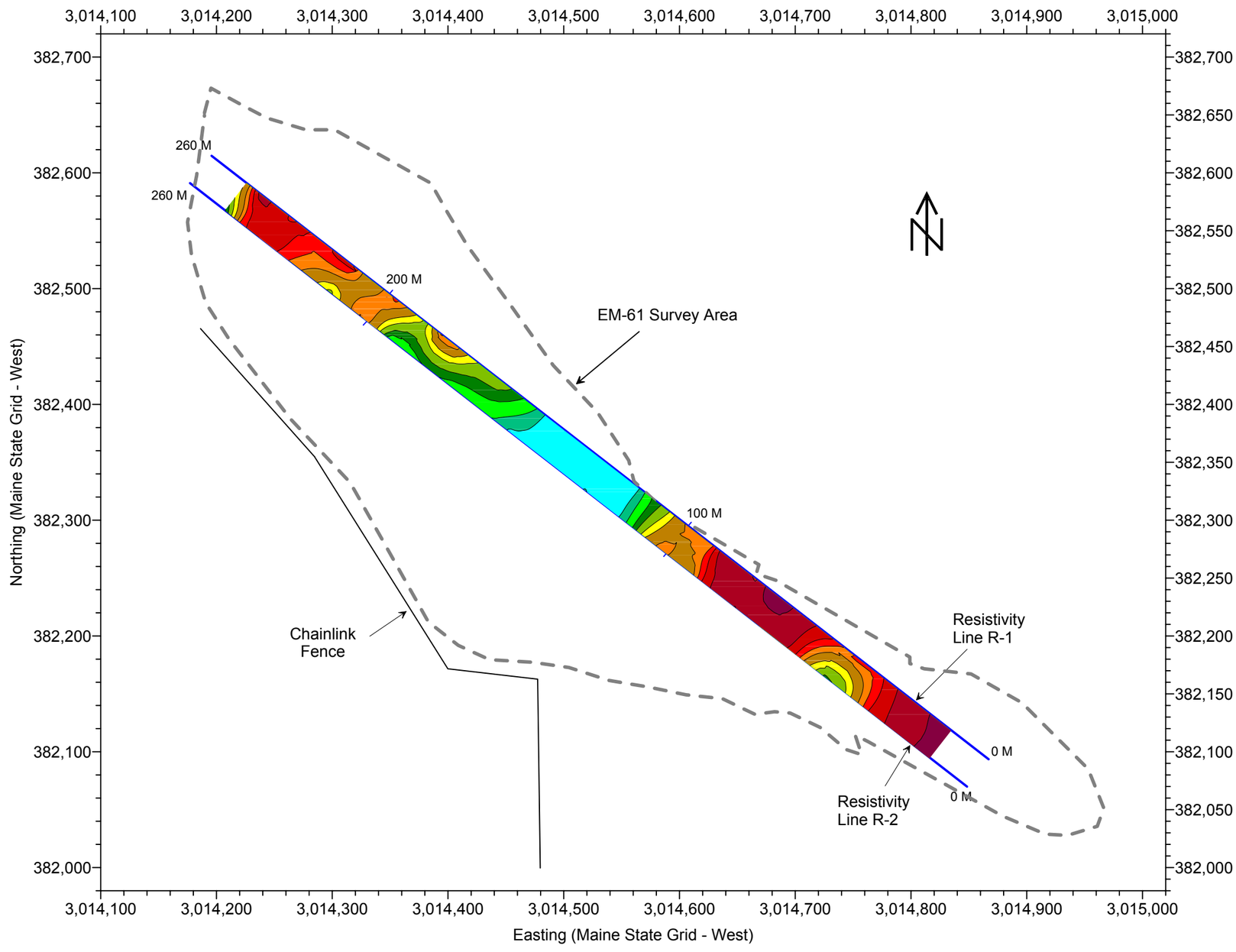


FIGURE 3

2D RESISTIVITY MAP

SITE 2

NAS BRUNSWICK

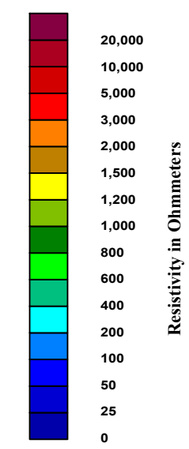
BRUNSWICK, ME

For:

Tetra Tech NUS, Inc.

EXPLANATION

Horizontal slice through modeled resistivity data projected between Profiles 1 & 2 at approximately 20 feet deep.



Scale in Feet

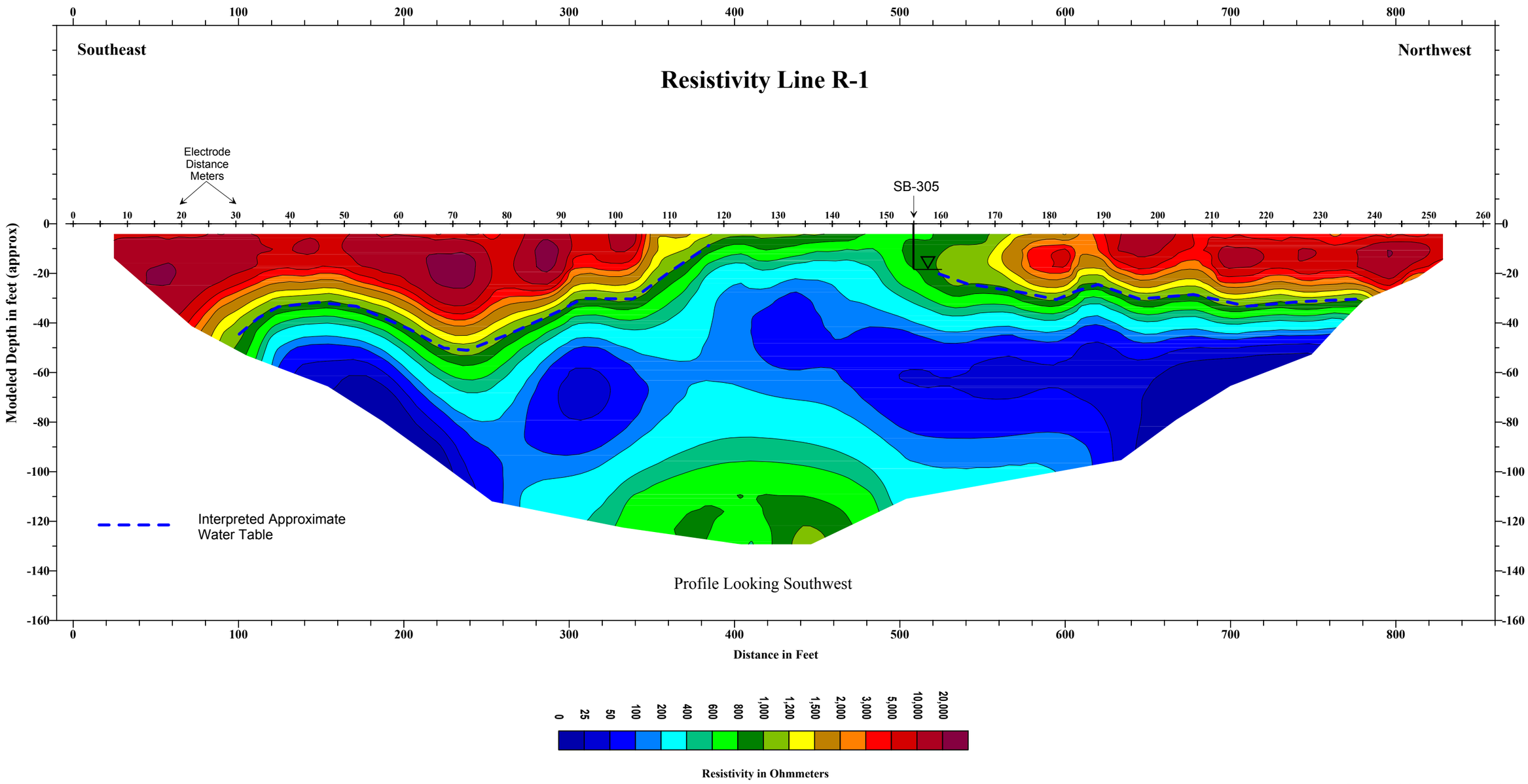
0 50 100 150 200

Surveyed September 25, 2008 by:

NORTHEAST GEOPHYSICAL SERVICES

Modeled Resistivity - Schlumberger Array
Brunswick Naval Air Station - Site 2, Brunswick, Maine

FIGURE 4

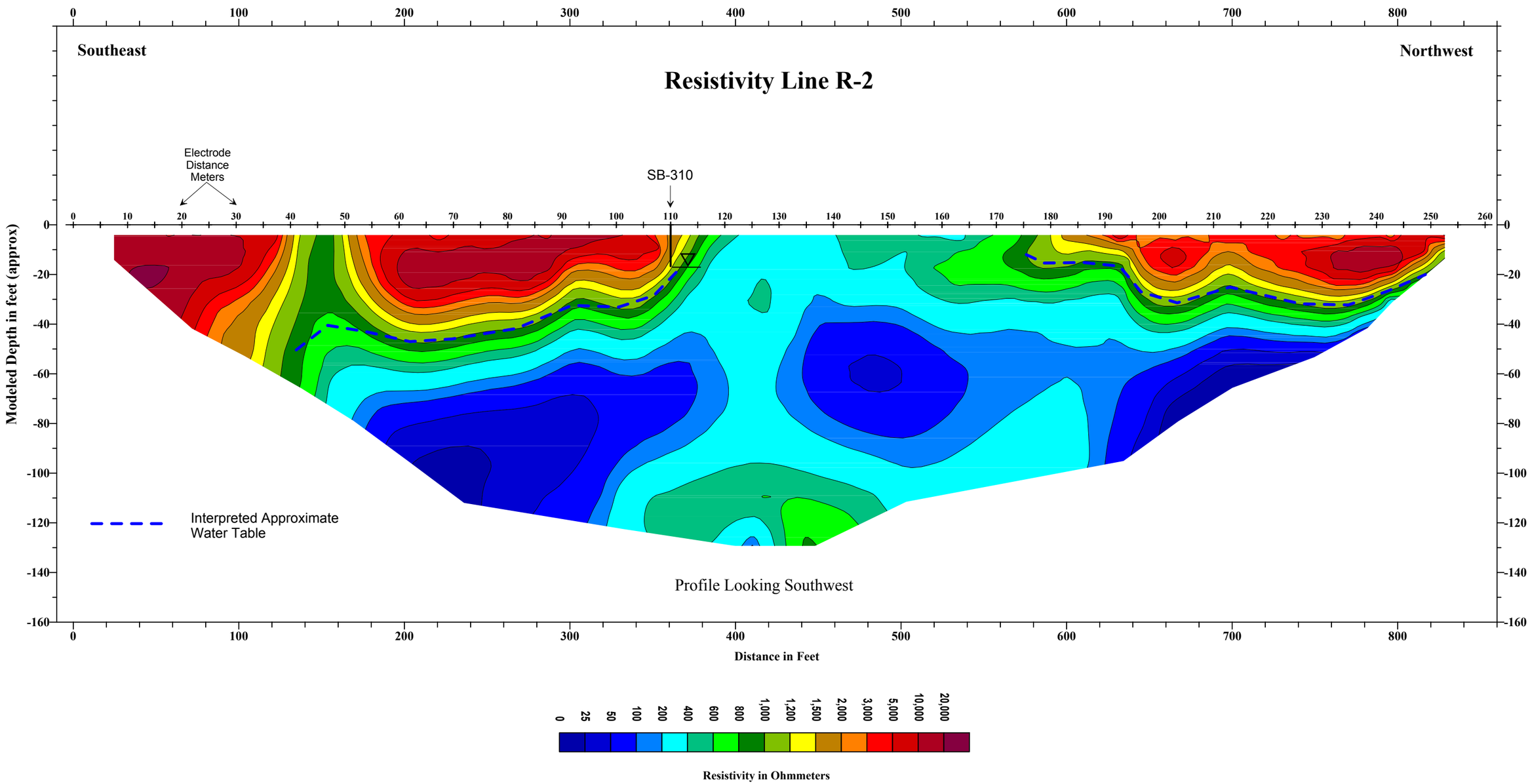


Surveyed Sept. 30, 2008 by:

Northeast Geophysical Services

Modeled Resistivity - Schlumberger Array
Brunswick Naval Air Station - Site 2, Brunswick, Maine

FIGURE 5



Surveyed Sept. 30, 2008 by:

Northeast Geophysical Services

APPENDIX C

FIELD DOCUMENTATION

C-1 Test Pit Logs

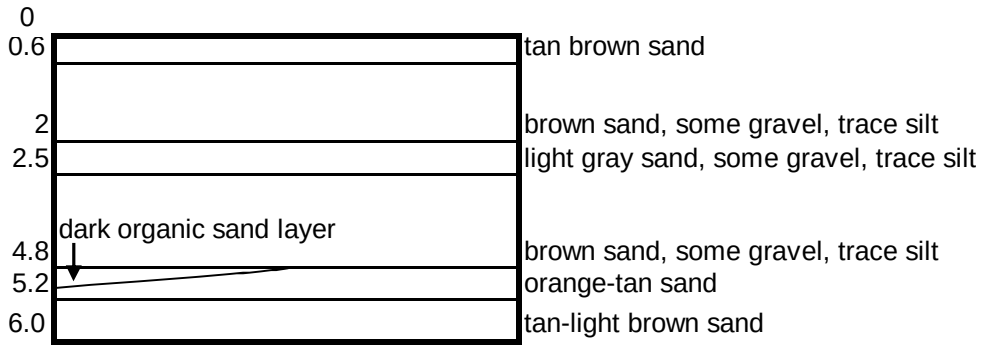
TEST PIT LOG

Tetra Tech NUS, Inc.

PROJECT NAME:	Site 2	TEST PIT No.: TP-2-01	
PROJECT NUMBER:	112G00958.0540	DATE: 10/1/08	
CONTRACTOR	Labbe Excavating, Inc.	GEOLOGIST: J. Traut, C. Fellows-Swenson	

Depth (Ft.)	MATERIAL DESCRIPTION Soil/Waste Characteristics (lithology, density, color, etc.)		USCS	Remarks
0.0-0.6	loose tan-brown sand	Fill	SP	glass, scrap metal, asphalt, headlight,
0.6-2.0	brown sand some gravel trace silt			cement block, car pieces
2.0-2.5	similar - light gray sand			pieces of charcoal mixed into topsoil,
2.5-4.8	brown sand, some gravel, trace silt			aluminum can, and
4.8-5.2	orange-tan sand	Upper Sand		metal part of headlight
5	layer of dark organic sand trace silt			
5.2-6.0	tan - light brown sand			
6.0	Bottom of test pit			

TEST PIT CROSS SECTION AND / OR PLAN VIEW



REMARKS: SAMPLE FROM TP-2-01-0006, TP-2-01-0203
~6' x 10' test pit
1st sample around metal found in top 2', 2nd sample - potential ash

PHOTO LOG:

C-2 Soil Boring Logs

BORING LOG FOR:	Former Orion Street Landfill-South (Site 2)		BORING NO.: SB-2-301
PROJECT NO:	112G00958		START DATE: 10/8/2008
LOGGED BY:	J. Traut, C. Fellows-Swenson	TRANSCRIBED BY:	COMPLETION DATE: 10/8/2008
DRILLED BY (Company/Driller):	Seth (MAI)		MON. WELL NO.: MW-2-301
GRD. SURFACE ELEVATION:		ELEVATION FROM:	CHECKED BY:

DEPTH (FEET) 0	BLOWS PER 6" NA	SAMP REC./ SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	SOIL DENSITY/ CONSIS. OR ROCK HARD	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
					Loose	Dark Brown	0.0-0.3 topsoil - sand (fine to medium) organics	OM	Dry Moist from 2.0-2.2	0.0 (S) 0.3 (H)
2		2.2 / 4.5					0.3-2.2 sand (fine to medium)	SP		
4										
			0820				0.0-0.5 sand (fine to medium) some organics/wood chunks		Dry	0.1 (S) 0.1 (H)
6		2.9 / 3.5		Upper Sand		Orange/ Brown	0.5-1.1 sand (fine to medium)			
						Light Brown	1.1-2.9 sand (fine to medium)			
8			0825 SB-2-301-0406							
							0.0-1.0 sand (fine to medium) trace silt		Dry	0.1 (S) 0.0 (H)
10		3.1 / 4.0			Slightly Dense		1.0-3.1 sand (fine to medium) some silt, oxidization	SM		
							at 1.2,1.4 and 2.7-2.9			
12			0830							
							0.0-1.3 sand (fine) some silt		Dry	0.0 (S) 0.0 (H)
14		3.2 / 4.0					1.3-3.2 sand (fine) and silt		Moist	
16			0835							

TYPE OF DRILLING RIG:	Geoprobe 6620		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	DPT - dual core		
METHOD OF SOIL SAMPLING:	Acetate Sleeve		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::		BORING NO.: SB-2-301	PAGE: 1 OF 2

BORING LOG FOR:	Former Orion Street Landfill-South (Site 2)	BORING NO.:	SB-2-301
PROJECT NO:	112G00958	START DATE:	10/8/2008
LOGGED BY:	J. Traut, C. Fellows-Swenson	TRANSCRIBED BY:	COMPLETION DATE: 10/8/2008
DRILLED BY (Company/Driller):	Seth (MAI)	MON. WELL NO.:	MW-2-301
GRD. SURFACE ELEVATION:		ELEVATION FROM:	CHECKED BY:

DEPTH (FEET) 16	BLOWS PER 6" NA	SAMP REC./ SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	SOIL DENSITY/ CONSIS. OR ROCK HARD	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
				Transition Unit	Slightly Dense	Light Brown	0.0-3.0 sand (fine) and silt	SM	Wet	0.0 (S) 0.0 (H)
18		3.0 / 4.0								
20			0840							
					Soft		0.0-2.0 sand (fine to medium) some silt		Wet	0.0 (S) 0.0 (H)
22		4.0 / 4.0				Orange/ Brown	2.0-2.5 sand (fine) some silt, some oxidation			
						Gray	2.5-4.0 sand (fine) and silt, some clay			
24			0845							
				Presumpscot Formation			0.0-2.4 clay, trace silt	CL	Wet	0.0 (S) 0.0 (H)
26		4.0 / 4.0					2.4-2.8 sand (fine) and silt, trace clay	SM		
							2.8-4.0 clay with lens of sand (fine) and silt at 3.8-4.0	CL		
28			0850							
				End of Boring						

TYPE OF DRILLING RIG:	Geoprobe 6620		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	DPT - dual core		
METHOD OF SOIL SAMPLING:	Acetate Sleeve		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::		BORING NO.: SB-2-301	PAGE: 2 OF 2

BORING LOG FOR:	Former Orion Street Landfill-South (Site 2)		BORING NO.: SB-2-302
PROJECT NO:	112G00958		START DATE: 10/8/2008
LOGGED BY:	J. Traut, C. Fellows-Swenson	TRANSCRIBED BY:	COMPLETION DATE: 10/8/2008
DRILLED BY (Company/Driller):	Seth (MAI)		MON. WELL NO.: MW-2-302
GRD. SURFACE ELEVATION:		ELEVATION FROM:	CHECKED BY:

DEPTH (FEET) 0	BLOWS PER 6" NA	SAMP REC./ SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	SOIL DENSITY/ CONSIS. OR ROCK HARD	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
			1025 SB-2-302-0002 Lab QC		Loose	Dark Brown	0.0-0.8 topsoil - sand (fine to medium) organics, rock fragments at 0.4-0.6	OM	Dry	0.1 (S) 8.4 (H)
2		2.0 / 4.0					0.8-2.0 sand (fine to medium)	SP		
4										
							0.0-1.0 sand (fine to medium)		Dry	0.1 (S) 0.1 (H)
6		2.7 / 4.0				Orange/ Brown	1.0-1.5 sand (fine to medium)			
				Upper Sand		Light Brown	1.5-2.7 sand (fine to medium)			0.0 (S) 0.0 (H)
8			1030							
							0.0-0.7 sand (fine to medium)		Dry	0.1 (S) 0.1 (H)
10		3.0 / 4.0			Slightly Dense		0.7-0.9 sand (fine) with silt	SM		
					Loose		0.9-3.0 sand (fine to medium)	SP		0.0 (S) 0.1 (H)
12			1035							
							0.0-2.0 sand (fine) some silt	SM	Dry	0.1 (S) 0.1 (H)
14		3.7 / 4.0								
				Transition Unit	Slightly Dense		2.0-3.7 sand (fine) and silt		Moist	0.0 (S) 0.1 (H)
16			1040							

TYPE OF DRILLING RIG:	Geoprobe 6620		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	DPT - dual core		
METHOD OF SOIL SAMPLING:	Acetate Sleeve		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::		BORING NO.: SB-2-302	PAGE: 1 OF 2

BORING LOG FOR:	Former Orion Street Landfill-South (Site 2)			BORING NO.:	SB-2-302
PROJECT NO:	112G00958			START DATE:	10/8/2008
LOGGED BY:	J. Traut, C. Fellows-Swenson	TRANSCRIBED BY:		COMPLETION DATE:	10/8/2008
DRILLED BY (Company/Driller):	Seth (MAI)			MON. WELL NO.:	MW-2-302
GRD. SURFACE ELEVATION:		ELEVATION FROM:		CHECKED BY:	

DEPTH (FEET) 16	BLOWS PER 6" NA	SAMP REC./ SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	SOIL DENSITY/ CONSIS. OR ROCK HARD	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
				Transition Unit	Slightly Dense	Light Brown/ Brown	0.0-1.0 sand (fine) and silt	SM	Wet	0.0 (S) 0.1 (H)
18		3.9 / 4.0								
					Soft	Light Brown	1.0-3.9 sand (fine) and silt			
20			1045							
							0.0-2.8 sand (fine) and silt		Wet	0.0 (S) 0.1 (H)
22		3.7 / 4.0								
							2.8-3.2 sand (fine) and silt, trace clay			
24			1050				3.2-3.7 sand (fine) and silt			
							0.0-1.5 sand (fine to medium)	SP	Wet	0.0 (S) 0.0(H)
26		4.0 / 4.0				Gray/ Brown	1.5-2.0 clay , trace silt	CL		
						Light Brown	2.0-4.0 sand (fine) and silt, oxidation at 3.7-4.0	SM		
28			1055							
				Presumpscot Formation		Gray	0.0-4.0 clay with lenses of sand (fine) and silt, trace	CL	Wet	0.0 (S) 0.0(H)
30		4.0 / 4.0					clay			
32			1100	End of Boring						

TYPE OF DRILLING RIG:	Geoprobe 6620		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	DPT - dual core		
METHOD OF SOIL SAMPLING:	Acetate Sleeve		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::		BORING NO.: SB-2-302	PAGE: 2 OF 2

BORING LOG FOR:	Former Orion Street Landfill-South (Site 2)		BORING NO.: SB-2-303
PROJECT NO:	112G00958		START DATE: 10/7/2008
LOGGED BY:	J. Traut, C. Fellows-Swenson	TRANSCRIBED BY:	COMPLETION DATE: 10/7/2008
DRILLED BY (Company/Driller):	Seth (MAI)		MON. WELL NO.: MW-2-303
GRD. SURFACE ELEVATION:		ELEVATION FROM:	CHECKED BY:

DEPTH (FEET) 0	BLOWS PER 6" NA	SAMP REC./ SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	SOIL DENSITY/ CONSIS. OR ROCK HARD	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
					Loose	Dark Brown	0.0-2.6 topsoil - sand (fine to medium) some organics	OM/SP	Dry	0.0 (S) 2.4 (H)
2		2.6 / 4.0						SP		
4			1350							
				Upper Sand			0.0-0.5 sand (fine to medium) some organics		Dry	0.0 (S) 0.2 (H)
6		2.7 / 4.0				Brown	0.5-1.2 sand (fine to medium)			
						Light Brown	1.2-2.7 sand (fine to medium)			
8			1355							
							0.0-0.9 sand (fine) with some silt	SM	Dry	0.0 (S) 0.0 (H)
10		2.6 / 4.0								
							0.9-2.6 sand (fine to medium)	SP		
12			1400							
					Slightly Dense		0.0-1.0 sand (fine some medium)		Moist	0.0 (S) 0.1 (H)
14		3.0 / 4.0		Transition Unit			1.0-3.0 sand (fine) with silt, oxidation at 1.4			
								SM	Wet	
16			1410 SB-2-303-1214							

TYPE OF DRILLING RIG:	Geoprobe 6620		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	DPT - Dual Tube		
METHOD OF SOIL SAMPLING:	Acetate Sleeve		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::		BORING NO.: SB-2-303	PAGE: 1 OF 3

BORING LOG FOR:	Former Orion Street Landfill-South (Site 2)		BORING NO.: SB-2-303
PROJECT NO:	112G00958		START DATE: 10/7/2008
LOGGED BY:	J. Traut, C. Fellows-Swenson	TRANSCRIBED BY:	COMPLETION DATE: 10/7/2008
DRILLED BY (Company/Driller):	Seth (MAI)		MON. WELL NO.: MW-2-303
GRD. SURFACE ELEVATION:		ELEVATION FROM:	CHECKED BY:

DEPTH (FEET) 16	BLOWS PER 6" NA	SAMP REC./ SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	SOIL DENSITY/ CONSIS. OR ROCK HARD	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
				Transition Unit	Soft	Light Brown	0.0-1.0 sand (fine) and silt	SM	Wet	0.0 (S)
18		3.5 / 4.0			Slightly Dense	Gray/ Brown	1.0-1.6 sand (fine) and silt, trace clay			
					Soft	Light Brown	1.6-3.5 sand (fine) and silt			
20			1415							
						Gray	0.0-0.5 sand (fine) with silt		Wet	0.0 (S)
22		4.0 / 4.0				Light Brown	0.5-2.0 sand (fine) with silt			
					Very Soft	Gray	2.0-2.8 sand (fine) and silt			
24			1420		Soft	Light Brown	2.8-4.0 sand (fine) with silt			
							0.0-2.6 sand (fine) and silt, oxidation 2.0-2.6		Wet	0.0 (S)
26		4.0 / 4.0					2.6-3.2 sand (fine to medium) with silt			
							3.2-4.0 sand (fine) and silt, trace clay			
28			1425							
							0.0-3.0 sand (fine) with silt, some sand (medium)		Wet	0.0 (S)
30		4.0 / 4.0								
					Slightly Dense		3.0-4.0 sand (fine) and silt			
32			1430			Gray				

TYPE OF DRILLING RIG:	Geoprobe 6620		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	DPT - Dual Tube		
METHOD OF SOIL SAMPLING:	Acetate Sleeve		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::		BORING NO.: SB-2-303	PAGE: 2 OF 3

BORING LOG FOR:	Former Orion Street Landfill-South (Site 2)		BORING NO.: SB-2-303
PROJECT NO:	112G00958		START DATE: 10/7/2008
LOGGED BY:	J. Traut, C. Fellows-Swenson	TRANSCRIBED BY:	COMPLETION DATE: 10/7/2008
DRILLED BY (Company/Driller):	Seth (MAI)		MON. WELL NO.: MW-2-303
GRD. SURFACE ELEVATION:		ELEVATION FROM:	CHECKED BY:

DEPTH (FEET) 32	BLOWS PER 6" NA	SAMP REC./ SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	SOIL DENSITY/ CONSIS. OR ROCK HARD	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
				Presumpscot Formation	Slightly Dense	Gray	0.0-4.0 Clay with lenses of sand (fine) and silt oxidation at 2.7	CL	Wet	0.0 (S)
34		4.0 / 4.0								
36			1440							
				End of Boring						

TYPE OF DRILLING RIG:	Geoprobe 6620		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	DPT - Dual Tube		
METHOD OF SOIL SAMPLING:	Acetate Sleeve		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::		BORING NO.: SB-2-303	PAGE: 3 OF 3

BORING LOG FOR:	Former Orion Street Landfill-South (Site 2)		BORING NO.: SB-2-304
PROJECT NO:	112G00958		START DATE: 10/9/2008
LOGGED BY:	J. Traut, C. Fellows-Swenson	TRANSCRIBED BY:	COMPLETION DATE: 10/9/2008
DRILLED BY (Company/Driller):	Seth (MAI)		MON. WELL NO.: MW-2-304
GRD. SURFACE ELEVATION:		ELEVATION FROM:	CHECKED BY:

DEPTH (FEET) 0	BLOWS PER 6" NA	SAMP REC./ SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	SOIL DENSITY/ CONSIS. OR ROCK HARD	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
					Loose	Dark Brown Orange Brown	0.0-0.5 topsoil - organic, sand (fine to medium) 0.5-1.0 (fibrous, leaf material) sand (fine to medium)	OM	Dry	0.1 (S) 1.5 (H)
2		2.2 / 4.0		Upper Sand		Light Brown	1.0-2.2 sand (fine to medium)	SP		
4			1000							
							0.0-2.5 sand (fine to medium)		Dry	0.2 (S) 0.0 (H)
6		2.5 / 4.0								
8			1005							
							0.0-2.1 sand (fine to medium) trace silt		Dry	0.1 (S) 0.3 (H)
10		2.1 / 4.0								
12			1010							
							0.0-2.6 sand (fine to medium)		Dry	0.1 (S) 0.1 (H)
14		2.6 / 4.0								
										0.0 (S) 0.1 (H)
16			1015							

TYPE OF DRILLING RIG:	Geoprobe - Direct Push		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	Direct Push - Dual Tube, Switch to Macrocore at 28'		
METHOD OF SOIL SAMPLING:	Acetate Sleeve		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::		BORING NO.: SB-2-304	PAGE: 1 OF 3

BORING LOG FOR:	Former Orion Street Landfill-South (Site 2)		BORING NO.: SB-2-304
PROJECT NO:	112G00958		START DATE: 10/9/2008
LOGGED BY:	J. Traut, C. Fellows-Swenson	TRANSCRIBED BY:	COMPLETION DATE: 10/9/2008
DRILLED BY (Company/Driller):	Seth (MAI)		MON. WELL NO.: MW-2-304
GRD. SURFACE ELEVATION:		ELEVATION FROM:	CHECKED BY:

DEPTH (FEET) 16	BLOWS PER 6" NA	SAMP REC./ SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	SOIL DENSITY/ CONSIS. OR ROCK HARD	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
				Upper Sand	Slightly Dense	Light Brown	0.0-0.5 sand (fine) some silt	SW	Moist	0.1 (S) 0.1 (H)
18		2.0 / 4.0			Loose		0.5-2.0 sand (fine to medium)	SP		
			1020 SB-2-304-1620							
20										
							0.0-2.4 sand (fine to medium), trace silt		Wet	0.1 (S) 0.2 (H)
22		2.4 / 4.0								
24			1025							
					Slightly Dense	Light Brown/Gray	0.0-1.7 sand (fine to medium)		Wet	0.2 (S) 0.1 (H)
26		4.0 / 4.0				Light Brown	1.7-4.0 sand (fine) some silt	SM		
28			1028							
				Transition Unit		Brown	0.0-0.4 sand (fine) with silt		Wet	0.1 (S) 0.1 (H)
30		2.0 / 4.0					0.4-1.2 Clay with sand (fine) and silt	CL		
							1.2-2.0 sand (fine) and silt	SM		
32			1030							

TYPE OF DRILLING RIG:	Geoprobe - Direct Push		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	Direct Push - Dual Tube, Switch to Macrocore at 28'		
METHOD OF SOIL SAMPLING:	Acetate Sleeve		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::		BORING NO.: SB-2-304	PAGE: 2 OF 3

BORING LOG FOR:	Former Orion Street Landfill-South (Site 2)			BORING NO.:	SB-2-304
PROJECT NO:	112G00958			START DATE:	10/9/2008
LOGGED BY:	J. Traut, C. Fellows-Swenson	TRANSCRIBED BY:		COMPLETION DATE:	10/9/2008
DRILLED BY (Company/Driller):	Seth (MAI)			MON. WELL NO.:	MW-2-304
GRD. SURFACE ELEVATION:		ELEVATION FROM:		CHECKED BY:	

DEPTH (FEET) 32	BLOWS PER 6" NA	SAMP REC./ SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	SOIL DENSITY/ CONSIS. OR ROCK HARD	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
				Transition Unit	Slightly Dense	Light Brown	0.0-1.8 sand (fine) and silt	SM	Wet	0.1 (S) 0.0 (H)
34		2.8 / 4.0				Gray	1.8-2.8 sand (fine) and silt			
36			1045							
				Presumpscot Formation	Soft		0.0-4.0 Clay with some lenses of sand (fine) and silt	CL	Wet	0.0 (S)
38		4.0 / 4.0								
40			1130	End of Boring						

TYPE OF DRILLING RIG:	Geoprobe - Direct Push		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	Direct Push - Dual Tube, Switch to Macrocore at 28'		
METHOD OF SOIL SAMPLING:	Acetate Sleeve		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::		BORING NO.: SB-2-304	PAGE: 3 OF 3

BORING LOG FOR:	Former Orion Street Landfill-South (Site 2)		BORING NO.: SB-2-305
PROJECT NO:	112G00958		START DATE: 10/7/2008
LOGGED BY:	J. Traut, C. Fellows-Swenson	TRANSCRIBED BY:	COMPLETION DATE: 10/7/2008
DRILLED BY (Company/Driller):	Seth (MAI)		MON. WELL NO.: MW-2-305
GRD. SURFACE ELEVATION:		ELEVATION FROM:	CHECKED BY:

DEPTH (FEET) 0	BLOWS PER 6" NA	SAMP REC./ SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	SOIL DENSITY/ CONSIS. OR ROCK HARD	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
					Loose	Brown	0.0-2.3 topsoil - organic sand (fine to medium) (oxidation at 0.4)	OM	Dry	0.0 (S) 0.0 (H)
2								SP		
		3.0 / 5.0								
4										
			1145			Light Brown	2.3-3.0 sand (fine to medium)			
6						Dark Brown	0.0-0.7 sand (fine) and silt, organic	SM/OM	Dry	0.0 (S) 0.0 (H)
		2.6 / 4.0		Upper Sand		Orange/ Brown	0.7-1.5 sand (fine to medium)	SP		
8						Light Brown	1.5-2.6 sand (fine to medium)			
			1150 SB-2-305-0507							0.0 (S) 0.0 (H)
10					Slightly Dense		0.0-0.7 sand (fine) and silt	SM	Dry	
		2.8 / 4.0			Loose		0.7-1.5 sand (fine to medium)	SP		
12					Slightly Dense		1.5-1.7 sand (fine) and silt	SM		
			1155		Loose		1.7-2.8 sand (fine to medium)	SP		
14							0.0-1.5 sand (fine to medium)		Dry	0.0 (S) 0.0 (H)
		2.5 / 4.0								
16			1200							

TYPE OF DRILLING RIG:	DPT Geoprobe 6620		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	DPT - Dual Core		
METHOD OF SOIL SAMPLING:	Acetate Sleeve		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::		BORING NO.: SB-2-305	PAGE: 1 OF 2

BORING LOG FOR:	Former Orion Street Landfill-South (Site 2)			BORING NO.:	SB-2-305
PROJECT NO:	112G00958			START DATE:	10/7/2008
LOGGED BY:	J. Traut, C. Fellows-Swenson	TRANSCRIBED BY:		COMPLETION DATE:	10/7/2008
DRILLED BY (Company/Driller):	Seth (MAI)			MON. WELL NO.:	MW-2-305
GRD. SURFACE ELEVATION:		ELEVATION FROM:		CHECKED BY:	

DEPTH (FEET) 16	BLOWS PER 6" NA	SAMP REC./ SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	SOIL DENSITY/ CONSIS. OR ROCK HARD	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
					Slightly Dense	Light Brown	1.5-2.5 sand (fine) and silt, oxidation at 2.2	SM	Dry	
18				Transition Unit			0.0-2.9 sand (fine) and silt, trace clay		Wet	0.0 (S) 0.0 (H)
		2.9 / 4.0								
20										
			1205							
22										
		2/9 / 4.0			Soft	Gray	0.0-2.0 sand (fine) and silt, trace clay		Wet	0.0 (S) 0.0 (H)
24							2.0-2.9 sand (fine to medium) and silt			
25			1210							
				End of Boring						

TYPE OF DRILLING RIG:	DPT Geoprobe 6620		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	DPT - Dual Core		
METHOD OF SOIL SAMPLING:	Acetate Sleeve		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::		BORING NO.: SB-2-305	PAGE: 2 OF 2

BORING LOG FOR:	Former Orion Street Landfill-South (Site 2)			BORING NO.:	SB-2-306
PROJECT NO:	112G00958			START DATE:	10/7/2008
LOGGED BY:	J. Traut, C. Fellows-Swenson	TRANSCRIBED BY:		COMPLETION DATE:	10/7/2008
DRILLED BY (Company/Driller):	Seth (MAI)			MON. WELL NO.:	MW-2-306
GRD. SURFACE ELEVATION:		ELEVATION FROM:		CHECKED BY:	

DEPTH (FEET) 0	BLOWS PER 6" NA	SAMP REC./ SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	SOIL DENSITY/ CONSIS. OR ROCK HARD	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
					Loose	Brown	0.0-1.3 topsoil - organic sand (fine to medium)	OM	Dry	0.0 (S) 0.4 (H)
2		1.5 / 4.0				Light Brown	1.3-1.4 sand fine to medium	SP		
4			0920							
					Dense	Brown/ Gray	0.0-0.7 sand (fine) with silt	SM	Dry	
6		1.6 / 4.0								0.0 (S) 0.1 (H)
					Loose	Dark Brown	0.7-1.0 sand (fine to medium) dark brown band	SP		
8			0925			Orange/ Tan	1.0-1.6 sand (fine to medium) (oxidation 1.0-1.3)			
				Upper Sand		Light Brown	0.0-1.0 sand (fine to medium)		Dry	0.0 (S) 0.1 (H)
10		1.0 / 4.0								
12			0930							
						Very Light Brown/ Tan	0.0-1.0 sand (fine to medium)		Dry	0.0 (S) 0.1 (H)
14		2.0 / 4.0								
							1.0-2.0 sand (fine)	SW	Dry	
16			0935							

TYPE OF DRILLING RIG:	DPT Geoprobe 6620		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	DPT - Dual Core		
METHOD OF SOIL SAMPLING:	Acetate Sleeve		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::		BORING NO.: SB-2-306	PAGE: 1 OF 2

BORING LOG FOR:	Former Orion Street Landfill-South (Site 2)			BORING NO.:	SB-2-306
PROJECT NO:	112G00958			START DATE:	10/7/2008
LOGGED BY:	J. Traut, C. Fellows-Swenson	TRANSCRIBED BY:		COMPLETION DATE:	10/7/2008
DRILLED BY (Company/Driller):	Seth (MAI)			MON. WELL NO.:	MW-2-306
GRD. SURFACE ELEVATION:		ELEVATION FROM:		CHECKED BY:	

DEPTH (FEET) 16	BLOWS PER 6" NA	SAMP REC./ SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	SOIL DENSITY/ CONSIS. OR ROCK HARD	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
					Slightly Dense	Light Brown	0.0-0.6 sand (fine)	SW	Dry	0.0 (S) 0.0 (H)
18		2.1 / 4.0		Transition Unit			0.6-2.1 sand (fine) with silt	SM		
									Moist	
20			0940 SB-2-306-1620						Wet	
							0.0-2.9 sand (fine) and silt with lenses of clay (oxidation from 2.6-2.9)	CL	Wet	0.0 (S) 0.0 (H)
22		2.9 / 4.0								
24			0945							
					Slightly Dense/Soft	Gray Orange/ Brown	0.0-0.7 Clay sand (fine) and silt (oxidation 0.7-1.0)	SM	Wet	0.0 (S) 0.0 (H)
26		3.8 / 4.0			Slightly Dense	Gray	1.0-2.2 Clay	CL		
				Presumpscot Formation	Soft		2.2-2.8 sand (fine) and silt	SM		
28			0950		Slighty Dense	Gray/ Blue	2.8-3.8 clay	CL		
				End of Boring						

TYPE OF DRILLING RIG:	DPT Geoprobe 6620		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	DPT - Dual Core		
METHOD OF SOIL SAMPLING:	Acetate Sleeve		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::		BORING NO.: SB-2-306	PAGE: 2 OF 2

BORING LOG FOR:	Former Orion Street Landfill-South (Site 2)	BORING NO.:	SB-2-307
PROJECT NO:	112G00958	START DATE:	10/6/2008
LOGGED BY:	J. Traut, C. Fellows-Swenson	TRANSCRIBED BY:	
		COMPLETION DATE:	10/6/2008
DRILLED BY (Company/Driller):	Seth (MAI)	MON. WELL NO.:	MW-2-307
GRD. SURFACE ELEVATION:		ELEVATION FROM:	
		CHECKED BY:	

DEPTH (FEET) 0	BLOWS PER 6" NA	SAMP REC./ SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	SOIL DENSITY/CONSIS. OR ROCK HARD	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
					Loose	Dark Brown	0.0-0.8 organic fine to medium topsoil sand (fine to medium) trace silt	OM	Damp	0.0 (S) 0.0 (H)
2				Upper Sand		Tan	0.8-2.6 sand fine to medium	SP		
		2.6 / 5.0								
4										
			0945							
6							0.0-1.9 sand fine to medium (Dark brown band at 1.0)		Moist	
			SB-2-307-0507 0957				1.2-1.4 sand fine to medium, some silt	SM	Moist to wet	0.0 (S) 0.0 (H)
8		2.9 / 5.0		Transition Unit	Slightly Dense		1.4-2.9 sand (fine) and silt			
10			1000							
						Light Brown	0.0-2.0 sand (fine) and silt		Very moist to wet wet	0.0 (S) 0.0 (H)
12						Light Brown/ Gray	2.0-2.4 clay	CL		
		2.4 / 5.0								
14										
			1010							
16					Soft		0.0-0.7 clay			0.0 (S) 0.0 (H)

TYPE OF DRILLING RIG:	Geoprobe DPT
METHOD OF ADVANCING BORING:	Macrocore
METHOD OF SOIL SAMPLING:	Macrocore system/Acetate liners
METHOD OF ROCK CORING:	NA
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Former Orion Street Landfill-South (Site 2)			BORING NO.:	SB-2-307
PROJECT NO:	112G00958			START DATE:	10/6/2008
LOGGED BY:	J. Traut, C. Fellows-Swenson	TRANSCRIBED BY:		COMPLETION DATE:	10/6/2008
DRILLED BY (Company/Driller):	Seth (MAI)			MON. WELL NO.:	MW-2-307
GRD. SURFACE ELEVATION:		ELEVATION FROM:		CHECKED BY:	

DEPTH (FEET)	BLOWS PER 6" NA	SAMP REC./ SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	SOIL DENSITY/CONSIS. OR ROCK HARD	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
		1.4 / 2.0	1020		Soft	Tan	0.7-1.4 sand (fine) and silt	SM	Wet	0.0 (S) 0.0 (H)
18				Presumpscot Formation		Gray	0.0-4.5 clay, trace silt	CL		
		4.5 / 5.0							Wet	
20										
22			1030							
				End of Boring						

TYPE OF DRILLING RIG:	Geoprobe DPT		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	Macrocore		
METHOD OF SOIL SAMPLING:	Macrocore system/Acetome liners		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::		BORING NO.: SB-2-307	PAGE: 2 OF 2

BORING LOG FOR:	Former Orion Street Landfill-South (Site 2)	BORING NO.:	SB-2-308
PROJECT NO:	112G00958	START DATE:	10/6/2008
LOGGED BY:	J. Traut, C. Fellows-Swenson	TRANSCRIBED BY:	
		COMPLETION DATE:	10/6/2008
DRILLED BY (Company/Driller):	Seth (MAI)	MON. WELL NO.:	MW-2-308
GRD. SURFACE ELEVATION:		ELEVATION FROM:	
		CHECKED BY:	

DEPTH (FEET) 0	BLOWS PER 6" NA	SAMP REC./ SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	SOIL DENSITY/ CONSIS. OR ROCK HARD	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
					Loose	Dark Brown	0.0-0.5 topsoil - organic fine to medium topsoil sand (fine to medium)	OM	Dry	0.0 (S) 0.7 (H)
2		2.2 / 4.0		Upper Sand	↓	Orange/Tan	0.5-1.6 sand (fine to medium) oxidation	SP		
					Slightly Dense	Light Brown	1.6-2.2 sand (fine) with silt	SM	Dry	
4			1300 SB-2-308-0003		↓	↓	↓	↓		
					↓	↓	0.0-0.9 sand (fine) with silt	↓	Dry	0.0 (S) 0.2 (H)
6		2.8 / 4.0			Loose	Very Light Brown	0.9-2.8 sand (fine to medium)	SP		
					↓	↓	↓	↓		
8			1310		↓	↓	↓	↓		
					↓	↓	0.0-1.1 sand (fine to medium) Dark brown band at 1.0 - 1.1	↓	Dry	0.0 (S) 0.3 (H)
10		2.4 / 4.0		Transition Unit	↓	Orange	1.1-1.6 sand (fine to medium) oxidation	↓	Moist	
					Slightly Dense	Light Brown	1.6-2.4 sand (fine) trace silt	SM	Wet	0.0 (S) 0.2 (H)
12			1320				↓			
					Soft	Light Brown/ Brown	0.0-3.6 Clay with lenses of clay with silt	CL	Wet	0.0 (S) 0.2 (H)
14		3.6 / 4.0			↓	↓	↓	↓		
					↓	↓	↓	↓		0.0 (S) 0.0 (H)
16			1325		↓	↓	↓	↓		

TYPE OF DRILLING RIG:	Geoprobe DPT		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	Dual Tube		
METHOD OF SOIL SAMPLING:	Acetate Sleeve		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::		BORING NO.: SB-2-308	PAGE: 1 OF 2

BORING LOG FOR:	Former Orion Street Landfill-South (Site 2)			BORING NO.:	SB-2-308
PROJECT NO:	112G00958			START DATE:	10/6/2008
LOGGED BY:	J. Traut, C. Fellows-Swenson	TRANSCRIBED BY:		COMPLETION DATE:	10/6/2008
DRILLED BY (Company/Driller):	Seth (MAI)			MON. WELL NO.:	MW-2-308
GRD. SURFACE ELEVATION:		ELEVATION FROM:		CHECKED BY:	

DEPTH (FEET) 16	BLOWS PER 6" NA	SAMP REC./ SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	SOIL DENSITY/ CONSIS. OR ROCK HARD	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
				Presumpscot Formation	Soft	Gray/Brown	0.0-4.0 Clay with lenses of clay with silt	CL	Wet	0.4 (S) 0.1 (H)
18		4.0 / 4.0								
20			1330							
				End of Boring						

TYPE OF DRILLING RIG:	Geoprobe DPT		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	Dual Tube		
METHOD OF SOIL SAMPLING:	Acetate Sleeve		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::		BORING NO.: SB-2-308	PAGE: 2 OF 2

BORING LOG FOR:	Former Orion Street Landfill-South (Site 2)	BORING NO.:	SB-2-309
PROJECT NO:	112G00958	START DATE:	10/8/2008
LOGGED BY:	J. Traut, C. Fellows-Swenson	TRANSCRIBED BY:	COMPLETION DATE: 10/8/2008
DRILLED BY (Company/Driller):	Seth (MAI)	MON. WELL NO.:	MW-2-309
GRD. SURFACE ELEVATION:		ELEVATION FROM:	CHECKED BY:

DEPTH (FEET) 0	BLOWS PER 6" NA	SAMP REC./ SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	SOIL DENSITY/ CONSIS. OR ROCK HARD	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
					Slightly Dense	Dark Brown	0.0-0.3 topsoil - sand (fine) and silt, organics		Dry	0.1 (S)
						Brown	0.3-1.0 sand (fine) and silt	OM		7.8 (H)
2		2.7 / 4.0		Upper Sand		Light Brown	1.0-1.3 clay, trace silt	SM		
					Loose		1.3-2.7 sand (fine to medium), trace silt	CL	Moist	0.0 (S) 0.1 (H)
4			1300 SB-2-309-0002					SP		
							0.0-3.8 sand (fine to medium), oxidation at 3.6		Wet	0.0 (S) 0.1 (H)
6		3.8 / 4.0								
										0.0 (S) 0.0 (H)
8			1305							
		2.0 / 2.0					0.0-2.0 sand (fine)	SW	Wet	0.0 (S) 0.1 (H)
10			1310							
		3.0 / 3.5				Gray	0.0-2.6 sand (fine some medium)		Wet	0.0 (S) 0.1 (H)
12										
			1315			Orange/ Brown	2.6-3.0 sand (fine some medium), oxidation		Wet	
14		3.0 / 3.5		Transition Unit		Light Brown	0.0-2.4 sand (fine) some silt	SM		0.0 (S) 0.0 (H)
16			1320		Soft	Gray	2.4-3.0 sand (fine) and silt, trace clay			

TYPE OF DRILLING RIG:	Geoprobe DPT
METHOD OF ADVANCING BORING:	Dual Tube to 23' then Macrocore
METHOD OF SOIL SAMPLING:	Acetate Sleeve
METHOD OF ROCK CORING:	NA
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS::	

Tetra Tech NUS, Inc.

BORING LOG FOR:	Former Orion Street Landfill-South (Site 2)			BORING NO.:	SB-2-309
PROJECT NO:	112G00958			START DATE:	10/8/2008
LOGGED BY:	J. Traut, C. Fellows-Swenson	TRANSCRIBED BY:		COMPLETION DATE:	10/8/2008
DRILLED BY (Company/Driller):	Seth (MAI)			MON. WELL NO.:	MW-2-309
GRD. SURFACE ELEVATION:		ELEVATION FROM:		CHECKED BY:	

DEPTH (FEET) 16	BLOWS PER 6" NA	SAMP REC./ SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	SOIL DENSITY/ CONSIS. OR ROCK HARD	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
				Transition Unit	Soft	Gray	2.4-3.0 sand (fine) and silt, trace clay	SM		
18					Loose	Light Brown	0.0-0.5 sand (fine) some silt		Wet	0.0 (S) 0.0 (H)
		2.3 / 3.0			Soft	Gray	0.5-2.3 sand (fine) and silt, trace clay			
20			1330							
		3.0 / 3.0					0.0-3.0 sand (fine) and silt, lenses of clay at 1.8-2.0 and 2.8-3.0		Wet	0.0 (S) 0.0 (H)
22										
			1345							
24		0.0 / 0.0					Advanced through flawing sands but no sample due to extremely soft conditions		Wet	
			1350							
26				Presumpscot Formation			0.0-5.0 Clay - lenses of sand (fine) and silt at 0.0-0.1	CL	Wet	
28		5.0 / 5.0								
30			1500	End of Boring						
		/								

TYPE OF DRILLING RIG:	Geoprobe DPT		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	Dual Tube to 23' then Macrocore		
METHOD OF SOIL SAMPLING:	Acetate Sleeve		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::		BORING NO.: SB-2-309	PAGE: 2 OF 2

BORING LOG FOR:	Former Orion Street Landfill-South (Site 2)		BORING NO.: SB-2-310
PROJECT NO:	112G00958		START DATE: 10/9/2008
LOGGED BY:	J. Traut, C. Fellows-Swenson	TRANSCRIBED BY:	COMPLETION DATE: 10/9/2008
DRILLED BY (Company/Driller):	Seth (MAI)		MON. WELL NO.: MW-2-310
GRD. SURFACE ELEVATION:		ELEVATION FROM:	CHECKED BY:

DEPTH (FEET) 0	BLOWS PER 6" NA	SAMP REC./ SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	SOIL DENSITY/ CONSIS. OR ROCK HARD	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
					Slightly Dense	Dark Brown	0.0-3.0 topsoil - sand (fine to medium), trace silt, organics, fibrous	OM/SP	Dry	0.0 (S) 7.2 (H)
2		3.0 / 4.0								
										0.0 (S) 7.1 (H)
4			1335							
							0.0-1.7 sand (fine to medium), trace silt, organic, fibrous		Dry	0.5 (S) 46.4 (H)
6		1.7 / 4.0								
8			1340 SB-2-310-0408							
					Loose		0.0-0.5 sand (fine to medium), trace silt, organic, fibrous		Moist	0.3 (S) 20.7 (H)
10		0.5 / 4.0								
12			1343							
							No Recovery on 1st Attempt (Very Soft, wet material)		Wet	0.0 (S) 33 (H)
14		0.5 / 4.0					Repeat 12-16 interval. Recovered 0.5 of 4.0. Similar material as above			
16			1425							

TYPE OF DRILLING RIG:	Geoprobe		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	DPT - Dual Tube		
METHOD OF SOIL SAMPLING:	Acetate Liners		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::		BORING NO.: SB-2-310	PAGE: 1 OF 4

BORING LOG FOR:	Former Orion Street Landfill-South (Site 2)			BORING NO.:	SB-2-310
PROJECT NO:	112G00958			START DATE:	10/9/2008
LOGGED BY:	J. Traut, C. Fellows-Swenson	TRANSCRIBED BY:		COMPLETION DATE:	10/9/2008
DRILLED BY (Company/Driller):	Seth (MAI)			MON. WELL NO.:	MW-2-310
GRD. SURFACE ELEVATION:		ELEVATION FROM:		CHECKED BY:	

DEPTH (FEET) 16	BLOWS PER 6" NA	SAMP REC./ SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	SOIL DENSITY/ CONSIS. OR ROCK HARD	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
							NO RECOVERY on 1st Attempt		Wet	
18		0.0 / 4.0					Repeat 16-20' interval. Again NO RECOVERY.			
							↓			
20			1430				↓			
							NO RECOVERY			
22		0.0 / 5.0					↓			
							↓			
24							↓			
			1435				↓			
26					Loose	Dark Brown	0.0-0.3 sand (fine to medium) organic, wood pieces	OM/SP	Wet	0.0 (S) 8.1 (H)
				Transition Unit	Slightly Dense	Gray	sand (fine) with silt 0.3-0.4	SM		
28		0.4 / 5.0			↓	↓	↓	↓		
					↓	↓	↓	↓		
30			1445		↓	↓	↓	↓		
		3.4 / 4.0			Soft	↓	0.0-0.6 Clay, trace sand, silt	CL	Wet	0.0(S) 0.2(H)
32			1450		↓	↓	0.6-1.4 sand (fine) some silt	SM		

TYPE OF DRILLING RIG:	Geoprobe		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	DPT - Dual Tube		
METHOD OF SOIL SAMPLING:	Acetate Liners		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::		BORING NO.: SB-2-310	PAGE: 2 OF 4

BORING LOG FOR:	Former Orion Street Landfill-South (Site 2)	BORING NO.:	SB-2-310
PROJECT NO:	112G00958	START DATE:	10/9/2008
LOGGED BY:	J. Traut, C. Fellows-Swenson	TRANSCRIBED BY:	COMPLETION DATE: 10/9/2008
DRILLED BY (Company/Driller):	Seth (MAI)	MON. WELL NO.:	MW-2-310
GRD. SURFACE ELEVATION:		ELEVATION FROM:	CHECKED BY:

DEPTH (FEET) 32	BLOWS PER 6" NA	SAMP REC./ SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	SOIL DENSITY/ CONSIS. OR ROCK HARD	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
				Transition Unit	Slightly Dense	Light Brown	1.4-3.4 sand (fine) and silt, trace clay	SM		
34							↓			
					Soft	Gray	0.0-2.5 sand (fine to medium)	SP		0.0 (S) 0.0 (H)
36		4.0 / 4.0								
					Slightly Dense	Light Brown	2.5-4.0 sand (fine and silt, oxidation 2.5-2.6	SM		
38			1455				↓			
				Presumpscot Formation	Soft	Gray/Brown	0.0-2.8 clay with lenses of sand (fine) and silt	CL	Wet	0.0 (S) 0.0 (H)
40		4.0 / 4.0					↓	↓		
					Slightly Dense	Gray	2.8-4.0 clay	↓		
42			1500			↓	↓	↓		
					Soft	↓	0.0-4.0 clay with 2 lenses of sand (fine) and silt at 0.2-0.4 and 3.1-3.2	↓	Wet	0.0 (S) 0.0 (H)
44		4.0 / 4.0			↓	↓	↓	↓		
46			1510		↓	↓	↓	↓		
		4.0 / 4.0			↓	↓	0.0-4.0 Clay	↓	Wet	
48			1520		↓	↓	↓	↓		

TYPE OF DRILLING RIG:	Geoprobe DPT		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	Dual Tube		
METHOD OF SOIL SAMPLING:	Acetate Sleeve		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::		BORING NO.: SB-2-310	PAGE: 3 OF 4

BORING LOG FOR:	Former Orion Street Landfill-South (Site 2)			BORING NO.:	SB-2-310
PROJECT NO:	112G00958			START DATE:	10/9/2008
LOGGED BY:	J. Traut, C. Fellows-Swenson	TRANSCRIBED BY:		COMPLETION DATE:	10/9/2008
DRILLED BY (Company/Driller):	Seth (MAI)			MON. WELL NO.:	MW-2-310
GRD. SURFACE ELEVATION:		ELEVATION FROM:		CHECKED BY:	

DEPTH (FEET) 48	BLOWS PER 6" NA	SAMP REC./ SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	SOIL DENSITY/ CONSIS. OR ROCK HARD	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
					Soft	Gray	Clay	CL		
50				End of Boring	↓	↓	↓	↓		

TYPE OF DRILLING RIG:	Geoprobe DPT		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	Dual Tube		
METHOD OF SOIL SAMPLING:	Acetate Sleeve		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::		BORING NO.: SB-2-310	PAGE: 4 OF 4

BORING LOG FOR:	Former Orion Street Landfill-South (Site 2)		BORING NO.: SB-2-311
PROJECT NO:	112G00958		START DATE: 10/14/2008
LOGGED BY:	J. Traut, T. Rojahn	TRANSCRIBED BY:	COMPLETION DATE: 10/14/2008
DRILLED BY (Company/Driller):	Seth Brown (MAI)		MON. WELL NO.: NA
GRD. SURFACE ELEVATION:		ELEVATION FROM:	CHECKED BY:

DEPTH (FEET) 0	BLOWS PER 6" NA	SAMP REC./ SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	SOIL DENSITY/ CONSIS. OR ROCK HARD	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
							0.0-0.4 - fine to medium sand	OM	Dry	0.0 (S)
					Loose	Dark Brown	0.4-3.4 fine to medium SAND trace SILT	SP		0.0 (H)
2						Brown	(black at 0.7-0.9)			
		3.4 / 5.0		FILL						
4										
			1105						Dry	0.0 (S)
6				Upper Sand		Brown / Orange	0.0-3.8 fine to medium sand (color change 0.2) orange → tan at 0.7	SP		
		3.8 / 5.0				Tan	coarser sand 1.6-2.0		Iron staining 2.0-3.8	
8										
10			1115							
				End of Boring						

TYPE OF DRILLING RIG:	Geoprobe 6620		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	DPT		
METHOD OF SOIL SAMPLING:	Acetate Sleeve		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::		BORING NO.: SB-2-311	PAGE: 1 OF 1

BORING LOG FOR:	Former Orion Street Landfill-South (Site 2)		BORING NO.: SB-2-312
PROJECT NO:	112G00958		START DATE: 10/14/2008
LOGGED BY:	J. Traut, T. Rojahn	TRANSCRIBED BY:	COMPLETION DATE: 10/14/2008
DRILLED BY (Company/Driller):	Seth Brown (MAI)		MON. WELL NO.: NA
GRD. SURFACE ELEVATION:		ELEVATION FROM:	CHECKED BY:

DEPTH (FEET) 0	BLOWS PER 6" NA	SAMP REC./ SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	SOIL DENSITY/ CONSIS. OR ROCK HARD	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
					Loose	Brown	fine to medium sand organic material	OM	Dry	0.0 (S) 0.8 (H)
2		2.4 / 5.0				Tan	SILTY SAND (fine sand)	SM		
						Brown	0.7-2.2 - fine to medium SAND, trace silt with layers of black/dark sand	SP	1.8-2.2 dark brown/ black	
4				FILL		Orange	2.2-2.4 - fine to medium SAND			
			1035							
6				Upper Sand			0.0-0.4 - fine to medium SAND			
		2.9 / 5.0				Tan	0.4-2.9 - fine to medium SAND		DRY	0.0 (S)
8										
10			1045							
				End of Boring						

TYPE OF DRILLING RIG:	Geoprobe 6620		Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	DPT		
METHOD OF SOIL SAMPLING:	Acetate Sleeve		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS::		BORING NO.: SB-2-312	PAGE: 1 OF 1

BORING LOG FOR:	Former Orion Street Landfill-South (Site 2)		BORING NO.: SB-2-313
PROJECT NO:	112G00958		START DATE: 10/14/2008
LOGGED BY:	J. Traut, T. Rojahn	TRANSCRIBED BY:	COMPLETION DATE: 10/14/2008
DRILLED BY (Company/Driller):	Seth Brown, Paul (MAI)		MON. WELL NO.: NA
GRD. SURFACE ELEVATION:		ELEVATION FROM:	CHECKED BY:

DEPTH (FEET) 0	BLOWS PER 6" NA	SAMP REC./ SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/WELL PROF'L	SOIL DENSITY/ CONSIS. OR ROCK HARD	CLR	MATERIAL CLASSIFICATION	USCS OR ROCK BRKN	REMARKS (moisture condition;odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, (PPM)]
					Loose	Brown	0.0 - 0.2 - SAND (fine) organic material, roots, leaves	SP	Dry screening reading of 0.3 from 0.4-0.6	0.3 (S) 2.2 (H)
2		1.2 / 5.0			Very Loose	Black	0.2 - 0.4 - dark black very fine grain powdery ashlike			
					Loose	Brown	0.4 - 0.6 - fine to medium SAND			
						Black	0.6 - 0.9 - very fine grain powdery black material			
4						Brown	0.9 - 1.2 - fine to medium sand - cobble in bottom			
			0955							
6						Dark Brown	0.0 - 1.2 - fine to medium SAND, trace fine gravel, trace silt			
		1.4 / 5.0					0.3 - 0.5 - layer of dark black very fine grain ashlike material			0.0 (S) 3.6 (H)
8										
						Tan	1.2 - 1.4 - fine to medium SAND			
10			1005	Upper Sand						
							0.0-1.9 fine to medium SAND			0.0 (S)
12		1.9 / 5.0								
14										
15			1010							
				End of Boring			Note: Natural material started in bottom of 5-10' bgs Ashlike material could go down to 9.5' bgs			

TYPE OF DRILLING RIG:	Geoprobe 6620	Tetra Tech NUS, Inc.
METHOD OF ADVANCING BORING:	DPT	
METHOD OF SOIL SAMPLING:	Acetate Sleeve	
METHOD OF ROCK CORING:	NA	
GROUNDWATER LEVELS:		
OTHER OBSERVATIONS::	BORING NO.: SB-2-313	PAGE: 1 OF 1

C-3 Soil Sample Log Sheets

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill, Site 2
Project No.: 112G00~~640~~958

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: TP-2-01-0006
Sample Location: TP-2-01
Sampled By: J. Traut, A. Fellows Swenson
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 10/1/08
Time: 1100
Method: Grab
Monitor Reading (ppm): 0.0

Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
00 - 0.6	See boring log	

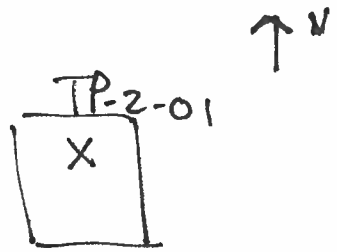
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	40-mL vial ~~(DI)~~ MEOH	1	
VOC	40-mL vial (~~MeOH~~) Na_2SO_4	3	
SVOC/PCB/Pesticides	8 oz jar	1	
TAL Metals	2 oz jar	1	

OBSERVATIONS / NOTES:

VOC fraction of sample was taken 1st using a precut syringe and transferring into appropriate bottleware. The sample was then transfered into a ~~stainless steel bowl~~ aluminum pan, homogenized, and transfered into appropriate bottleware.

MAP:



Circle If Applicable:

MS/MSD	Duplicate ID No.:
NA	NA

Signature(s): J Traut

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill, Site 2
Project No.: 112G00~~6469~~ 58

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: TP-2-01-0203
Sample Location: TP-2-01
Sampled By: J. Trout, C. Fellows-Swenson
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 10/1/08
Time: 1110
Method: Grab
Monitor Reading (ppm): 0.0

Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
02-03' bgs	See boring log	

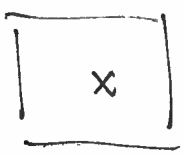
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	40-mL vial ~~(DI)~~ MeOH	1	
VOC	40-mL vial ~~(MeOH)~~ Na_2SO_4	3	
SVOC/PCB/Pesticides	8 oz jar	1	
TAL Metals	2 oz jar	1	

OBSERVATIONS / NOTES:

VOC fraction of sample was taken 1st using a precut syringe and transferring into appropriate bottleware. The sample was then transfered into a ~~stainless steel bowl~~ aluminum pan, homogenized, and transfered into appropriate bottleware.

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
NA	NA

Signature(s): J. Trout

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill, Site 2
Project No.: 112G00646

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: TP-2-02-0006
Sample Location: TP-2-02
Sampled By: J. Traut, C. Fellows, Swenson
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 10/1/08
Time: 1230
Method: Grab
Monitor Reading (ppm): 0.0

Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
0.0-0.6"	See boring log	

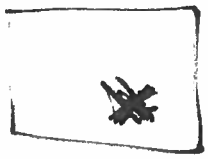
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	40-mL vial ~~(DI)~~ MeOH	7	
VOC	40-mL vial ~~(MeOH)~~ Na_2SO_4	3	
SVOC/PCB/Pesticides	8 oz jar	1	
TAL Metals	2 oz jar	1	

OBSERVATIONS / NOTES:

VOC fraction of sample was taken 1st using a precut syringe and transferring into appropriate bottleware. The sample was then transfered into a ~~stainless steel bowl~~ aluminum pan, homogenized, and transfered into appropriate bottleware.

MAP:



NT

Circle If Applicable:

MS/MSD: NA

Duplicate ID No.: NA

Signature(s): J Traut

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill, Site 2
Project No.: 112G~~00646~~ 958

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type: DUP01

Sample ID No.: TP-2-02-0102
Sample Location: TP-2-02
Sampled By: J. Trout, C Fellows Swinson
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 10/1/08
Time: 1235
Method: Grab
Monitor Reading (ppm): 0.0

Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
1-2'		See boring log

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	40-mL vial ~~(DI)~~ MeOH	2	
VOC	40-mL vial ~~(MeOH)~~ Na_2SO_4	6	
SVOC/PCB/Pesticides	8 oz jar	2	
TAL Metals	2 oz jar	2	
Dioxin/Furan	8oz jar	1-no dup	

OBSERVATIONS / NOTES:

VOC fraction of sample was taken 1st using a precut syringe and transferring into appropriate bottleware. The sample was then transfered into a ~~stainless steel bowl~~ aluminum pan, homogenized, and transfered into appropriate bottleware.

MAP:

NA

Circle If Applicable:

MS/MSD	Duplicate ID No.:	Signature(s)
NA	TP-2-DUP01 @ 1240	J Trout

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill, Site 2
Project No.: 112G00~~646~~ 958

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type: Lab QC

Sample ID No.: TP-2-~~03~~ 04-0304
Sample Location: TP-2-04
Sampled By: J. Trant, C Fellow - Sherrick
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/1/08			
Time: 1415			
Method: Grab	3-4' bgs		See boring log
Monitor Reading (ppm): 0.0			

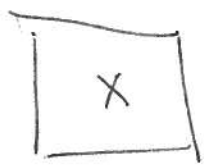
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	40-mL vial ~~(DI)~~ meoH	3	
VOC	40-mL vial (~~MeOH~~) NaHSO4	4	
SVOC/PCB/Pesticides	8 oz jar	2	
TAL Metals	2 oz jar	2	
Dioxin / Furan	8oz jar	2	

OBSERVATIONS / NOTES:

VOC fraction of sample was taken 1st using a precut syringe and transfering into appropriate bottleware. The sample was then transfered into a ~~stainless steel bowl~~ aluminum pan, homogenized, and transfered into appropriate bottleware.

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
Yes	NA

Signature(s): J Trant

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill, Site 2
Project No.: 112G00~~646~~ 958

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: TP-2-05-0102
Sample Location: TP-2-05
Sampled By: J. Hault, C Fellows
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/2/08			
Time: 0855			
Method: Grab	1-2' bgs		See boring log test pit
Monitor Reading (ppm): 0.0			

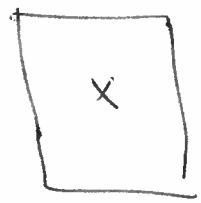
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	40-mL vial ~~(DI)~~ MeOH	1	
VOC	40-mL vial (~~MeOH~~) NaHSO4	3	
SVOC/PCB/Pesticides	8 oz jar	1	
TAL Metals	2 oz jar	1	

OBSERVATIONS / NOTES:

VOC fraction of sample was taken 1st using a precut syringe and transfering into appropriate bottleware. The sample was then transfered into a ~~stainless steel bowl~~ aluminum pan, homogenized, and transfered into appropriate bottleware.

MAP:



Circle If Applicable:

MS/MSD	Duplicate ID No.:
NA	NA

Signature(s): J Hault

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill, Site 2
Project No.: 112G00~~646~~958

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: TP-2-05-0708
Sample Location: TP-2-05
Sampled By: J. Trault, C. Fellows
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 10/2/08
Time: 0915
Method: Grab
Monitor Reading (ppm): 0.0

Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
7-8' bgs		See ~~boring~~ log test pit

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	40-mL vial ~~(DI)~~ MeOH	1	
VOC	40-mL vial ~~(MeOH)~~ NaHSO4	3	
SVOC/PCB/Pesticides	8 oz jar	1	
TAL Metals	2 oz jar	1	
Dioxin	8oz jar	1	

OBSERVATIONS / NOTES:

VOC fraction of sample was taken 1st using a precut syringe and transferring into appropriate bottleware. The sample was then transfered into a ~~stainless steel bowl~~ aluminum pan, homogenized, and transfered into appropriate bottleware.

MAP:

Circle If Applicable:

MS/MSD	Duplicate ID No.:
NA	NA

Signature(s): J. Trault

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill, Site 2
Project No.: 112G00~~646~~ 958

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: TP-2-06-0107
Sample Location: TP-2-06
Sampled By: J. Trant, C. Fellows
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/2/08	1-2' bgs		See ~~boring~~ log test pit
Time: ~~1000~~ 1020			
Method: Grab			
Monitor Reading (ppm): 0.0			

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	40-mL vial (~~DI~~) MeOH	1	
VOC	40-mL vial (~~MeOH~~) NaHSO4	3	
SVOC/PCB/Pesticides	8 oz jar	1	
TAL Metals	2 oz jar	1	

OBSERVATIONS / NOTES:

VOC fraction of sample was taken 1st using a precut syringe and transferring into appropriate bottleware. The sample was then transfered into a ~~stainless steel bowl~~ aluminum pan, homogenized, and transfered into appropriate bottleware.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
NA	NA

Signature(s): J. Trant

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill, Site 2
Project No.: 112G00~~6469~~58

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: TP-2-07-0304
Sample Location: TP-2-07
Sampled By:
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/2/08			
Time: 1115			
Method: Grab	3-4' bgs		See ~~boring log~~ test pit
Monitor Reading (ppm): 0.0			

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	40-mL vial ~~(DI)~~ MeOH	1	
VOC	40-mL vial ~~(MeOH)~~ NaHSO4	3	
SVOC/PCB/Pesticides	8 oz jar	1	
TAL Metals	2 oz jar	1	
Dioxin	8oz jar	1	

OBSERVATIONS / NOTES:

VOC fraction of sample was taken 1st using a precut syringe and transferring into appropriate bottleware. The sample was then transfered into a ~~stainless steel bowl~~ aluminum pan, homogenized, and transfered into appropriate bottleware.

MAP:

Circle If Applicable:

MS/MSD	Duplicate ID No.:
NA	NA

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill, Site 2
Project No.: 112G00~~8~~9958

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: TP-2-07-0607
Sample Location: TP-2-07
Sampled By: J. Hault, C. Fellows
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 10/2/08
Time: 1130
Method: Grab
Monitor Reading (ppm): 0.0

Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
6-7' bgs		See boring log testpit

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	40-mL vial ~~(DI)~~ MeOH	1	
VOC	40-mL vial (~~MeOH~~) $NaHSO_4$	3	
SVOC/PCB/Pesticides	8 oz jar	1	
TAL Metals	2 oz jar	1	

OBSERVATIONS / NOTES:

VOC fraction of sample was taken 1st using a precut syringe and transferring into appropriate bottleware. The sample was then transfered into a ~~stainless steel bowl~~ aluminum pan, homogenized, and transfered into appropriate bottleware.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
NA	NA

Signature(s): J. Hault

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill, Site 2
Project No.: 112G00~~646~~ 958

[] Surface Soil
[X] Subsurface Soil
[X] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: TP-2-08-0304
Sample Location: TP-2-08
Sampled By: J. Trant, C. Fellows
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/2/08			
Time: 1250			
Method: Grab	3-4' bgs		See ~~boring~~ log test pit
Monitor Reading (ppm): 0.0			

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	40-mL vial ~~(DI)~~ MeOH	1	
VOC	40-mL vial ~~(MeOH)~~ $NaHSO_4$	3	
SVOC/PCB/Pesticides	8 oz jar	1	
TAL Metals	2 oz jar	1	
Dioxins	8 oz jar	1	

OBSERVATIONS / NOTES:

VOC fraction of sample was taken 1st using a precut syringe and transferring into appropriate bottleware. The sample was then transfered into a ~~stainless steel bowl~~ aluminum pan, homogenized, and transfered into appropriate bottleware.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
NA	NA

Signature(s): J. Trant

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill, Site 2
Project No.: 112G08640958

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: TP-2-09-0506
Sample Location: TP-2-09
Sampled By: J. Trault, C. Fellows
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/2/08			
Time: 1250			
Method: Grab	5-6'bgs		See ~~boring~~ log test pit
Monitor Reading (ppm): 0.0			

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	40-mL vial ~~(DI)~~ MeOH	1	
VOC	40-mL vial ~~(MeOH)~~ $NaHSO_4$	3	
SVOC/PCB/Pesticides	8 oz jar	1	
TAL Metals	2 oz jar	1	

OBSERVATIONS / NOTES:

VOC fraction of sample was taken 1st using a precut syringe and transferring into appropriate bottleware. The sample was then transfered into a ~~stainless steel bowl~~ aluminum pan, homogenized, and transfered into appropriate bottleware.

MAP:

Circle If Applicable:

MS/MSD	Duplicate ID No.:
NA	NA

Signature(s): J. Trault

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill, Site 2
Project No.: 112G00~~646~~ 958

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: TP-2-10-0405
Sample Location: TP-2-10
Sampled By: J. Trauth, C. Fellows
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/2/08			
Time: 1415			
Method: Grab	4-5' bgs		See ~~boring~~ log testpit
Monitor Reading (ppm): 0.0			

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	40-mL vial ~~(DI)~~ MeOH	1	
VOC	40-mL vial (~~MeOH~~) NaHSO4	3	
SVOC/PCB/Pesticides	8 oz jar	1	
TAL Metals	2 oz jar	1	

OBSERVATIONS / NOTES:

VOC fraction of sample was taken 1st using a precut syringe and transfering into appropriate bottleware. The sample was then transfered into a ~~stainless steel bowl~~ aluminum pan, homogenized, and transfered into appropriate bottleware.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
NA	NA

Signature(s): J. Trauth

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill, Site 2
Project No.: 112G00~~640~~958

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: TP-2-11-0405
Sample Location: TP-2-11
Sampled By: J. Trout, C. Fellows
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 10/2/08
Time: 1500
Method: Grab
Monitor Reading (ppm): 0.0

Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
4-5' bgs		See boring log test pit

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	40-mL vial ~~(DI)~~ MeOH	1	
VOC	40-mL vial (~~MeOH~~) NaHSO4	3	
SVOC/PCB/Pesticides	8 oz jar	1	
TAL Metals	2 oz jar	1	
Dioxin	8 oz jar	1	

OBSERVATIONS / NOTES:

VOC fraction of sample was taken 1st using a precut syringe and transferring into appropriate bottleware. The sample was then transfered into a ~~stainless steel bowl~~ aluminum pan, homogenized, and transfered into appropriate bottleware.

MAP:

Circle if Applicable:

MS/MSD: NA

Duplicate ID No.: NA

Signature(s): J. Trout

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill, Site 2
Project No.: 112G00~~646~~958

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: TP-2-11-0708
Sample Location: TP-2-11
Sampled By: J. Traut, C. Fellows
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 10/2/08
Time: 1515
Method: Grab
Monitor Reading (ppm): 0.0

Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
7-8' bgs	See ~~boring~~ log	test pit

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	40-mL vial ~~(DI)~~ MeOH	1	
VOC	40-mL vial ~~(MeOH)~~ NaHSO4	3	
SVOC/PCB/Pesticides	8 oz jar	1	
TAL Metals	2 oz jar	1	

OBSERVATIONS / NOTES:

VOC fraction of sample was taken 1st using a precut syringe and transferring into appropriate bottleware. The sample was then transfered into a ~~stainless steel bowl~~ aluminum pan, homogenized, and transfered into appropriate bottleware.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
NA	NA

Signature(s): J Traut

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill, Site 2
Project No.: 112G00646 958

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: SB-2-301-0406
Sample Location: SB-2-301
Sampled By: J. Traut, C. Fellows
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 10/8/08
Time: 0825
Method: Direct Push
Monitor Reading (ppm): PID=0.1

Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
4-6ft	Dark Brown	See boring log

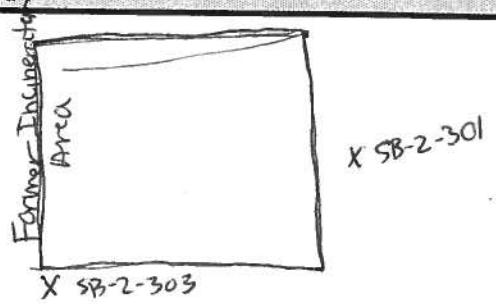
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	40-mL vial ~~(DI)~~ NaHSO4	3x Yes	
VOC	40-mL vial (MeOH)	1x Yes	
SVOC/PCB/Pesticides	8 oz jar	1x Yes	
TAL Metals	2 oz jar	1x Yes	

OBSERVATIONS / NOTES:

VOC fraction of sample was taken 1st using a precut syringe and transfering into appropriate bottleware. The sample was then transfered into a ~~stainless steel bowl~~ aluminum pan, homogenized, and transfered into appropriate bottleware.

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): C. Fellows

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill, Site 2
Project No.: 112G00646958

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type: LabQC

Sample ID No.: SB-2-302-0002
Sample Location: SB-2-302
Sampled By: J. Traut, C. Fellows
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 10/8/08
Time: 1025
Method: Grab
Monitor Reading (ppm): 0.0

Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
0-2' bgs	See boring log	

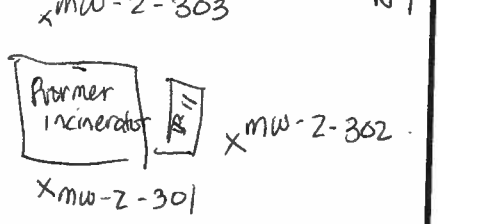
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	40-mL vial ~~(DI)~~ NaHSO4	39	
VOC	40-mL vial (MeOH)	+3	
SVOC/PCB/Pesticides	8 oz jar	+2	
TAL Metals	2 oz jar	2	

OBSERVATIONS / NOTES:

VOC fraction of sample was taken 1st using a precut syringe and transferring into appropriate bottleware. The sample was then transfered into a ~~stainless steel bowl~~ aluminum pan, homogenized, and transfered into appropriate bottleware.

MAP:



Circle if Applicable:

MS/MSD: Yes
Duplicate ID No.: —

Signature(s): J. Traut

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill, Site 2
Project No.: 112G00646958

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: SB-2-303-1214
Sample Location: SB-2-303
Sampled By: J. Traud, C Fellows
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 10/7/08
Time: 1416
Method: Grab
Monitor Reading (ppm): 0.0

Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
12-14' bgs		See boring log

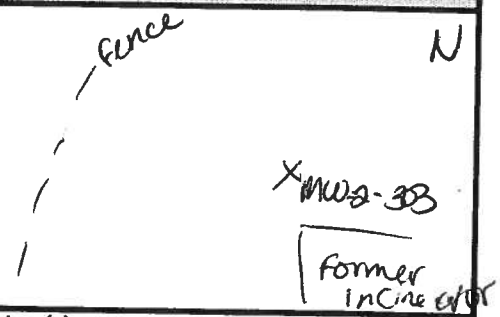
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	40-mL vial ~~(DI)~~ NaHSO4	3	
VOC	40-mL vial (MeOH)	1	
SVOC/PCB/Pesticides	8 oz jar	1	
TAL Metals	2 oz jar	1	

OBSERVATIONS / NOTES:

VOC fraction of sample was taken 1st using a precut syringe and transferring into appropriate bottleware. The sample was then transfered into a ~~stainless steel bowl~~ aluminum pan, homogenized, and transfered into appropriate bottleware.

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): J Traud

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill, Site 2
Project No.: 112G00~~646~~958

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: SB-2-304-1620
Sample Location: SB-2-304
Sampled By: J. Traut, C. Fellows
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 10/9/08
Time: 1020
Method: Direct Push
Monitor Reading (ppm): PID=0.1

Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
16-20 ft	Light Brown	See boring log

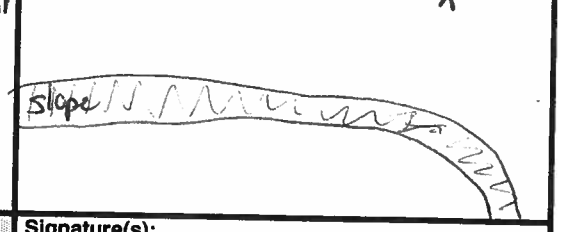
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	40-mL vial ~~(DI)~~ NaHSO4	3x Yes	
VOC	40-mL vial (MeOH)	1x Yes	
SVOC/PCB/Pesticides	8 oz jar	1x Yes	
TAL Metals	2 oz jar	1x Yes	

OBSERVATIONS / NOTES:

VOC fraction of sample was taken 1st using a precut syringe and transferring into appropriate bottleware. The sample was then transfered into a ~~stainless steel bowl~~ aluminum pan homogenized, and transfered into appropriate bottleware.

MAP:



Circle If Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): C. Fellows

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill, Site 2
Project No.: 112G00646958

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: SB-2-305-0507
Sample Location: SB-2-306
Sampled By: J. Traut, C. Fellows
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 10/7/06
Time: 1150
Method: Grab
Monitor Reading (ppm): 0.0

Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
5-7' bgs		See boring log

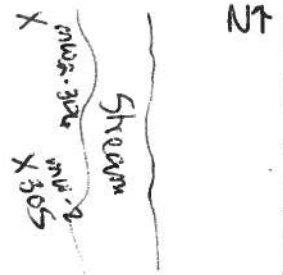
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	40-mL vial ~~(DI)~~ NaHSO4	3	
VOC	40-mL vial (MeOH)	1	
SVOC/PCB/Pesticides	8 oz jar	1	
TAL Metals	2 oz jar	1	

OBSERVATIONS / NOTES:

VOC fraction of sample was taken 1st using a precut syringe and transferring into appropriate bottleware. The sample was then transfered into a ~~stainless steel bowl~~ aluminum pan, homogenized, and transfered into appropriate bottleware.

MAP:



Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): J Traut

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill, Site 2
Project No.: 112G00646-958

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: SB-2-306-1620
Sample Location: SB-2-306
Sampled By: J. Trout, C. Fellows
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 10/7/08
Time: 0940
Method: Direct Push
Monitor Reading (ppm): PID = 0.0

Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
16-20 ft.	Light Brown	See boring log

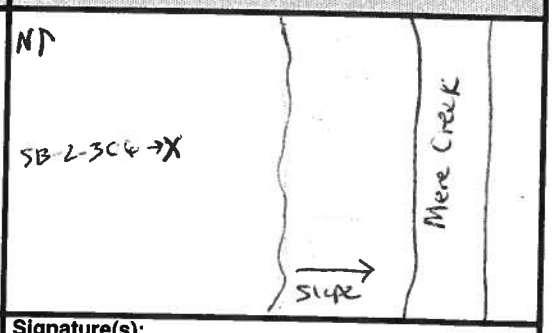
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	40-mL vial (DI) MeOH	1x Yes	
VOC	40-mL vial (MeOH) NaHSO4	3x Yes	
SVOC/PCB/Pesticides	8 oz jar	1x Yes	
TAL Metals	2 oz jar	1x Yes	

OBSERVATIONS / NOTES:

VOC fraction of sample was taken 1st using a precut syringe and transfering into appropriate bottleware. The sample was then transfered into a ~~stainless steel bowl~~ aluminum pan, homogenized, and transfered into appropriate bottleware.

MAP:



Circle If Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill, Site 2
Project No.: 112G00646958

[X] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: SB-2-307-0507
Sample Location: SB-2-307
Sampled By: T. Traut, C. Fellows-Swenson
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 10/6/08
Time: 0957
Method: Grab
Monitor Reading (ppm): 0.0

Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
5-7' bgs	See boring log	

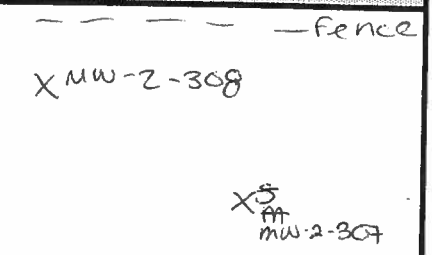
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	40-mL vial ~~(DI)~~ MeOH	1	
VOC	40-mL vial ~~(MeOH)~~ NaHSO4	3	
SVOC/PCB/Pesticides	8 oz jar	1	
TAL Metals	2 oz jar	1	

OBSERVATIONS / NOTES:

VOC fraction of sample was taken 1st using a precut syringe and transferring into appropriate bottleware. The sample was then transfered into a ~~stainless steel bowl~~ aluminum pan, homogenized, and transfered into appropriate bottleware.

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
NA	NA

Signature(s): J Traut

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill, Site 2
Project No.: 112G00648958

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: SB-2-308-0003
Sample Location: SB-2-308
Sampled By: J. Traut, C. Fellows Swerson
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:	0-3' bgs		See boring log
Time:			
Method:			
Monitor Reading (ppm):			

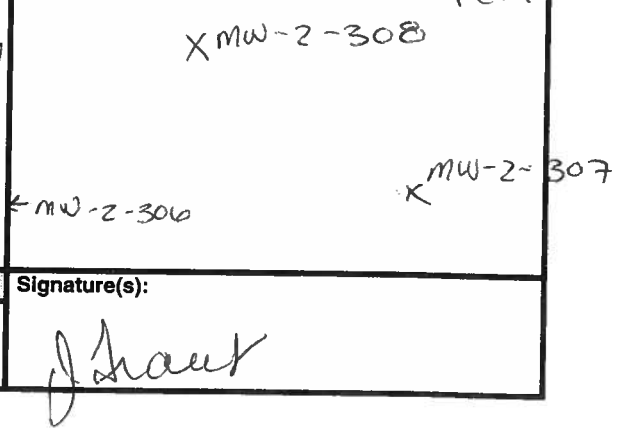
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	40-mL vial ~~(DI)~~ MeOH	1	
VOC	40-mL vial (~~MeOH~~) NaHSO4	3	
SVOC/PCB/Pesticides	8 oz jar	1	
TAL Metals	2 oz jar	1	

OBSERVATIONS / NOTES:

VOC fraction of sample was taken 1st using a precut syringe and transfering into appropriate bottleware. The sample was then transfered into a ~~stainless steel bowl~~ aluminum, homogenized, and transfered into appropriate bottleware.

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
NA	NA

Signature(s): J. Traut

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill, Site 2
Project No.: 112G00646 958

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: SB-2-~~MW241R~~ 309-0002
Sample Location: SB-2-MW241R
Sampled By: JT, CFS
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 10/8/08
Time: 1300
Method: Direct Push
Monitor Reading (ppm): PID=7.8

Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
0-2 ft	Dark Brown/ Brown	See boring log

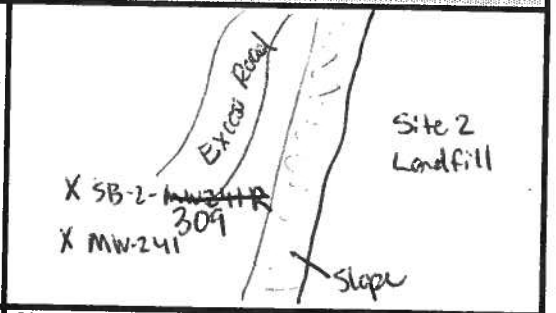
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	40-mL vial (~~DI~~) $NaHSO_4$	3x Yes	
VOC	40-mL vial (MeOH)	1x Yes	
SVOC/PCB/Pesticides	8 oz jar	1x Yes	
TAL Metals	2 oz jar	1x Yes	

OBSERVATIONS / NOTES:

VOC fraction of sample was taken 1st using a precut syringe and transfering into appropriate bottleware. The sample was then transfered into a ~~stainless steel bowl~~ aluminum pan homogenized, and transfered into appropriate bottleware.

MAP:



Circle If Applicable:

MS/MSD	Duplicate ID No.:
—	SB-2-Dup02 TIME: 1305

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill, Site 2
Project No.: 112G00646.958

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: SB-2-310-0408
Sample Location: SB-2-310
Sampled By: J. Traut, C. Fellers
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 10/4/08
Time: 1340
Method: DPT
Monitor Reading (ppm): PID =

Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
4-8 ft.	Dark Brown	See boring log

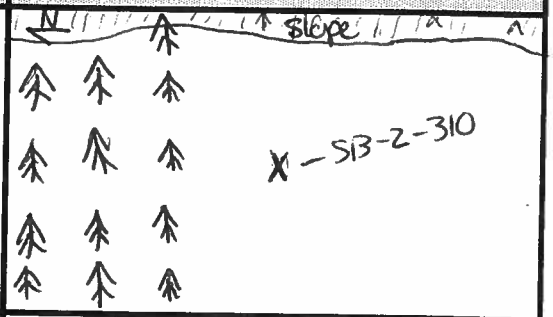
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	40-mL vial ~~(DI)~~ NaHSO4	3x Yes	
VOC	40-mL vial (MeOH)	1x Yes	
SVOC/PCB/Pesticides	8 oz jar	1x Yes	
TAL Metals	2 oz jar	1x Yes	

OBSERVATIONS / NOTES:

VOC fraction of sample was taken 1st using a precut syringe and transferring into appropriate bottleware. The sample was then transfered into a ~~stainless steel bowl~~ aluminum pan, homogenized, and transfered into appropriate bottleware.

MAP:



Circle if Applicable:

MS/MSD: —

Duplicate ID No.: SB-2-Dup03 TIME: 1345

Signature(s): C. Fellers

C-4 Monitoring Well Construction Logs

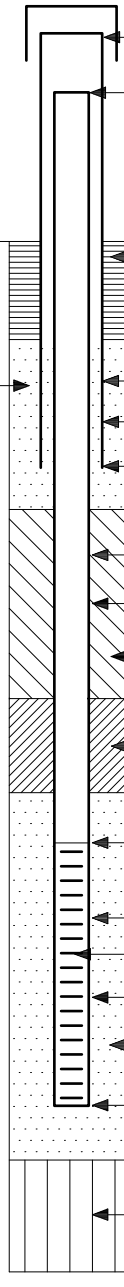
OVERBURDEN MONITORING WELL CONSTRUCTION LOG **TETRA TECH NUS, INC.**

PROJECT NAME: Site 2 and Area North of Site 2, NASB
PROJECT NO: 112G00958
PROJECT LOCATION: Brunswick, Maine
WELL NO: MW-2-301
CLIENT: Navy
BORING NO: SB-2-301
CONTRACTOR: MAI
DRILLER: S. Brown
BORING LOCATION:
LOGGED BY: J. Traut
DATE: 10/8/08
CHECKED BY:
DATE:

ELEVATION TOP OF PROTECTIVE CASING 56.52

ELEVATION TOP OF RISER PIPE 56.36

GROUND ELEVATION 54.42



LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	2.1
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	1.94
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	12”
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1’
I.D. OF PROTECTIVE CASING (In.)	4.5’
TYPE OF PROTECTIVE CASING	Steel Casing
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	3
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	7.5’
RISER PIPE (In.) I.D.: 1”	O.D.: 1.25”
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	Sand No. 1
DEPTH TOP OF SEAL (Ft.)	7.5’
TYPE OF SEAL	Bentonite chips
DEPTH BOTTOM OF SEAL (Ft.)	9.5’
DEPTH TOP OF PERVIOUS SECTION (Ft.)	11.5’
DIAMETER OF BOREHOLE (In.)	3.25”
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	0.10 Slots
PERVIOUS SECTION (In.) I.D.: 1”	O.D.: 2.5”
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Prepack Screen
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	21.5’
DEPTH BOTTOM OF FILTER PACK (Ft.)	21.5
TYPE OF BACKFILL BELOW FILTER PACK	SAND
END OF BORING(Ft.)	21.5

G E N E R A L N O T E :

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

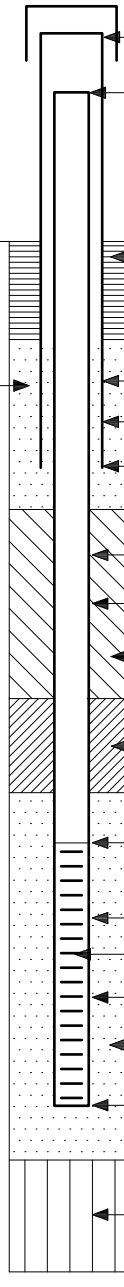
OVERBURDEN MONITORING WELL CONSTRUCTION LOG **TETRA TECH NUS, INC.**

PROJECT NAME: Site 2 and Area North of Site 2, NASB
PROJECT NO: 112G00958
PROJECT LOCATION: Brunswick, Maine
WELL NO: MW-2-302
CLIENT: Navy
BORING NO: SB-2-302
CONTRACTOR: MAI
DRILLER: S. Brown
BORING LOCATION:
LOGGED BY: J. Traut
DATE: 10/8/08
CHECKED BY:
DATE:

ELEVATION TOP OF PROTECTIVE CASING 57.32

ELEVATION TOP OF RISER PIPE 57.06

GROUND ELEVATION 55.17



LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	2.15
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	1.89
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	12”
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1’
I.D. OF PROTECTIVE CASING (In.)	4.5’
TYPE OF PROTECTIVE CASING	Steel Casing
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	3
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	10’
RISER PIPE (In.) I.D.: 1”	O.D.: 1.25”
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	Sand No. 1
DEPTH TOP OF SEAL (Ft.)	10’
TYPE OF SEAL	Bentonite chips
DEPTH BOTTOM OF SEAL (Ft.)	12’
DEPTH TOP OF PERVIOUS SECTION (Ft.)	14’
DIAMETER OF BOREHOLE (In.)	3.25”
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	0.10 Slots
PERVIOUS SECTION (In.) I.D.: 1”	O.D.: 2.5”
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Prepack Screen
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	24’
DEPTH BOTTOM OF FILTER PACK (Ft.)	24’
TYPE OF BACKFILL BELOW FILTER PACK	SAND
END OF BORING(Ft.)	24’

G E N E R A L N O T E :

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

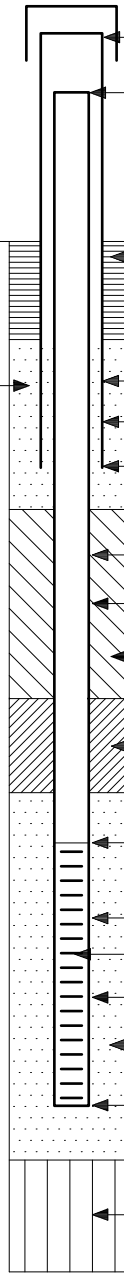
OVERBURDEN MONITORING WELL CONSTRUCTION LOG **TETRA TECH NUS, INC.**

PROJECT NAME: Site 2 and Area North of Site 2, NASB
PROJECT NO: 112G00958
PROJECT LOCATION: Brunswick, Maine
WELL NO: MW-2-303
CLIENT: Navy
BORING NO: SB-2-303
CONTRACTOR: MAI
DRILLER: S. Brown
BORING LOCATION:
LOGGED BY: J. Traut
DATE: 10/7/08
CHECKED BY:
DATE:

ELEVATION TOP OF PROTECTIVE CASING 58.70

ELEVATION TOP OF RISER PIPE 58.60

GROUND ELEVATION 56.60



LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	2.1
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	2
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	12”
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1’
I.D. OF PROTECTIVE CASING (In.)	4.5’
TYPE OF PROTECTIVE CASING	Steel Casing
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	3
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	7’
RISER PIPE (In.) I.D.: 1”	O.D.: 1.25”
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	Sand No. 1
DEPTH TOP OF SEAL (Ft.)	7’
TYPE OF SEAL	Bentonite chips
DEPTH BOTTOM OF SEAL (Ft.)	9’
DEPTH TOP OF PERVIOUS SECTION (Ft.)	11’
DIAMETER OF BOREHOLE (In.)	3.25”
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	0.10 Slots
PERVIOUS SECTION (In.) I.D.: 1”	O.D.: 2.5”
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Prepack Screen
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	21’
DEPTH BOTTOM OF FILTER PACK (Ft.)	21’
TYPE OF BACKFILL BELOW FILTER PACK	SAND
END OF BORING(Ft.)	21’

G E N E R A L N O T E :

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

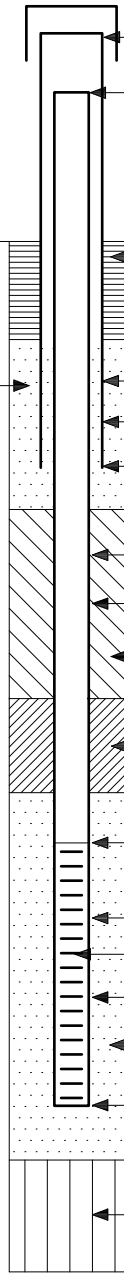
OVERBURDEN MONITORING WELL CONSTRUCTION LOG **TETRA TECH NUS, INC.**

PROJECT NAME: Site 2 and Area North of Site 2, NASB
PROJECT NO: 112G00958
PROJECT LOCATION: Brunswick, Maine
WELL NO: MW-2-304
CLIENT: Navy
BORING NO: SB-2-304
CONTRACTOR: MAI
DRILLER: S. Brown
BORING LOCATION:
LOGGED BY: J. Traut
DATE: 10/9/08
CHECKED BY:
DATE:

ELEVATION TOP OF PROTECTIVE CASING 43.17

ELEVATION TOP OF RISER PIPE 43.04

GROUND ELEVATION 41.25



LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	1.92
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	1.79
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	12”
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1’
I.D. OF PROTECTIVE CASING (In.)	4.5’
TYPE OF PROTECTIVE CASING	Steel Casing
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	3
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	13’
RISER PIPE (In.) I.D.: 1”	O.D.: 1.25”
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	Sand No. 1
DEPTH TOP OF SEAL (Ft.)	13’
TYPE OF SEAL	Bentonite chips
DEPTH BOTTOM OF SEAL (Ft.)	16’
DEPTH TOP OF PERVIOUS SECTION (Ft.)	18’
DIAMETER OF BOREHOLE (In.)	3.25”
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	0.10 Slots
PERVIOUS SECTION (In.) I.D.: 1”	O.D.: 2.5”
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Prepack Screen
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	28’
DEPTH BOTTOM OF FILTER PACK (Ft.)	28’
TYPE OF BACKFILL BELOW FILTER PACK	SAND
END OF BORING(Ft.)	28’

G E N E R A L N O T E :

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

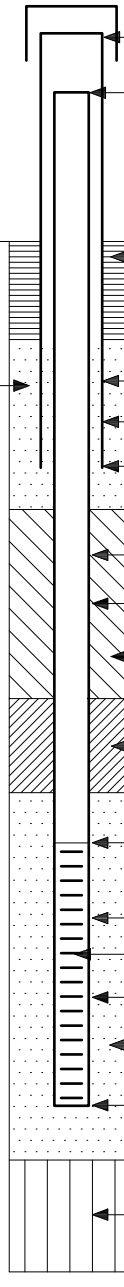
OVERBURDEN MONITORING WELL CONSTRUCTION LOG **TETRA TECH NUS, INC.**

PROJECT NAME: Site 2 and Area North of Site 2, NASB
PROJECT NO: 112G00958
PROJECT LOCATION: Brunswick, Maine
WELL NO: MW-2-305
CLIENT: Navy
BORING NO: SB-2-305
CONTRACTOR: MAI
DRILLER: S. Brown
BORING LOCATION:
LOGGED BY: J. Traut
DATE: 10/7/08
CHECKED BY:
DATE:

ELEVATION TOP OF PROTECTIVE CASING 57.51

ELEVATION TOP OF RISER PIPE 57.39

GROUND ELEVATION 55.41



LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	2.1
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	1.98
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	12”
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1’
I.D. OF PROTECTIVE CASING (In.)	4.5’
TYPE OF PROTECTIVE CASING	Steel Casing
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	3
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	6.8’
RISER PIPE (In.) I.D.: 1”	O.D.: 1.25”
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	Sand No. 1
DEPTH TOP OF SEAL (Ft.)	6.8’
TYPE OF SEAL	Bentonite chips
DEPTH BOTTOM OF SEAL (Ft.)	8.8’
DEPTH TOP OF PERVIOUS SECTION (Ft.)	10.8’
DIAMETER OF BOREHOLE (In.)	3.25”
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	0.10 Slots
PERVIOUS SECTION (In.) I.D.: 1”	O.D.: 2.5”
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Prepack Screen
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	20.8’
DEPTH BOTTOM OF FILTER PACK (Ft.)	20.8’
TYPE OF BACKFILL BELOW FILTER PACK	SAND
END OF BORING(Ft.)	20.8’

G E N E R A L N O T E :

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

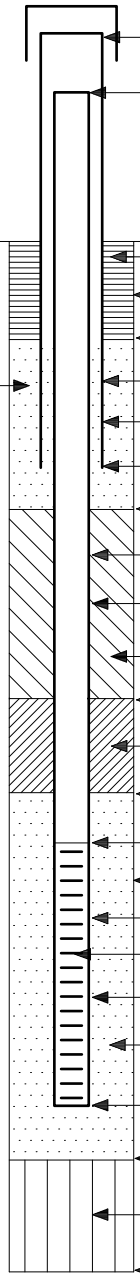
OVERBURDEN MONITORING WELL CONSTRUCTION LOG **TETRA TECH NUS, INC.**

PROJECT NAME: Site 2 and Area North of Site 2, NASB
PROJECT NO: 112G00958
PROJECT LOCATION: Brunswick, Maine
WELL NO: MW-2-306
CLIENT: Navy
BORING NO: SB-2-306
CONTRACTOR: MAI
DRILLER: S. Brown
BORING LOCATION:
LOGGED BY: J. Traut
DATE: 10/7/08
CHECKED BY:
DATE:

ELEVATION TOP OF PROTECTIVE CASING 57.42

ELEVATION TOP OF RISER PIPE 57.27

GROUND ELEVATION 55.33



LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	2.09
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	1.94
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	12”
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1’
I.D. OF PROTECTIVE CASING (In.)	4.5’
TYPE OF PROTECTIVE CASING	Steel Casing
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	3
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	10.5’
RISER PIPE (In.) I.D.: 1”	O.D.: 1.25”
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	Sand No. 1
DEPTH TOP OF SEAL (Ft.)	10.5’
TYPE OF SEAL	Bentonite chips
DEPTH BOTTOM OF SEAL (Ft.)	12.5’
DEPTH TOP OF PERVIOUS SECTION (Ft.)	14.5’
DIAMETER OF BOREHOLE (In.)	3.25”
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	0.10 Slots
PERVIOUS SECTION (In.) I.D.: 1”	O.D.: 2.5”
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Prepack Screen
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	24.5’
DEPTH BOTTOM OF FILTER PACK (Ft.)	24.5’
TYPE OF BACKFILL BELOW FILTER PACK	SAND
END OF BORING(Ft.)	24.5’

G E N E R A L N O T E :

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

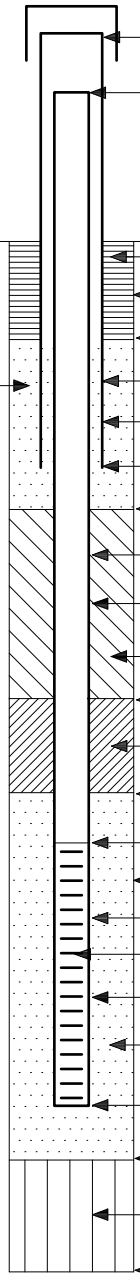
OVERBURDEN MONITORING WELL CONSTRUCTION LOG **TETRA TECH NUS, INC.**

PROJECT NAME: Site 2 and Area North of Site 2, NASB
PROJECT NO: 112G00958
PROJECT LOCATION: Brunswick, Maine
WELL NO: MW-2-307
CLIENT: Navy
BORING NO: SB-2-307
CONTRACTOR: MAI
DRILLER: S. Brown
BORING LOCATION:
LOGGED BY: J. Traut
DATE: 10/6/08
CHECKED BY:
DATE:

ELEVATION TOP OF PROTECTIVE CASING 51.18

ELEVATION TOP OF RISER PIPE 51.04

GROUND ELEVATION 49.13



LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	2.05
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	1.91
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	12”
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1’
I.D. OF PROTECTIVE CASING (In.)	4.5’
TYPE OF PROTECTIVE CASING	Steel Casing
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	3
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2’
RISER PIPE (In.) I.D.: 1”	O.D.: 1.25”
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	Sand No. 1
DEPTH TOP OF SEAL (Ft.)	2’
TYPE OF SEAL	Bentonite chips
DEPTH BOTTOM OF SEAL (Ft.)	4’
DEPTH TOP OF PERVIOUS SECTION (Ft.)	5.7’
DIAMETER OF BOREHOLE (In.)	3.25”
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	0.10 Slots
PERVIOUS SECTION (In.) I.D.: 1”	O.D.: 2.5”
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Prepack Screen
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	15.7’
DEPTH BOTTOM OF FILTER PACK (Ft.)	15.7’
TYPE OF BACKFILL BELOW FILTER PACK	SAND
END OF BORING(Ft.)	15.7’

G E N E R A L N O T E :

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

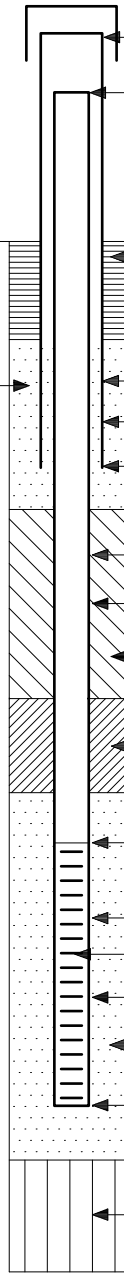
OVERBURDEN MONITORING WELL CONSTRUCTION LOG **TETRA TECH NUS, INC.**

PROJECT NAME: Site 2 and Area North of Site 2, NASB
PROJECT NO: 112G00958
PROJECT LOCATION: Brunswick, Maine
WELL NO: MW-2-308
CLIENT: Navy
BORING NO: SB-2-308
CONTRACTOR: MAI
DRILLER: S. Brown
BORING LOCATION:
LOGGED BY: J. Traut
DATE: 10/6/08
CHECKED BY:
DATE:

ELEVATION TOP OF PROTECTIVE CASING 55.85

ELEVATION TOP OF RISER PIPE 55.74

GROUND ELEVATION 53.83



LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	2.02
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	1.91
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	12”
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1’
I.D. OF PROTECTIVE CASING (In.)	4.5’
TYPE OF PROTECTIVE CASING	Steel Casing
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	3
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	3.3’
RISER PIPE (In.) I.D.: 1”	O.D.: 1.25”
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	Sand No. 1
DEPTH TOP OF SEAL (Ft.)	3.3’
TYPE OF SEAL	Bentonite chips
DEPTH BOTTOM OF SEAL (Ft.)	3.8’
DEPTH TOP OF PERVIOUS SECTION (Ft.)	4.3’
DIAMETER OF BOREHOLE (In.)	3.25”
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	0.10 Slots
PERVIOUS SECTION (In.) I.D.: 1”	O.D.: 2.5”
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Prepack Screen
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	14.3’
DEPTH BOTTOM OF FILTER PACK (Ft.)	14.3’
TYPE OF BACKFILL BELOW FILTER PACK	SAND
END OF BORING(Ft.)	14.3’

G E N E R A L N O T E :

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

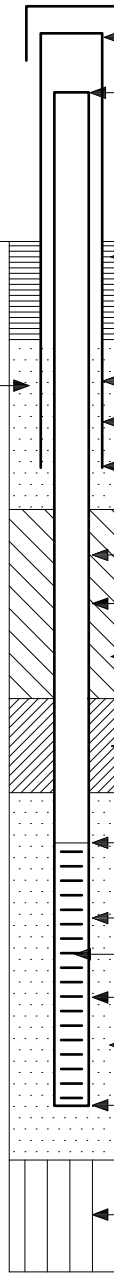
OVERBURDEN MONITORING WELL CONSTRUCTION LOG **TETRA TECH NUS, INC.**

PROJECT NAME: Site 2 and Area North of Site 2, NASB
PROJECT NO: 112G00958
PROJECT LOCATION: Brunswick, Maine
WELL NO: MW-2-309
CLIENT: Navy
BORING NO: SB-2-309
CONTRACTOR: MAI
DRILLER: S. Brown
BORING LOCATION:
LOGGED BY: J. Traut
DATE: 10/9/08
CHECKED BY:
DATE:

ELEVATION TOP OF PROTECTIVE CASING 27.30

ELEVATION TOP OF RISER PIPE 27.11

GROUND ELEVATION 25.17



LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	2.13
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	1.94
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	12”
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1’
I.D. OF PROTECTIVE CASING (In.)	4.5’
TYPE OF PROTECTIVE CASING	Steel Casing
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	3
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	10.5’
RISER PIPE (In.) I.D.: 1”	O.D.: 1.25”
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	Sand No. 1
DEPTH TOP OF SEAL (Ft.)	10.5’
TYPE OF SEAL	Bentonite chips
DEPTH BOTTOM OF SEAL (Ft.)	12.5’
DEPTH TOP OF PERVIOUS SECTION (Ft.)	14.5’
DIAMETER OF BOREHOLE (In.)	3.25”
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	0.10 Slots
PERVIOUS SECTION (In.) I.D.: 1”	O.D.: 2.5”
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Prepack Screen
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	24.5’
DEPTH BOTTOM OF FILTER PACK (Ft.)	24.5’
TYPE OF BACKFILL BELOW FILTER PACK	SAND
END OF BORING(Ft.)	24.5’

G E N E R A L N O T E :

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

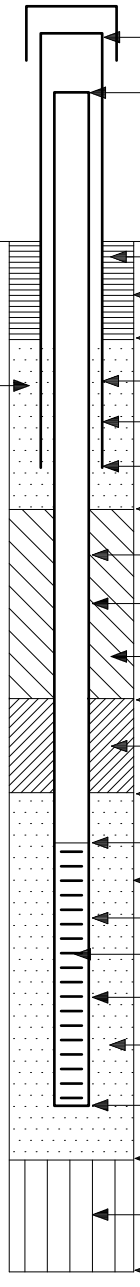
OVERBURDEN MONITORING WELL CONSTRUCTION LOG **TETRA TECH NUS, INC.**

PROJECT NAME: Site 2 and Area North of Site 2, NASB
PROJECT NO: 112G00958
PROJECT LOCATION: Brunswick, Maine
WELL NO: MW-2-310
CLIENT: Navy
BORING NO: SB-2-310
CONTRACTOR: MAI
DRILLER: S. Brown
BORING LOCATION:
LOGGED BY: J. Traut
DATE: 10/14/08
CHECKED BY:
DATE:

ELEVATION TOP OF PROTECTIVE CASING 56.30

ELEVATION TOP OF RISER PIPE 56.15

GROUND ELEVATION 54.11



LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	2.19
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	2.04
TYPE OF SURFACE SEAL	Cement
DIA. SURFACE SEAL BGS (In.)	12”
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1’
I.D. OF PROTECTIVE CASING (In.)	4.5’
TYPE OF PROTECTIVE CASING	Steel Casing
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	3
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	17.9’
RISER PIPE (In.) I.D.: 1”	O.D.: 1.25”
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	Sand No. 1
DEPTH TOP OF SEAL (Ft.)	17.9’
TYPE OF SEAL	Bentonite chips
DEPTH BOTTOM OF SEAL (Ft.)	19.9’
DEPTH TOP OF PERVIOUS SECTION (Ft.)	21.9’
DIAMETER OF BOREHOLE (In.)	3.25”
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	0.10 Slots
PERVIOUS SECTION (In.) I.D.: 1”	O.D.: 2.5”
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Prepack Screen
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	31.9’
DEPTH BOTTOM OF FILTER PACK (Ft.)	31.9’
TYPE OF BACKFILL BELOW FILTER PACK	SAND
END OF BORING(Ft.)	31.9’

G E N E R A L N O T E :

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

C-5 Well Development Data Sheets

TETRA TECH NUS, INC.

WELL DEVELOPMENT DATA SHEET

Well No.: MW-2-301

PROJECT: Former Orion Street Landfill (Site 2)
PROJECT NO.: 112G00~~646~~9580
SAMPLE ID: —

DTB: 23.55

DATE: 10/15/08
WEATHER: Sun, 60°F
PERSONNEL: Perrotti

Well Screen Depth: 11.5 / 21.5 ft. bgs
H&S Monitoring Instrument Reading 1.8ppm

Pump Type/Material: ~~Waterra w/foot valve~~ Peristaltic
Pump Intake Depth: 26.5 Ft

Total Purge Volume ~2.0 (gal)
Data Recorded By: MP

Time	Water Level ft below top PVC	Volume ~~mL~~ gal	Flow Rate mL/min	Temp °C ±10%	pH ±0.1	Sp Cond mS/cm ±10%	DO mg/L ±10%	Turbidity NTU <10	Comments
1330	19.21	0	—	—	—	—	—	—	—
1340	—	0	480	10.60	5.30	0.058	15.65	85.0	clear, orange
1350	20.49	~1.0	480	10.40	5.31	0.060	13.89	7.1	clear, colorless
1355	20.51		480	10.41	5.27	0.060	13.44	7.1	" "
1400	20.56	~2.0	480	10.40	5.27	0.061	13.24	0.70	" "

TtNUS Form 0013

TETRA TECH NUS, INC.

WELL DEVELOPMENT DATA SHEET

Well No.: MW-2-302

PROJECT: Former Orion Street Landfill (Site 2)
PROJECT NO.: 112G00~~646~~958
SAMPLE ID: DEV.

DATE: 10/15/08
WEATHER: CLEAR & MILD
PERSONNEL: T. ROJAHN

Well Screen Depth: 14 / 24 ft. bgs
H&S Monitoring Instrument Reading 0.4

Pump Type/Material: ~~Waterra w/ foot valve~~ PERITALTIC (TR)
Pump Intake Depth: Bottom

Total Purge Volume = 12.8 L ~~(gal)~~
Data Recorded By: T. ROJAHN

Time	Water Level ft below top PVC	Volume mL	Flow Rate mL/min	Temp °C	pH	Sp Cond mS/cm	DO mg/L	Turbidity NTU	Comments
1241	20.27	0	—	—	—	—	—	—	START DEV
1251	22.10	4,000	400	10.10	4.81	0.135	6.73	20	CLEAR
1301	22.10	8,000	400	9.99	4.88	0.133	6.66	3.5	↓
1311	21.18	10400	240	10.22	5.23	0.140	6.04	2.2	↓
1316	21.15	11600	240	10.23	5.27	0.144	5.83	0.45	↓
1321	21.15	12800	240	10.28	5.28	0.144	5.71	0.00	↓

TtNUS Form 0013

TD = 25.95

TETRA TECH NUS, INC.

WELL DEVELOPMENT DATA SHEET

Well No.: MW-2-303

PROJECT: Former Orion Street Landfill (Site 2)
PROJECT NO.: 112G00~~646~~ 959
SAMPLE ID:

DATE: 10/15/08
WEATHER: Sun, 60 °F
PERSONNEL: Perrotti

Well Screen Depth: 11 / 21 ft. bgs
H&S Monitoring Instrument Reading 1.5 ppm

Pump Type/Material: ~~Waterra w/ foot valve~~ Peristaltic
Pump Intake Depth: 23.0' (bottom)

Total Purge Volume = ~~14.0~~ (gal)
Data Recorded By: Perrotti

Time	Water Level ft below top PVC	Volume mL	Flow Rate mL/min	Temp °C ±10%	pH ± 0.1	Sp Cond mS/cm ± 10%	DO mg/L ± 10%	Turbidity NTU ±10%, <10 NTU	Comments
1130	18.35	0	—	—	—	—	—	—	PID = 1.5
1140	18.35	0	370	—	—	—	—	—	Clear, Colorless
1150	—		370	11.13	4.11	0.279	2.18	18.0	" "
1200	19.36	~2 gals	370	11.14	4.37	0.274	1.68	37.0	" "
1210	18.18		370	11.64	4.50	0.275	1.88	5.7	" "
1215	18.21	~3 gals	370	11.59	4.43	0.274	1.58	1.9	" "
1220	18.24		370	11.68	4.45	0.277	1.75	1.6	" "
1225	18.25	~4 gals	370	11.65	4.44	0.277	1.75	0.70	" "

TtNUS Form 0013

TETRA TECH NUS, INC.

WELL DEVELOPMENT DATA SHEET

Well No.: MW-2-304

PROJECT: Former Orion Street Landfill (Site 2)
PROJECT NO.: 112G00~~646~~958
SAMPLE ID:

DTB: 29.85

DATE: 10/15/05
WEATHER: Sun, 60 °F
PERSONNEL: Pyrotti + Rojann

Well Screen Depth: 18 / 28 ft. bgs
H&S Monitoring Instrument Reading 0.7 ppm

Pump Type/Material: ~~Waterra w/ foot valve~~ Peristaltic
Pump Intake Depth: (bottom)

Total Purge Volume = 1.5 (gal)
Data Recorded By: MP

Time	Water Level ft below top PVC	Volume ~~mL~~ gal	Flow Rate mL/min	Temp °C ±10%	pH ±0.1	Sp Cond mS/cm ±10%	DO mg/L ±10%	Turbidity NTU <10	Comments
1415	21.89	0	500	—	—	—	—	—	—
1425	21.99	~.75	500	9.95	5.92	0.288	1.49	3.1	gray, silty
1430	22.00	~1.0	500	9.97	5.92	0.289	1.38	3.7	Clear, colorless
1435	21.99	~1.5	500	10.01	5.92	0.288	1.30	0.35	"

TtNUS Form 0013

TETRA TECH NUS, INC.

WELL DEVELOPMENT DATA SHEET

Well No.: MW-2-305

PROJECT: Former Orion Street Landfill (Site 2)
PROJECT NO.: 112G00~~646~~958 (2)
SAMPLE ID: N/A

DATE: 10-16-08
WEATHER: OVERCAST
PERSONNEL: MP | TR

Well Screen Depth: 10.8 / 20.8 ft. bgs
H&S Monitoring Instrument Reading 0.3

Pump Type/Material: ~~Waterra w/ foot valve~~ Peristaltic Pump (TR)
Pump Intake Depth: Bottom

Total Purge Volume = 3 ~~(gal)~~ L
Data Recorded By: T. ROJAHN

Time	Water Level ft below top PVC	Volume mL	Flow Rate mL/min	Temp °C	pH	Sp Cond mS/cm	DO mg/L	Turbidity NTU	Comments
0835	20.09	0	—	—	—	—	—	—	Start DEV.
0845	23.20	1000	100	10.58	5.60	0.318	4.02	21	Recharge =
0855	23.20	2000	100	10.85	5.66	0.318	2.36	14	to Pump Rate
0905	23.20	2500	50	10.93	5.63	0.312	2.49	6.1	CLEAR
0910	23.20	3000	50	10.94	5.62	0.311	2.55	2.9	CLEAR

TtNUS Form 0013

TD = 23.25

TETRA TECH NUS, INC.

WELL DEVELOPMENT DATA SHEET

Well No.: MW-2-306

PROJECT: Former Orion Street Landfill (Site 2)
PROJECT NO.: 112G00~~648~~458
SAMPLE ID: NA

DATE: 10-16-08
WEATHER: Lt. Rain
PERSONNEL: MP/TR

Well Screen Depth: 14.5 / 24.5 ft. bgs
H&S Monitoring Instrument Reading NA (RAIN)

Pump Type/Material: ~~Wattera w/ flat valve~~ Peristaltic pump (TL)
Pump Intake Depth: Bottom

Total Purge Volume = 14 L ~~(gal)~~
Data Recorded By: T. Rojahn

Time	Water Level ft below top PVC	Volume mL	Flow Rate mL/min	Temp °C	pH	Sp Cond mS/cm	DO mg/L	Turbidity NTU	Comments
0922	19.80	0	—	—	—	—	—	—	START DEV.
0932	19.80	3500	350	9.47	4.41	0.159	3.11	21	CLEAR
0942	19.80	7000	350	9.40	4.40	0.166	2.53	6.9	CLEAR
0952	19.80	10500	350	9.36	4.38	0.165	2.54	11	CLEAR
1002	19.80	14000	350	9.46	4.44	0.166	2.36	2.9	END

TtNUS Form 0013

TETRA TECH NUS, INC.

WELL DEVELOPMENT DATA SHEET

Well No.: MW-2-307

PROJECT: Former Orion Street Landfill (Site 2)
PROJECT NO.: 112G00~~646~~958
SAMPLE ID: —

TD = ~~[illegible]~~ 17.7 @ 10 [illegible]

DATE: 10-16-08
WEATHER: Rain, 16°C
PERSONNEL: Parutti & Rojas

Well Screen Depth: 5.7 / 15.7 ft. bgs
H&S Monitoring Instrument Reading: Rain

Pump Type/Material: Waterra w/ foot valve
Pump Intake Depth: —

Total Purge Volume = _____ (gal)
Data Recorded By: MP

Time	Water Level ft below top PVC	Volume mL	Flow Rate mL/min	Temp °C	pH	Sp Cond mS/cm	DO mg/L	Turbidity NTU	Comments
1120	9.41	0	—	—	—	—	—	—	—
1130	10.14	3000	300	11.38	5.05	0.147	3.92	16	~~[illegible]~~ clear
1140	10.23	6000	300	11.36	4.73	0.153	2.92	21	"
1150	10.23	9000	300	11.36	4.70	0.149	3.22	7.5	"
1200	10.25	12000	300	11.33	4.68	0.149	3.30	3.1	"

TtNUS Form 0013

TETRA TECH NUS, INC.

WELL DEVELOPMENT DATA SHEET

Well No.: ~~MW-2-308~~ MW-2-308

PROJECT: Former Orion Street Landfill (Site 2)

PROJECT NO.: 112G00~~646~~458

SAMPLE ID: ~~[illegible]~~

TD = 16.5

DATE: 10-16-08

WEATHER: Rain, 12°C

PERSONNEL: Matt ~~[illegible]~~ Orr, Periotti, Rojann

Well Screen Depth: 4.3 / 14.3 ft. bgs

H&S Monitoring Instrument Reading: Rain

Pump Type/Material: Waterra w/ foot valve

Pump Intake Depth:

Total Purge Volume = _____ (gal)

Data Recorded By: MP

Time	Water Level ft below top PVC	Volume mL	Flow Rate mL/min	Temp °C	pH	Sp Cond mS/cm	DO mg/L	Turbidity NTU	Comments
1210	11.46	0	0	~~11.0~~	—	—	—	—	—
1220	11.54	3400	340	11.40	4.69	0.120	3.19	240	O-orange
1230	11.50	5900	250	11.46	4.77	0.127	3.10	>1000	O-orange
1240	"	8400	250	11.48	4.79	0.123	2.77	600	O-orange
1250	"	10400	200	11.62	4.80	0.119	2.99	120	cloudy
1300	11.49	12400	"	11.66	4.85	0.117	3.05	31	clear
1310	"	14400	"	11.64	4.83	0.117	3.13	25	"
1320	"	16400	"	11.64	4.83	0.117	3.03	15	"
1330	"	18400	"	11.67	4.91	0.116	3.07	11	"
1335	"	19400	"	11.69	4.92	0.116	3.11	11	"
1340	"	20400	"	11.66	4.86	0.116	3.12	9.3	"

TtNUS Form 0013

TETRA TECH NUS, INC.

WELL DEVELOPMENT DATA SHEET

Well No.: MW-2-3~~08~~09 ~~16-08~~ (TR)

PROJECT: Former Orion Street Landfill (Site 2)
PROJECT NO.: 112G00~~646~~ 958
SAMPLE ID: NA

DATE: 10-16-08
WEATHER: RAIN ~16°C
PERSONNEL: MP / T.R.

Well Screen Depth: _____ / _____ ft. bgs
H&S Monitoring Instrument Reading: NA (RAIN)

Pump Type/Material: PERISTALTIC PUMP (TR) ~~Waterra w/ foot valve~~
Pump Intake Depth: Bottom

Total Purge Volume = 18.8 L ~~(gal)~~
Data Recorded By: T. ROSAHN

Time	Water Level ft below top PVC	Volume mL	Flow Rate mL/min	Temp °C	pH	Sp Cond mS/cm	DO mg/L	Turbidity NTU	Comments
1420	4.88	0	0	—	—	—	—	—	Start DEV.
1430	6.01	4600	460	9.49	6.30	0.141	0.92	71000	Grey BRN
1440	5.56	7400	280	9.96	6.48	0.143	1.04	1000	Greyish
1450	5.35	9300	190	10.35	6.61	0.145	1.70	450	CLOUDY
1500	5.26	11200	↓	10.65	6.73	0.147	0.68	210	Sl CLOUDY
1510	5.26	13100		10.64	6.80	0.147	0.92	110	V.Sl. CLOUDY
1515	5.26	14050		10.68	6.78	0.147	0.80	100	" " "
1520	5.26	15000		10.57	6.85	0.147	0.77	75	" " "
1530	5.26	16900		10.53	6.82	0.148	1.33	55	" " "
1540	5.26	18800		10.50	6.83	0.148	0.86	40	CLEAR

TtNUS Form 0013

TD = 26.55'

END DEV. due to NEED to be out of AREA BEFORE 1600 HRS.

TETRA TECH NUS, INC.

WELL DEVELOPMENT DATA SHEET

Well No.: MW-2-309

PROJECT: ~~Site 17~~, NASB

PROJECT NO.: 112G00~~646~~ 958

SAMPLE ID: NA

DATE: 10-21-08

WEATHER: OVERCAST Cool

PERSONNEL: P. Seward, B. Geringer

Well Screen Depth: 16.55 / 26.55 ft. bgs

H&S Monitoring Instrument Reading 0.1

Pump Type/Material: Waterra with foot valve

Pump Intake Depth: Bottom

Total Purge Volume = _____ (gal)

Data Recorded By: T. Rojahn

Time	Water Level ft below top PVC	Volume mL	Flow Rate mL/min	Temp °C	pH	Sp Cond mS/cm	DO mg/L	Turbidity NTU	Comments
0850	4.99	0	0	—	—	—	—	—	Start DEV.
0900	5.42	2000	200	8.97	7.01	0.145	0.69	100	V.Sl. Cloudy
0910	5.44	4000	200	8.88	6.78	0.129	0.53	29	CLEAR
0920	5.45	6000	200	8.90	6.77	0.128	0.57	12	CLEAR
0925	5.46	7000	200	8.91	6.76	0.128	0.52	8.7	CLEAR

TtNUS Form 0013

TETRA TECH NUS, INC.

WELL DEVELOPMENT DATA SHEET

Well No.: MW-2-310

PROJECT: Former Orion Street Landfill (Site 2)
PROJECT NO.: 112G00~~646~~958
SAMPLE ID: NA

DATE: 10-16-08
WEATHER: OVERCAST / LT RAIN ~16°C
PERSONNEL: M.P. / T.R.

Well Screen Depth: 21.9 / 31.9 ft. bgs
H&S Monitoring Instrument Reading: TR ~~NA~~ 0.9

Pump Type/Material: Peristaltic ~~Waterra w/foot valve~~ TR
Pump Intake Depth: Bottom

Total Purge Volume = 10.4 L (~~gal~~)
Data Recorded By: T. ROJAHN

Time	Water Level ft below top PVC	Volume mL	Flow Rate mL/min	Temp °C	pH	Sp Cond mS/cm	DO mg/L	Turbidity NTU	Comments
1015	19.25	0	–	–	–	–	–	–	Start Dev
1025	21.05	2700	270	9.77	5.82	0.508	2.68	24	CLEAR
1035	21.02	5400	270	9.79	5.79	0.467	2.30	19	"
1045	20.90	7900	250	9.84	5.75	0.454	2.58	10	"
1055	20.90	10400	250	9.83	5.75	0.443	2.72	6.1	"

TtNUS Form 0013

TD = 34.00'

C-6 Groundwater Sample Log Sheets

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill (Site 2)
Project No.: 112G00646

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: GW2-301-102103
Sample Location: GW-301
Sampled By: T. Rajahn, M. Perrott
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl	3x 40 mL vial	Yes
SVOC	Ice Only	2x 1-L Amber	Yes
PCB	Ice Only	1x 1-L Amber	Yes
Pesticides	Ice Only	1x 1-L Amber	Yes
TAL Metals	HNO_3	1x 500 mL poly	Yes

OBSERVATIONS / NOTES:

TIME: 1110

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Amber Fellers

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill (Site 2)
Project No.: 112G00646

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: GW2-302-102108
Sample Location: GW2-302
Sampled By: T. Rojahn, M. Perrotti
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl	3 x 40 mL vial	Yes
SVOC	Ice Only	2 x 1-L Amber	Yes
PCB	Ice Only	1 x 1-L Amber	Yes
Pesticides	Ice Only	1 x 1-L Amber	Yes
TAL Metals	HNO_3	1 x 500 mL poly	Yes

OBSERVATIONS / NOTES:

TIME: 1035

Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s):
—	—	[illegible]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill (Site 2)
Project No.: 112G00646

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: GW2-303-102108
Sample Location: GW2-303
Sampled By: T. Rojahn, M. Perretti
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl	3x 40 mL vial	Yes
SVOC	Ice Only	2x 1-L Amber	Yes
PCB	Ice Only	1x 1-L Amber	Yes
Pesticides	Ice Only	1x 1-L Amber	Yes
TAL Metals	HNO_3	1x 500 mL poly	Yes

OBSERVATIONS / NOTES:

TIME: 0905

Circle if Applicable:

MS/MSD	Duplicate ID No.:
	GW2-DUP01-102108 TIME: 0920

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill (Site 2)
Project No.: 112G00646

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: GW2-304-102108
Sample Location: GW2-304
Sampled By: T. Rajohn, M. Perrotti
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl	2x 40 mL vial (only 2 collected)	Yes
SVOC	Ice Only	2x 1-L Amber	Yes
PCB	Ice Only	1x 1-L Amber	Yes
Pesticides	Ice Only	1x 1-L Amber	Yes
TAL Metals	HNO_3	1x 500 mL poly	Yes

OBSERVATIONS / NOTES:

Sample Time: 1235

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill (Site 2)
Project No.: 112G00646

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: GW2-305-102008
Sample Location: GW2-305
Sampled By: T. Rajaha, M. Perrotti
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl	3x 40 mL vial	Yes
SVOC	Ice Only	2x 1-L Amber	Yes
PCB	Ice Only	1x ~~2x~~ 1-L Amber	Yes
Pesticides	Ice Only	1x 1-L Amber	Yes
TAL Metals	HNO_3	1x 500 mL poly	Yes

OBSERVATIONS / NOTES:

time: 1255

Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s):
—	—	[illegible]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill (Site 2)
Project No.: 112G00646

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: GW2-306-102008
Sample Location: GW2-306
Sampled By: T. Rojahn, M. Pe[illegible]
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl	3x 40 mL vial	Yes
SVOC	Ice Only	2x 1-L Amber	Yes
PCB	Ice Only	1x 1-L Amber	Yes
Pesticides	Ice Only	1x 1-L Amber	Yes
TAL Metals	HNO_3	1x 500 mL poly	Yes

OBSERVATIONS / NOTES:

Sample time: 1425

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill (Site 2)
Project No.: 112G00646

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: GW2-307-102008
Sample Location: GW2-307
Sampled By: T. Rajahn, M. Perrott
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl	9 x 40 mL vial	YES
SVOC	Ice Only	6 x 1-L Amber	YES
PCB	Ice Only	3 x 1-L Amber	YES
Pesticides	Ice Only	3 x 1-L Amber	YES
TAL Metals	HNO_3	3 x 500 mL poly	YES

OBSERVATIONS / NOTES:

Sample Time: 1135

Circle if Applicable:

MS/MSD YES

Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill (Site 2)
Project No.: 112G00646

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: GW2-308-102008
Sample Location: GW2-308
Sampled By: T. Rojahn, M. Perrotti
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl	3 x 40 mL vial	Yes
SVOC	Ice Only	2 x 1-L Amber	Yes
PCB	Ice Only	1 x 1-L Amber	Yes
Pesticides	Ice Only	1 x 1-L Amber	Yes
TAL Metals	HNO_3	1 x 500 mL poly	Yes

OBSERVATIONS / NOTES:

Sample Time: 1435

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill (Site 2)
Project No.: 112G00646

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: GW2-309-102208
Sample Location: GW2-309
Sampled By: T. Rojahn, M. Pemell
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl	3x 40 mL vial	Yes
SVOC	Ice Only	2x 1-L Amber	Yes
PCB	Ice Only	1x 1-L Amber	Yes
Pesticides	Ice Only	1x 1-L Amber	Yes
TAL Metals	HNO_3	1x 500 mL poly	Yes

OBSERVATIONS / NOTES:

Sample time: 1015

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): [illegible]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Former Orion Street Landfill (Site 2)
Project No.: 112G00646

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: GW2-310-102108
Sample Location: GW2-310
Sampled By: J. Rojahn, M. Perrotti
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements		Collected
VOC	HCl	3x	40 mL vial	Yes
SVOC	Ice Only	2x	1-L Amber	Yes
PCB	Ice Only	1x	1-L Amber	Yes
Pesticides	Ice Only	1x	1-L Amber	Yes
TAL Metals	HNO_3	1x	500 mL poly	Yes

OBSERVATIONS / NOTES:

Sample TIME: 1208

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Former Orion Street Landfill-South (Site 2) NASB
Sample ID: GW-2-301-102108

Tetra Tech NUS Charge No. 112G00~~646~~ 951 ⓐ.
QC: N/A (If applicable)

Sample Method: Low Flow w/ Peri Pump
Depth Sampled: 21 Feet Screened Interval Depth 11.5-21.5 feet
Sample Date & Time: 10/21/08 1110 hours N/A /Dup
Sampler(s): Matt Perlotti
Data Recorded By: MP Signature: [illegible]
Notes: - No odor

H&S Survey Meter 0.3 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 19.32 ft Post - pump insertion WL ____ ft
Total Depth: 22.51

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC	3 40mL Vial	~~Post~~			
SVOC	2 - Liters	Metals	1 500mL poly		
PCB/Pest	2 - 1 Liters				

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1035	19.32	—	160	0	—	—	—	—	—	—	Start purge
1040	19.32	—	〃	800	11.02	0.061	5.18	113.6	8.13	46.8	Clear solution
1045	19.32	—	〃	1600	10.92	0.060	4.99	134.8	7.66	17.8	〃
1050	19.32	—	〃	2400	10.80	0.059	5.05	152.5	7.55	2.97	〃
1055	19.32	—	〃	3200	10.74	0.061	4.96	160.5	7.69	1.05	〃
1100	19.32	—	〃	4000	10.73	0.061	5.02	168.2	7.64	0.59	〃
1105	19.32	—	〃	4800	10.75	0.061	5.01	170.2	7.65	0.48	〃
1110	19.32	—	〃	5600	10.73	0.061	5.02	172.7	7.68	0.31	〃
				Purge complete as per work plan							
				Sample 11:10 - 11:45							

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Former Orion Street Landfill-South (Site 2) NASB
Sample ID: GW2-302-102108

Tetra Tech NUS Charge No. 112G00~~646~~ 958
QC: N/A (If applicable)

Sample Method: Low Flow w/ Peri Pump
Depth Sampled: 23 Feet Screened Interval Depth 15.95-25.95 feet
Sample Date & Time: 10/2/08 1035 hours NA /Dup
Sampler(s): T. Rojahn
Data Recorded By: T. Rojahn Signature: Terry Rojahn
Notes: TD = 25.95

H&S Survey Meter 0. PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL — ft Post - pump insertion WL 20.27 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC	3. 40mL vial	~~Post~~			
SVOC	2. 1 Liters	Metals	1. 500mL poly		
PCB/Pest	2. 1 Liters				

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
0945	20.27	—	—	0	—	—	—	—	—	—	Start Purge
0955	20.80	—	110	1100	10.10	0.190	5.24	64.0	3.11	8.7	CLEAR
1005	20.81	—	110	2200	10.21	0.182	5.15	114.2	3.46	2.6	CLEAR
1015	20.81	—	110	3300	10.26	0.176	5.14	135.9	3.84	1.4	CLEAR
1020	20.82	—	110	3850	10.27	0.173	5.14	150.2	3.95	1.9	CLEAR
1025	20.82	—	110	4400	10.25	0.170	5.11	158.7	4.19	1.1	CLEAR
1030	20.82	—	110	4950	10.24	0.170	5.11	160.1	4.21	1.5	CLEAR
1035	—	—	—	—	—	—	—	—	—	—	Start sampling

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Former Orion Street Landfill-South (Site 2) NASB
Sample ID: GW2-303--102108

Tetra Tech NUS Charge No. 112G00~~646~~ 958 10/21/08
QC: GW2-~~FBOT~~ DUP01 - 102108 (If applicable)

Sample Method: Low Flow w/ Peri Pump
Depth Sampled: 20 Feet Screened Interval Depth 11-21 feet
Sample Date & Time: 10/21/08 0905 hours 0920 DUP
Sampler(s): MAH PENTAY
Data Recorded By: M. P. Signature: [illegible]
Notes: -Needs-

H&S Survey Meter 0.2 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 17.26 ft Post - pump insertion WL ~~17.49~~ ft
Total Depth: 22.49

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC	3-40mL vial	~~Pest~~			
SVOC	2-1 Liter	Metals	1-500mL poly		
PCB/Pest	2-1 Liter				

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged ~~liters~~ mL	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
0840	17.26	—	190	0	—	—	—	—	—	—	Start Purge
0845	—	—	"	950	11.01	0.236	5.19	55.7	3.80	13.5	Clear, Orange tint
0850	18.01	—	"	1900	10.84	0.239	5.24	51.1	1.83	9.66	Clear, odorless
0855	18.01	—	"	2850	10.84	0.256	5.25	48.0	1.58	3.69	"
0900	18.01	—	"	3800	10.83	0.257	5.25	50.4	1.48	1.89	"
0905	18.01	—	"	4750	10.84	0.258	5.27	51.3	1.56	1.02	"
				Purge Complete as per Work Plan.							
				Sample 0905-1000							

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Former Orion Street Landfill-South (Site 2) NASB
Sample ID: GW-2-304-101408

Tetra Tech NUS Charge No. 112G00[redacted] 958
QC: N/A [redacted] 10/11/08 (If applicable)

Sample Method: Low Flow w/ Peri Pump
Depth Sampled: 25 Feet Screened Interval Depth 18-28 feet
Sample Date & Time: 10/14/08 1235 hours N/A /Dup
Sampler(s): Matt Pezzutti
Data Recorded By: MP Signature: [redacted]
Notes: - No odor

H&S Survey Meter _____ PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 21.42 ft Post - pump insertion WL ___ ft
Total Depth: 24.51 feet

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC	3-40ml vial	~~Pest~~			
SVOC	2-1 liter	Metals	1-500ml poly		
~~PCB/Pest~~	2-1 liter				

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1200	21.42	—	100	0	—	—	—	—	—	—	Start Purge
1205	"	—	"	500	10.34	0.273	6.00	86.7	2.22	151	Clear, colorless
1210	"	—	"	1000	10.20	0.273	6.00	94.9	1.78	25.6	"
1215	"	—	"	1500	—	—	—	—	—	—	~~[illegible]~~
1220	"	—	"	2000	—	—	—	—	—	—	~~[illegible]~~
1225	"	—	"	2500	10.27	0.273	6.02	84.7	1.86	4.67	"
1230	"	—	"	3000	10.33	0.273	6.02	83.9	1.78	3.21	"
1235	"	—	"	3500	10.37	0.273	6.02	83.6	1.70	2.90	"
				purge complete as per work plan							
				sample 1235 - 1310							

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Former Orion Street Landfill-South (Site 2) NASB
Sample ID: GW 2-~~[illegible]~~ 2-305-102006

Tetra Tech NUS Charge No. ~~112G000040~~ 10/20/06 112G 00958
QC: N/A (If applicable)

Sample Method: Low Flow w/ Peri Pump
Depth Sampled: ~~[illegible]~~ Feet Screened Interval Depth 10.8 - 20.8 feet
Sample Date & Time: 10/20/06 1255 hours N/A /Dup
Sampler(s): Matt Perrotti
Data Recorded By: M Perrotti Signature: [illegible]
Notes: No odor
☆ - well dry at 1050. Let recharge until 1120

H&S Survey Meter 0.7 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 20.19 ft Post - pump insertion WL 22.37 ft
Total Depth: 22.99

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC	3-40ml vial	~~Pest~~			
SVOC	2-1 liter	Metals	1-500ml poly		
PCB/Pest	2-1 liter				

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters ~~liters gal~~	Temp °C ±0.1	Spec. Cond. 2 uS/cm ± 10%	pH ±0.1	ORP/Eh3 mv ± 10%	DO mg/L ±0.1	Turbidity NTU <10	Comments
1035	20.19	—	130	0	—	—	—	—	—	—	Start Purge
1040	—	—	"	~~1.30~~ 0.65	9.31	0.293	6.04	-103.5	12.60	90	clear, colorless
1045	22.74	—	"	1.30	9.48	0.279	6.06	-101.9	10.94	55	"
1050	—☆	—	"	1.95	9.75	0.315	6.09	-101.9	11.36	50	" well dry
1120	20.67	—	110	—	—	—	—	—	—	—	Restart Purge
1125	—	—	110	2.60	9.88	0.333	6.11	-94.9	12.57	21	clear, colorless
1130	—	—	"	3.25	9.63	0.201	6.01	-72.7	8.36	20	clear, colorless
1135	22.18	—	"	3.90	9.77	0.202	6.02	-72.5	7.02	19	"
1140	22.25	—	"	4.60	9.78	0.200	6.02	-72.4	7.03	12	"
1145	—	—	"	5.25	9.76	0.202	6.01	-72.6	7.01	8	"
				Purge complete as per work plan							
				Sample at 1145 - 1255							

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

~~[illegible]~~ 10/20/06

1.95
.65
1.30
.65
1.95

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Former Orion Street Landfill-South (Site 2) NASB
Sample ID: ~~G-W-2-2~~ 306-102008

Tetra Tech NUS Charge No. @ 10/20/08 ~~1326000646~~ 1126000958
QC: N/A (If applicable)

Sample Method: Low Flow w/ Peri Pump
Depth Sampled: ~~0-99.5~~ Feet Screened Interval Depth 14.5-24.5 feet
Sample Date & Time: 10/20/08 1425 hours N/A /Dup
Sampler(s): Matt Perrotti
Data Recorded By: M.P. Signature: [signature]
Notes: No odor.
Depth Sampled: 23'

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 19.96 ft Post - pump insertion WL 20.47 ft
Total Depth: 26.31

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC	3 40ml vial	~~Pest~~			
SVOC	2 liter	Metals	1 500mL poly		
PCB/Pest	2 liter				

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1305	19.96	—	280	—	—	—	—	—	—	—	Start purge
1310	—	—	280	1400	10.56	0.182	5.21	75.1	14.46	75	clear, colorless
1315	20.44	—	280	2800	—	—	—	—	—	—	"
1320	20.47	—	280	4200	9.94	0.186	4.91	123.6	15.08	9.1	"
1325	20.47	—	"	5600	10.00	0.189	4.86	135.6	15.19	3.6	"
1330	20.47	—	"	7000	9.99	0.191	4.86	132.9	15.27	2.9	"
1335	20.47	—	"	8400	9.97	0.192	4.86	133.3	15.28	2.1	"
1395	20.47			End purge as per work plan							
				Sample @ 1335 - 1425							

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Former Orion Street Landfill-South (Site 2) NASB
Sample ID: GW2-307-102008

Tetra Tech NUS Charge No. 112G00~~646~~ 958 TK
QC: MS/MSD = GW2-307-102008 (If applicable)

Sample Method: Low Flow w/ Peri Pump
Depth Sampled: 13.7 Feet Screened Interval Depth 7.7-17.7 feet TOC
Sample Date & Time: 10/20/08 1135 hours MS/MSD ~~Dup~~ TK
Sampler(s): T. ROSAHN
Data Recorded By: T. ROSAHN Signature: [signature]
Notes: TD = 17.7

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL NA ft Post - pump insertion WL 9.58 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC	9 x 40mL vial	Pest			
SVOC	4 x 1 Liter	Metals	2 x 500mL poly		
PCB/Pest	4 x 1 Liter				

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
TK ~~9.58~~ 10:50	9.58	-	150	0	—	—	—	—	—	—	Start Purge
1100	9.97	-	150	1500	10.35	0.169	4.66	192.1	9.31	6.17	CLEAR
1110	10.00	-	150	3000	10.44	0.171	4.70	205.0	3.50	1.95	CLEAR
1120	10.01	-	150	4500	10.49	0.173	4.70	215.8	3.03	0.62	CLEAR
1125	10.01	-	150	5250	10.52	0.173	4.70	219.7	3.05	0.61	CLEAR
1130	10.01	-	150	6000	10.54	0.173	4.70	221.7	3.03	0.24	CLEAR
1135	—	—	—	—	—	—	—	—	—	—	SAMPLE TIME

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Former Orion Street Landfill-South (Site 2) NASB
Sample ID: GW2-308-102008

Tetra Tech NUS Charge No. 112G00~~646~~ 958 (TR)
QC: NA (If applicable)

Sample Method: Low Flow w/ Peri Pump
Depth Sampled: 13.5 Feet Screened Interval Depth 6.5-16.5 feet
Sample Date & Time: 10/20/08 1435 hours NA ~~/Dup~~ (TR)
Sampler(s): T. ROJAHN
Data Recorded By: T. ROJAHN Signature: [signature]
Notes: TD = 16.5
Turb. prior to collecting TAL METALS = 15.3 NTUs @ 1507 Hrs

H&S Survey Meter 0.0 PPM
Pre-pump insertion WL NA ft
Field Instrument Group A/B/C/D
Post - pump insertion WL 11.50 ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC	3.40mL poly	Pest			
SVOC	2.1Liter	Metals	1.500ml poly		
PCB/Pest	2.1Liter				

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
13:15	11.50	–	0	0	–	–	–	–	–	–	START PURGE
1325	11.56	–	130	1300	11.64	0.133	4.75	231.2	4.16	95.3	V.SI Cloudy
1335	11.56	–	130	2600	11.55	0.128	4.75	236.6	3.40	61.6	V.SI Cloudy
1345	11.56	–	130	3900	11.57	0.128	4.75	241.1	3.30	41.5	CLEAR
1355	11.56	–	130	5200	11.61	0.129	4.76	244.5	3.16	210	CLEAR
1405	11.56	–	130	6500	11.73	0.129	4.76	246.4	3.13	18.1	CLEAR
1415	11.56	–	130	7800	11.63	0.131	4.75	247.2	2.97	13.6	CLEAR
1420	11.56	–	130	8450	11.65	0.131	4.75	244.1	2.99	13.1	CLEAR
1425	11.56	–	130	9100	11.65	0.130	4.76	245.5	2.99	11.8	CLEAR
1430	11.56	–	130	9750	11.62	0.131	4.76	244.0	2.96	16.4	CLEAR
1435	–	–	–	–	–	–	–	–	–	–	START SAMPLE

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Former Orion Street Landfill-South (Site 2) NASB
Sample ID: GW2-309-102208

Tetra Tech NUS Charge No. 112G00~~646~~ 958 (TC)
QC: NA (If applicable)

Sample Method: Low Flow w/ Peri Pump
Depth Sampled: 21.55 Feet Screened Interval Depth 16.55-26.55 feet
Sample Date & Time: 10/22/08 1015 hours N/A /Dup
Sampler(s): MP / TR
Data Recorded By: T. ROJAHN Signature: [signature]
Notes: TD = 26.55

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL — ft Post - pump insertion WL 5.03 ft
01 W: 5.03 F-1 Total depth:

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC	3-40mL vial	~~Post~~			
SVOC	2-1 Liter	Metals	1-500mL poly		
PCB/Pest	2-1 Liter				

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
0820	5.03	—	0	0	—	—	—	—	—	—	START PURGE
0830	5.32	—	130	1300	8.53	0.132	6.88	-126.9	0.70	140	VSI Cloudy
0840	5.32	—	130	2600	8.39	0.145	6.97	-137.2	0.61	70	" " "
0850	5.32	—	130	3900	8.36	0.138	7.00	-140.7	0.71	50	CLEAR
0900	5.32	—	130	5200	8.36	0.131	7.03	-140.2	0.59	36	"
0910	5.32	—	130	6500	8.21	0.127	7.05	-133.7	0.55	25	"
0920	5.32	—	130	7800	8.20	0.125	7.05	-137.7	0.74	22	"
0930	5.32	—	130	9100	8.14	0.124	7.07	-145.2	0.44	16	"
0940	5.32	—	130	10400	8.35	0.124	7.08	-148.8	0.43	13	"
0950	5.32	—	130	11700	8.40	0.124	7.08	-148.7	0.42	12	"
1000	5.32	—	130	13000	8.43	0.124	7.09	-150.8	0.41	13	"
1010	5.32	—	130	14300	8.40	0.124	7.09	-149.5	0.39	8.5	"
1015	—	—	—	—	—	—	—	—	—	—	—

(TC)

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: Former Orion Street Landfill-South (Site 2) NASB
Sample ID: GW2-310-102108

Tetra Tech NUS Charge No. 112G00~~646~~ 958
QC: NA (If applicable)

Sample Method: Low Flow w/ Peri Pump
Depth Sampled: 29 Feet Screened Interval Depth 24-34 feet
Sample Date & Time: 10/21/08 1208 hours NA /Dup
Sampler(s): T. ROJAHN
Data Recorded By: T. ROJAHN Signature: [signature]
Notes: TD=34.0

H&S Survey Meter 22.2 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL — ft Post - pump insertion WL 19.39 ft

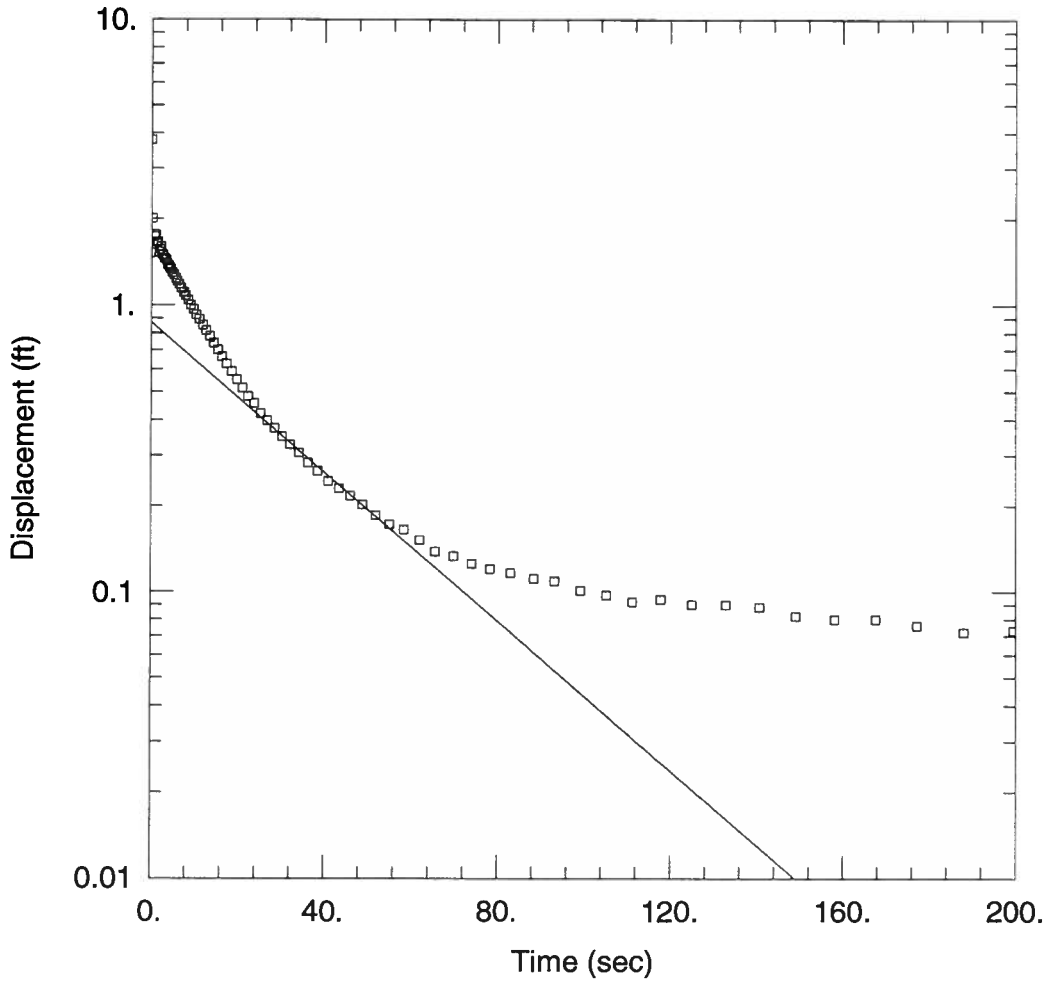
Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC	3-40ml vial	~~Pest~~			
SVOC	2-1Liter	Metals	1-500ml poly		
PCB/Pest	2-1Liter				

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
1125	19.39	—	0	0	—	—	—	—	—	—	START PURGE
1135	20.27	—	130	1300	10.05	0.458	5.77	-92.5	1.99	19	CLEAR
1145	20.28	—	130	2600	10.07	0.466	5.81	-91.9	1.01	17	CLEAR
1155	20.28	—	130	3900	10.16	0.450	5.80	-85.2	0.97	10	CLEAR
1200	20.11	—	100	4400	10.16	0.443	5.78	-78.3	1.03	9.4	CLEAR
1205	20.11	—	100	4900	10.14	0.442	5.79	-77.1	1.04	5.1	CLEAR
1208	—	—	—	—	—	—	—	—	—	—	SAMPLE TIME

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

C-7 Slug Test Evaluations



WELL TEST ANALYSIS

Data Set: O:\...\MW-2-301R.aqt
Date: 03/10/09 Time: 13:49:11

AQUIFER DATA

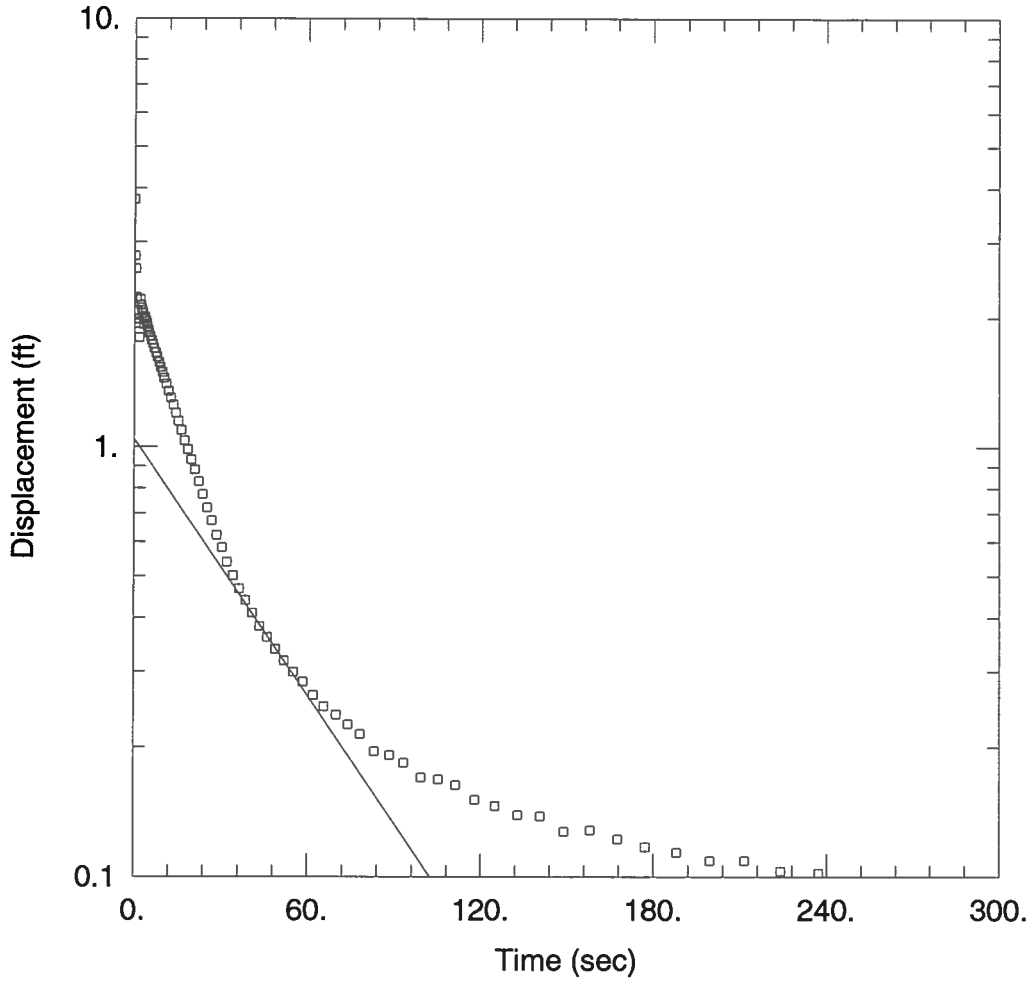
Saturated Thickness: 4.86 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-2-301 Rising)

Initial Displacement: 3.783 ft
Static Water Column Height: 4.86 ft
Total Well Penetration Depth: 4.86 ft
Screen Length: 4.86 ft
Casing Radius: 0.042 ft
Well Radius: 0.14 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0004476 cm/sec
y0 = 0.8709 ft



WELL TEST ANALYSIS

Data Set: O:\...\MW-2-302.aqt
Date: 03/10/09 Time: 13:49:34

AQUIFER DATA

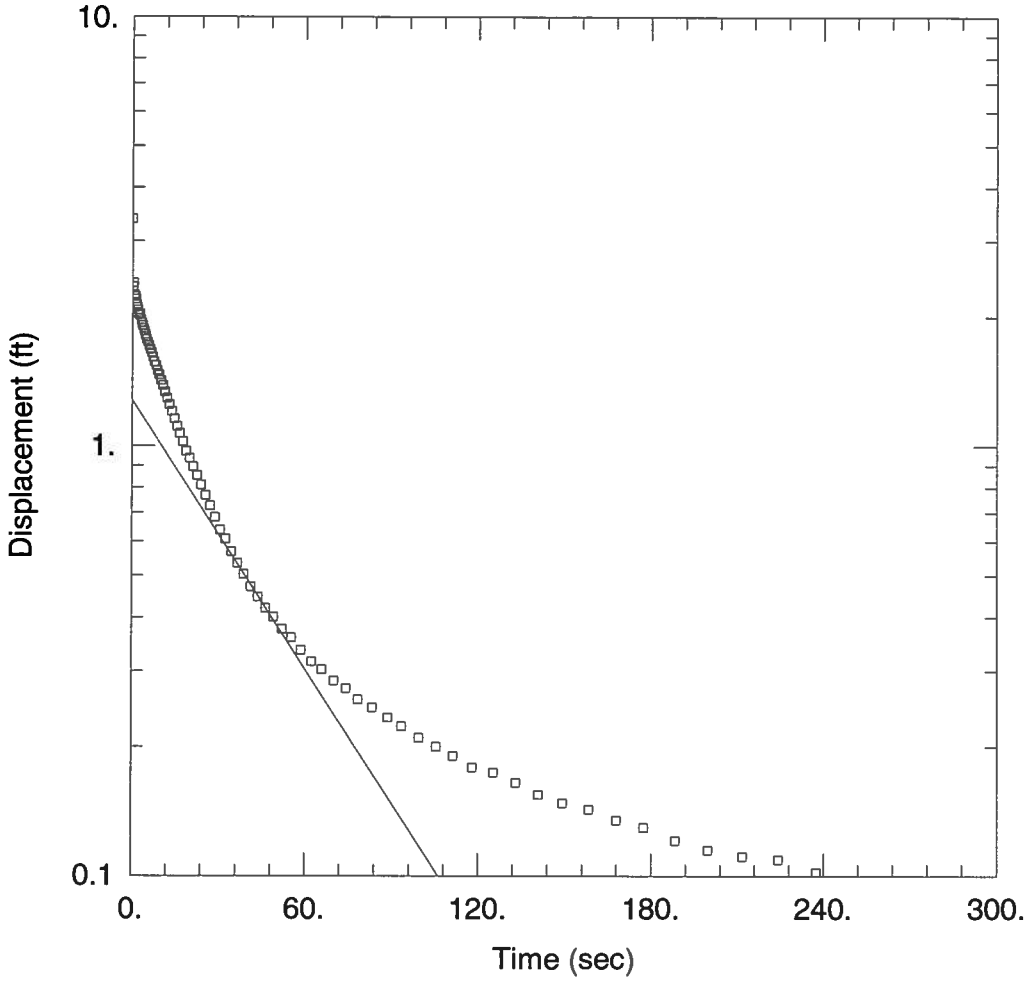
Saturated Thickness: 6.47 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-2-302)

Initial Displacement: 3.775 ft
Total Well Penetration Depth: 6.47 ft
Casing Radius: 0.042 ft
Static Water Column Height: 6.47 ft
Screen Length: 6.47 ft
Well Radius: 0.14 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0002794 cm/sec
y0 = 1.043 ft



WELL TEST ANALYSIS

Data Set: O:\...\MW-2-303 R.aqt
Date: 03/10/09 Time: 13:56:54

AQUIFER DATA

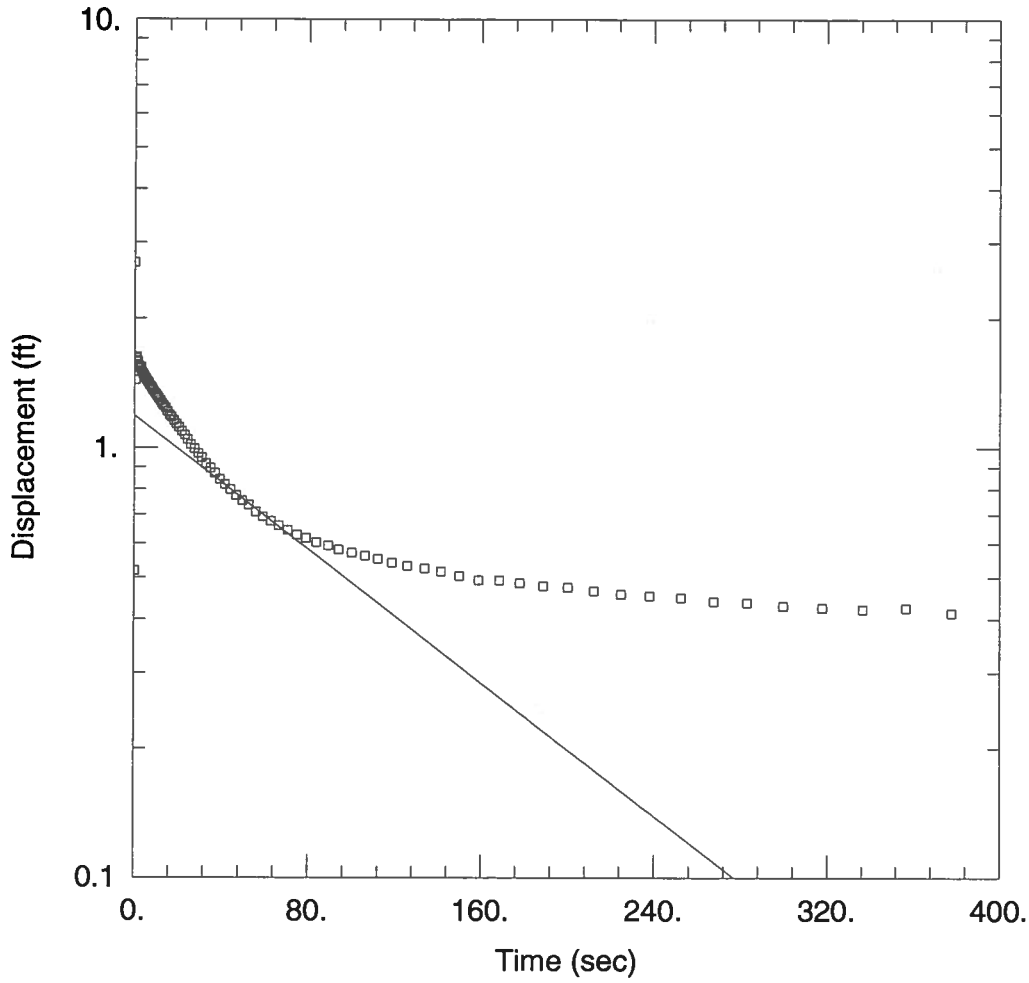
Saturated Thickness: 7.08 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-2-303 Rising)

Initial Displacement: 3.385 ft
Total Well Penetration Depth: 7.08 ft
Casing Radius: 0.042 ft
Static Water Column Height: 7.08 ft
Screen Length: 7.08 ft
Well Radius: 0.14 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0002736 cm/sec
y0 = 1.278 ft



WELL TEST ANALYSIS

Data Set: O:\...\MW-2-305R.aqt
Date: 03/10/09 Time: 13:50:40

AQUIFER DATA

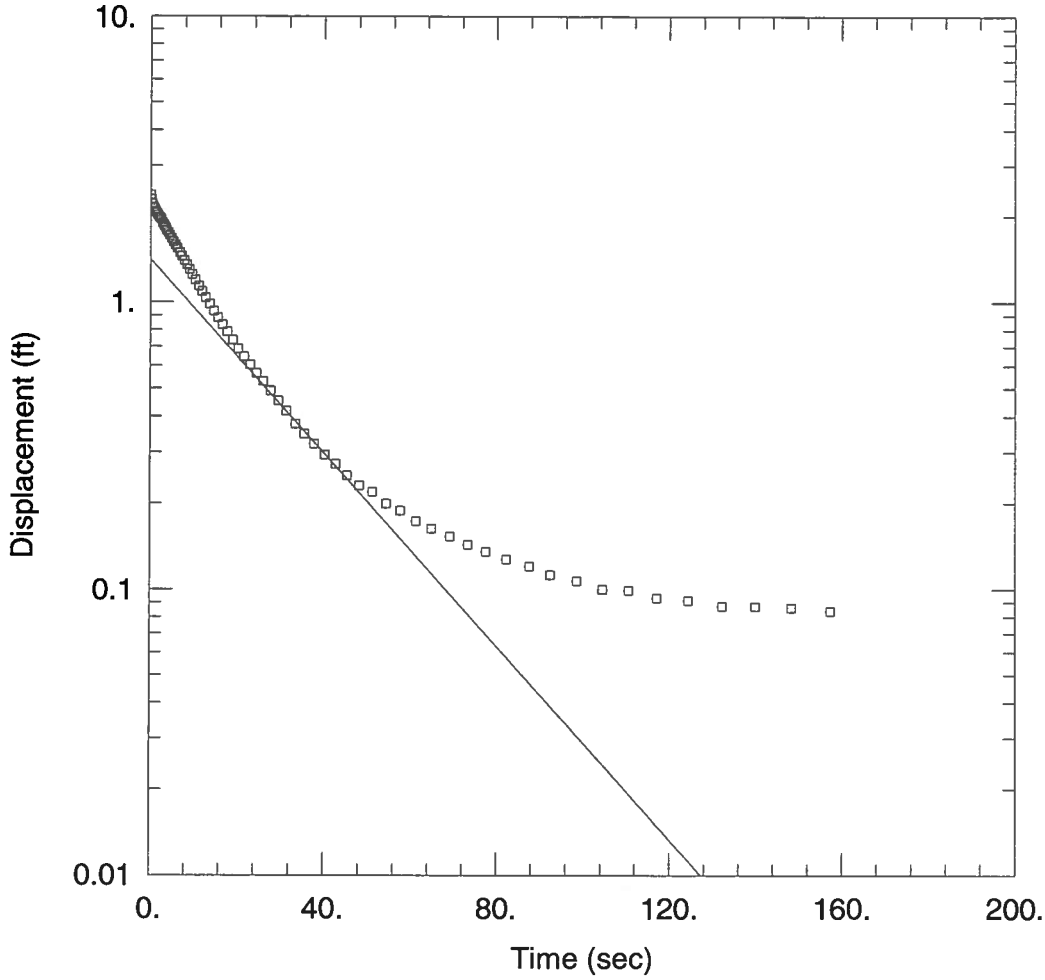
Saturated Thickness: 3.87 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-2-305 Rising)

Initial Displacement: 2.701 ft
Static Water Column Height: 3.87 ft
Total Well Penetration Depth: 3.87 ft
Screen Length: 3.87 ft
Casing Radius: 0.042 ft
Well Radius: 0.14 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0001553 cm/sec
y0 = 1.187 ft



WELL TEST ANALYSIS

Data Set: O:\...\MW-2-306R.aqt
Date: 03/10/09 Time: 13:51:08

AQUIFER DATA

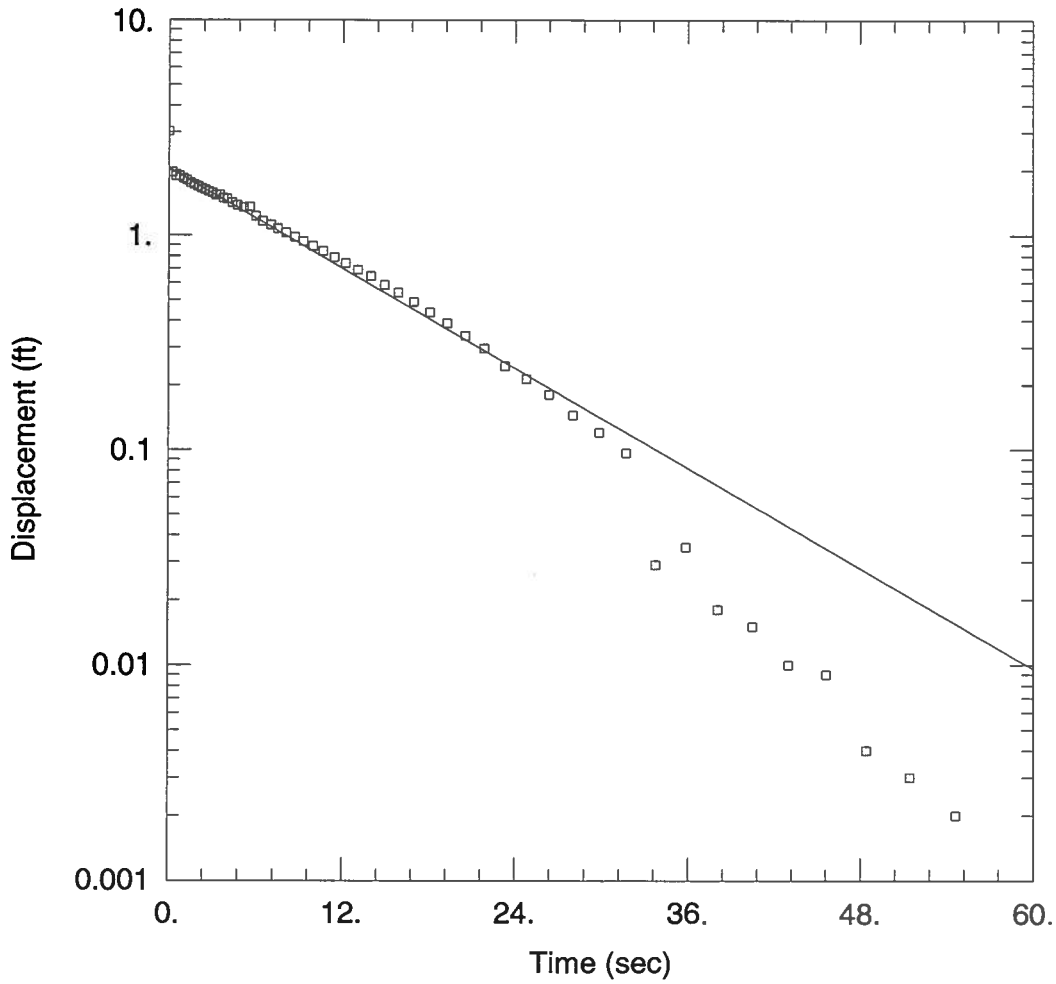
Saturated Thickness: 7.54 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-2-306 Rising)

Initial Displacement: 2.374 ft
Total Well Penetration Depth: 7.54 ft
Casing Radius: 0.042 ft
Static Water Column Height: 7.54 ft
Screen Length: 7.54 ft
Well Radius: 0.14 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0004231 cm/sec
y0 = 1.408 ft



WELL TEST ANALYSIS

Data Set: O:\...\MW-2-307R.aqt
Date: 03/10/09 Time: 14:11:15

AQUIFER DATA

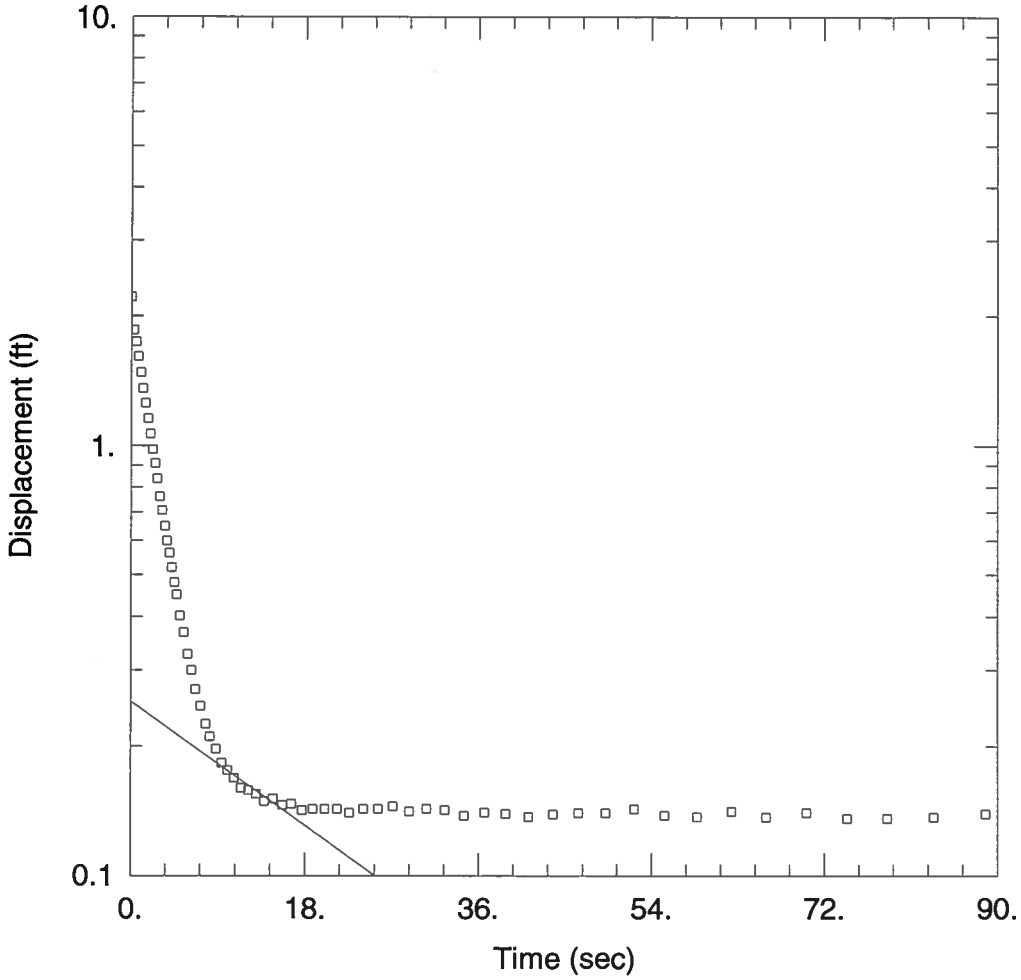
Saturated Thickness: 9.24 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-2-307R)

Initial Displacement: 3.031 ft
Total Well Penetration Depth: 9.24 ft
Casing Radius: 0.042 ft
Static Water Column Height: 9.24 ft
Screen Length: 9.24 ft
Well Radius: 0.14 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0008364 cm/sec
y0 = 2.041 ft



WELL TEST ANALYSIS

Data Set: O:\...\MW-2-308R.aqt
Date: 03/10/09 Time: 13:52:47

AQUIFER DATA

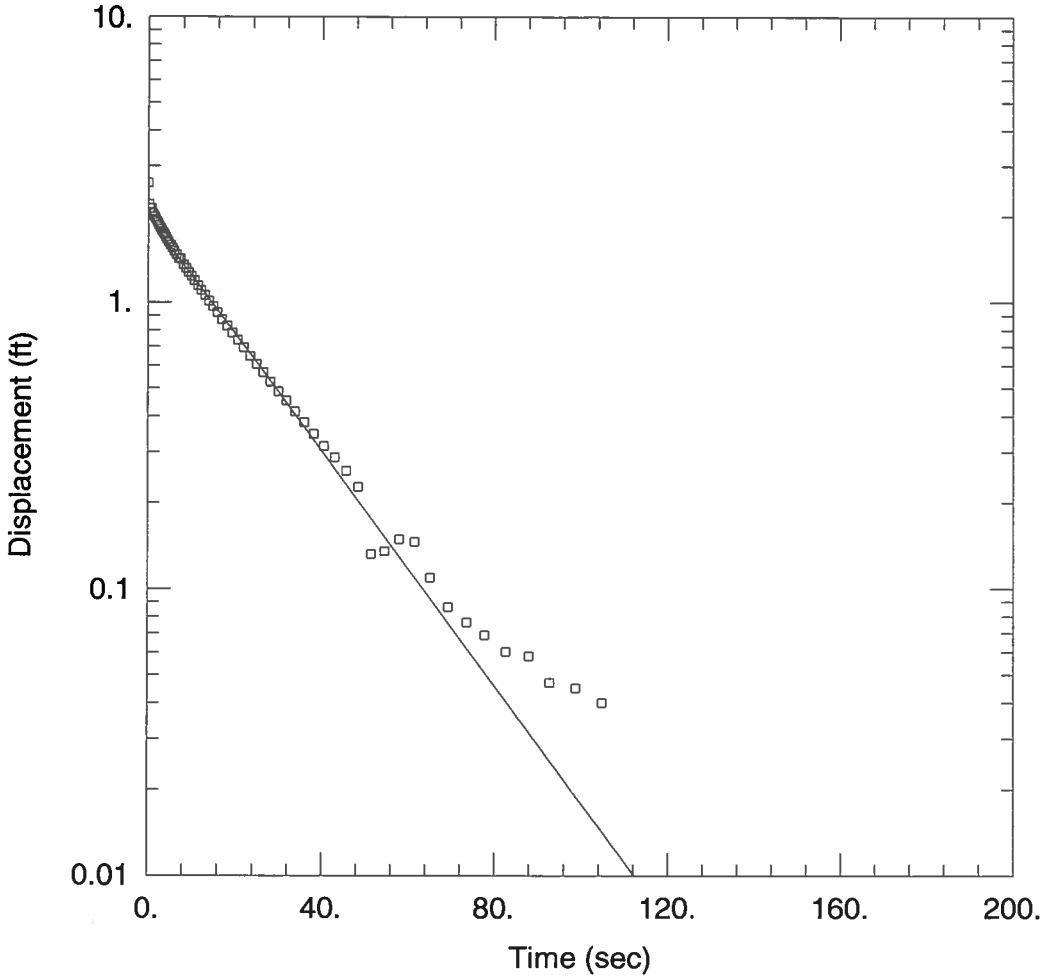
Saturated Thickness: 5.42 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-2-308R)

Initial Displacement: 2.217 ft
Total Well Penetration Depth: 5.42 ft
Casing Radius: 0.042 ft
Static Water Column Height: 5.42 ft
Screen Length: 5.42 ft
Well Radius: 0.14 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0005097 cm/sec
y0 = 0.254 ft



WELL TEST ANALYSIS

Data Set: O:\...\MW-2-309R.aqt
Date: 03/10/09 Time: 14:11:56

AQUIFER DATA

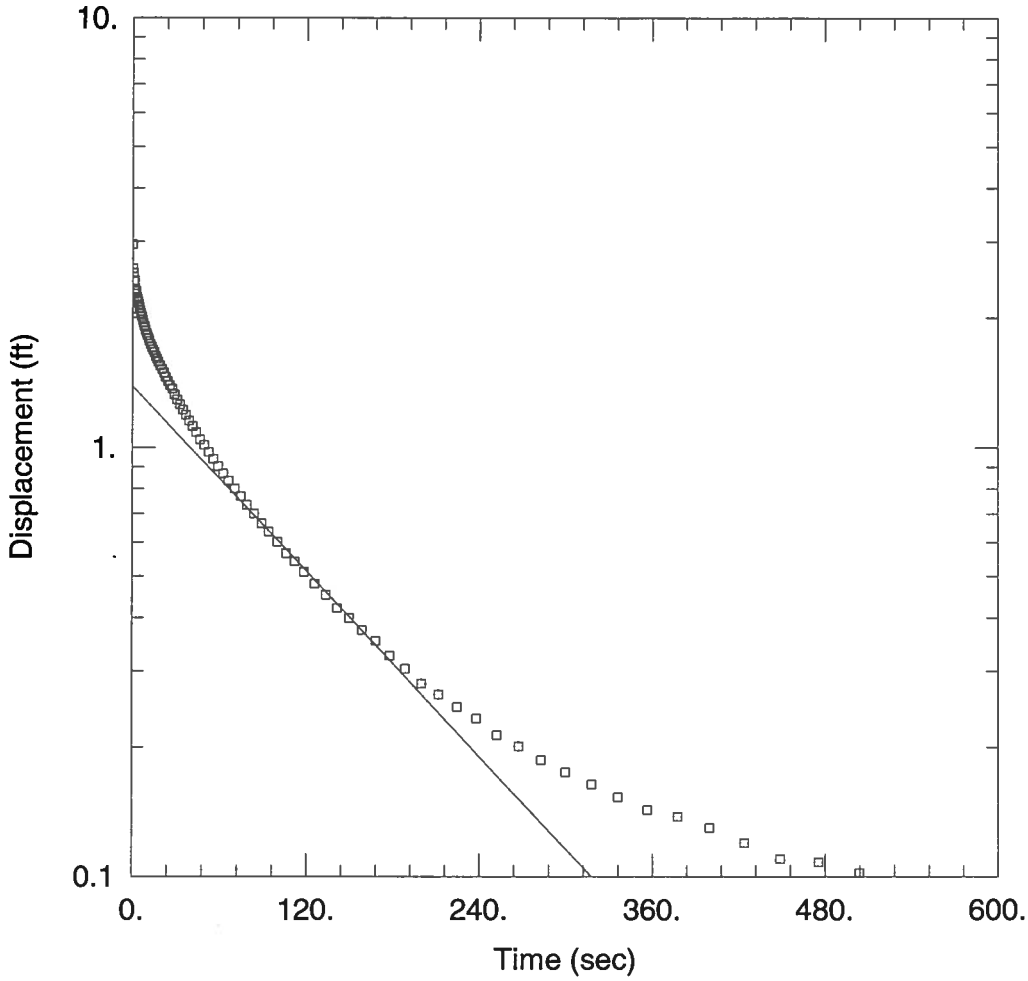
Saturated Thickness: 21.97 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-2-309R)

Initial Displacement: 2.618 ft
Total Well Penetration Depth: 21.97 ft
Casing Radius: 0.042 ft
Static Water Column Height: 21.97 ft
Screen Length: 10. ft
Well Radius: 0.14 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0004782 cm/sec
y0 = 1.981 ft



WELL TEST ANALYSIS

Data Set: O:\...\MW-2-310R.aqt
Date: 03/10/09 Time: 14:14:01

AQUIFER DATA

Saturated Thickness: 15.65 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-2-310 Rising)

Initial Displacement: 2.956 ft
Total Well Penetration Depth: 15.65 ft
Casing Radius: 0.042 ft
Static Water Column Height: 15.65 ft
Screen Length: 10. ft
Well Radius: 0.14 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 7.937E-5 cm/sec y0 = 1.387 ft

C-8 Photo Log

NASB-Site 2-TP05

Test Pit No.5 (located in the south central portion of the Area North of Site 2 and east of the former incinerator area) showing a thin, discontinuous layer of gray/black very fine grain material (possible ash) from 0.6 to 1.0 ft bgs. At 3.5 ft bgs a two inch layer of white/gray fine sand (possible ash) was found interbedded in orange silty sand material. Some small metal scraps, a concrete boulder, and a glass bottle were found from 0 to 2.0 ft bgs.

Debris found at NASB-Site 2-TP05

Test Pit No.5 (located in the south central portion of the Area North of Site 2 and east of the former incinerator area) showing a metal scrap (possible drum cover) from the 0 to 0.6 ft bgs interval.

NASB-Site 2-TP06

Test Pit No.6 (located in the south central portion of the Area North of Site 2 and northeast of the former incinerator area) showing fill material from 0.6 to 2.0 ft bgs and the horizon layer from 2.0 to 2.2 ft bgs. Concrete pieces were found in the topsoil and a metal cable approximately ½ inch thick and 4 ft long was found in the fill material.

NASB-Site 2-TP07

Test Pit No.7 (located in the southern portion of the former incinerator area) showing fill material from 0.6 to 3.0 ft bgs and gray/black material (possible ash) from 3 to 6 ft bgs. Burned wood, metal scraps, and glass bottle pieces were found in the 3 ft layer of dark soil material.

NASB-Site 2-TP08

Test Pit No.8 (located in the central portion of the Area North of Site 2) showing brown silty sand from 0 to 4 ft bgs and a perched water table at 1.7 ft bgs. No evidence of contamination or man made debris was noted.

NASB-Site 2-TP09

Test Pit No.9 (located in the northern portion of the Area North of Site 2) showing topsoil and fine to medium sand from 0 to 6 ft bgs. No evidence of contamination or man made debris was found.

NASB-Site 2-TP10

Test Pit No.10 (located in the central portion of the Area North of Site 2) showing brown silty sand and a discontinuous black sand lens at approximately 4 ft bgs. No man made debris was noted.

NASB-Site 2-TP11

Test Pit No.11 (located just north of the former incinerator area) showing topsoil and tan silty sand from 0 to 1.6 ft bgs and black/dark brown sand from 4 to 5 ft bgs. No man made debris was noted.

APPENDIX D

FULL ANALYTICAL RESULTS

D-1 Soil Results

TABLE D-1

SOIL SAMPLING ANALYTICAL RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID TOP DEPTH BOTTOM DEPTH SAMPLE DATE	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	02 SB-02-301 SB-2-301-0406 4 6 20081008	02 SB-02-302 SB-2-302-0002 0 2 20081008	02 SB-02-303 SB-2-303-1214 12 14 20081007	02 SB-02-304 SB-2-304-1620 16 20 20081009	02 SB-02-305 SB-2-305-0507 5 7 20081007
Volatile Organics (ug/kg)									
1,1,1-TRICHLOROETHANE	660000000	110000000	730000	730000	4 U	4 UJ	4 U	4 U	7 U
1,1,2,2-TETRACHLOROETHANE	21000	11000	22	22	4 U	4 UJ	4 U	4 U	7 U
1,1,2-TRICHLOROETHANE	79000	41000	NC	41000	4 U	4 UJ	4 U	4 U	7 U
1,1-DICHLOROETHANE	820000	410000	980	980	4 U	4 UJ	4 U	4 U	7 U
1,1-DICHLOROETHENE	17000000	2800000	2200	2200	4 U	4 UJ	4 U	4 U	7 U
1,2-DICHLOROBENZENE	9700000	1700000	12000	12000	4 U	4 UJ	4 U	4 U	7 U
1,2-DICHLOROETHANE	47000	25000	360	360	4 U	4 UJ	4 U	4 U	7 U
1,2-DICHLOROPROPANE	130000	65000	NC	65000	4 U	4 UJ	4 U	4 U	7 U
1,3-DICHLOROBENZENE	680000	110000	1100	1100	4 U	4 UJ	4 U	4 U	7 U
1,4-DICHLOROBENZENE	530000	360000	4000	4000	4 U	4 UJ	4 U	4 U	7 U
2-BUTANONE	190000000	34000000	NC	34000000	23 U	20 UJ	19 U	20 U	36 U
2-HEXANONE	NC	NC	NC	NC	23 U	20 UJ	19 U	20 U	36 U
4-METHYL-2-PENTANONE	27000000	4500000	NC	4500000	23 U	20 UJ	19 U	20 U	36 U
ACETONE	300000000	51000000	NC	51000000	23 U	20 UJ	11 J	20 U	240
BENZENE	86000	28000	510	510	4 U	4 UJ	4 U	4 U	7 U
BROMODICHLOROMETHANE	68000	37000	NC	37000	4 U	4 UJ	4 U	4 U	7 U
BROMOFORM	360000	230000	NC	230000	4 U	4 UJ	4 U	4 U	7 U
BROMOMETHANE	410000	78000	NC	78000	9 U	8 UJ	8 U	8 U	14 U
CARBON DISULFIDE	34000000	5700000	NC	5700000	4 U	4 UJ	4 U	4 U	7 U
CARBON TETRACHLORIDE	36000	18000	300	300	4 U	4 UJ	4 U	4 U	7 U
CHLOROBENZENE	6800000	1100000	1500	1500	4 U	4 UJ	4 U	4 U	7 U
CHLORODIBROMOMETHANE	52000	27000	NC	27000	4 U	4 UJ	4 U	4 U	7 U
CHLOROETHANE	3400000	570000	NC	570000	9 U	8 UJ	8 U	8 U	14 U
CHLOROFORM	140000	75000	NC	75000	4 U	4 UJ	4 U	4 U	7 U
CHLOROMETHANE	NC	NC	NC	NC	9 UJ	8 UJ	8 U	8 U	14 U
CIS-1,2-DICHLOROETHENE	3400000	570000	980	980	4 U	4 UJ	4 U	4 U	7 U
CIS-1,3-DICHLOROPROPENE	NC	NC	NC	NC	4 U	4 UJ	4 U	4 U	7 U
ETHYLBENZENE	420000	210000	810	810	4 U	4 UJ	4 U	4 U	7 U
M+P-XYLENES	NC	NC	NC	NC	9 U	8 UJ	8 U	8 U	14 U
METHYLENE CHLORIDE	630000	310000	NC	310000	4 U	4 UJ	4 U	4 U	7 U
O-XYLENE	NC	NC	NC	NC	4 U	4 UJ	4 U	4 U	7 U
STYRENE	58000000	11000000	NC	11000000	4 U	4 UJ	4 U	4 U	7 U
TETRACHLOROETHENE	8800	4400	430	430	4 UJ	4 UJ	4 U	4 UJ	7 U
TOLUENE	27000000	4500000	8100	8100	4 U	4 UJ	4 U	4 U	7 U
TOTAL XYLENES	52000000	11000000	26000	26000	14 U	12 UJ	11 U	12 U	21 U
TRANS-1,2-DICHLOROETHENE	6700000	1100000	3300	3300	4 U	4 UJ	4 U	4 U	7 U
TRANS-1,3-DICHLOROPROPENE	NC	NC	NC	NC	4 U	4 UJ	4 U	4 U	7 U

TABLE D-1

SOIL SAMPLING ANALYTICAL RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID TOP DEPTH BOTTOM DEPTH SAMPLE DATE	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	02 SB-02-301 SB-2-301-0406 4 6 20081008	02 SB-02-302 SB-2-302-0002 0 2 20081008	02 SB-02-303 SB-2-303-1214 12 14 20081007	02 SB-02-304 SB-2-304-1620 16 20 20081009	02 SB-02-305 SB-2-305-0507 5 7 20081007
TRICHLOROETHENE	360000	180000	1500	1500	4 U	4 UJ	4 U	4 U	7 U
VINYL CHLORIDE	6600	94	160	94	4 U	4 UJ	4 U	4 U	7 U
Semivolatile Organics (ug/kg)									
1,1-BIPHENYL	17000000	2800000	NC	2800000	500 U	360 U	390 U	360 U	450 U
2,2'-OXYBIS(1-CHLOROPROPANE)	NC	NC	NC	NC	500 U	360 U	390 U	360 U	450 U
2,4,5-TRICHLOROPHENOL	1600000	350000	NC	350000	1200 U	900 U	980 U	900 U	1100 U
2,4,6-TRICHLOROPHENOL	210000	44000	NC	44000	500 U	360 U	390 U	360 U	450 U
2,4-DICHLOROPHENOL	620000	130000	NC	130000	500 U	360 U	390 U	360 U	450 U
2,4-DIMETHYLPHENOL	4100000	890000	NC	890000	500 U	360 U	390 U	360 U	450 U
2,4-DINITROPHENOL	410000	89000	NC	89000	1200 U	900 U	980 U	900 U	1100 U
2,4-DINITROTOLUENE	9300	5800	NC	5800	500 U	360 U	390 U	360 U	450 U
2,6-DINITROTOLUENE	4200	2600	NC	2600	500 U	360 U	390 U	360 U	450 U
2-CHLORONAPHTHALENE	NC	NC	NC	NC	500 U	360 U	390 U	360 U	450 U
2-CHLOROPHENOL	1700000	280000	NC	280000	500 U	360 U	390 U	360 U	450 U
2-METHYLNAPHTHALENE	480000	160000	3600	3600	500 U	360 U	390 U	360 U	450 U
2-METHYLPHENOL	10000000	2200000	NC	2200000	500 U	360 U	390 U	360 U	450 U
2-NITROANILINE	NC	NC	NC	NC	1200 U	900 U	980 U	900 U	1100 U
2-NITROPHENOL	NC	NC	NC	NC	500 U	360 U	390 U	360 U	450 U
3&4-METHYLPHENOL	NC	NC	NC	NC	500 U	360 U	390 U	360 U	450 U
3,3'-DICHLOROBENZIDINE	6400	4000	NC	4000	500 U	360 UR	390 U	360 U	450 U
3-NITROANILINE	NC	NC	NC	NC	1200 U	900 U	980 U	900 U	1100 U
4,6-DINITRO-2-METHYLPHENOL	NC	NC	NC	NC	1200 U	900 U	980 U	900 U	1100 U
4-BROMOPHENYL PHENYL ETHER	NC	NC	NC	NC	500 U	360 U	390 U	360 U	450 U
4-CHLORO-3-METHYLPHENOL	NC	NC	NC	NC	500 U	360 U	390 U	360 U	450 U
4-CHLOROANILINE	14000	9000	NC	9000	500 U	360 U	390 U	360 U	450 U
4-CHLOROPHENYL PHENYL ETHER	NC	NC	NC	NC	500 U	360 U	390 U	360 U	450 U
4-NITROANILINE	NC	NC	NC	NC	1200 U	900 U	980 U	900 U	1100 U
4-NITROPHENOL	NC	NC	NC	NC	1200 U	900 U	980 U	900 U	1100 U
ACENAPHTHENE	2000000	1600000	170000	170000	500 U	360 U	390 U	360 U	450 U
ACENAPHTHYLENE	2200000	1700000	68000	68000	500 U	360 U	390 U	360 U	450 U
ACETOPHENONE	NC	NC	NC	NC	500 U	360 U	390 U	360 U	450 U
ANTHRACENE	7800000	7200000	2400000	2400000	500 U	100 J	390 U	360 U	450 U
ATRAZINE	12000	7800	NC	7800	500 UJ	360 UJ	390 UJ	360 UJ	450 UJ
BENZALDEHYDE	NC	NC	NC	NC	500 UJ	360 UJ	390 UJ	360 UJ	510 J
BENZO(A)ANTHRACENE	3500	440	NC	440	10 J	560	24 U	22 U	8.7 J
BENZO(A)PYRENE	350	44	NC	44	11 J	530 J	24 UJ	22 UJ	28 UJ
BENZO(B)FLUORANTHENE	3500	440	NC	440	24 J	690 J	24 U	22 UJ	28 U
BENZO(G,H,I)PERYLENE	5500000	1200000	NC	1200000	500 U	260 J	390 U	360 U	450 U

TABLE D-1

SOIL SAMPLING ANALYTICAL RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID TOP DEPTH BOTTOM DEPTH SAMPLE DATE	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	02 SB-02-301 SB-2-301-0406 4 6 20081008	02 SB-02-302 SB-2-302-0002 0 2 20081008	02 SB-02-303 SB-2-303-1214 12 14 20081007	02 SB-02-304 SB-2-304-1620 16 20 20081009	02 SB-02-305 SB-2-305-0507 5 7 20081007
BENZO(K)FLUORANTHENE	35000	4400	NC	4400	500 UJ	430 J	390 UJ	360 UJ	450 UJ
BIS(2-CHLOROETHOXY)METHANE	NC	NC	NC	NC	500 U	360 U	390 U	360 U	450 U
BIS(2-CHLOROETHYL)ETHER	NC	NC	NC	NC	30 U	22 U	24 U	22 U	28 U
BIS(2-ETHYLHEXYL)PHTHALATE	210000	130000	NC	130000	500 U	190 J	390 U	360 U	450 U
BUTYL BENZYL PHTHALATE	1500000	950000	NC	950000	500 U	360 U	390 U	360 U	450 U
CAPROLACTAM	NC	NC	NC	NC	500 U	360 U	390 U	360 U	450 U
CARBAZOLE	NC	NC	NC	NC	500 U	360 U	390 U	360 U	450 U
CHRYSENE	350000	44000	NC	44000	500 U	450	390 U	360 U	450 U
DI-N-BUTYL PHTHALATE	21000000	4400000	NC	4400000	500 U	360 U	390 U	360 U	450 U
DI-N-OCTYL PHTHALATE	NC	NC	NC	NC	500 UJ	360 UJ	390 U	360 UJ	450 U
DIBENZO(A,H)ANTHRACENE	350	44	NC	44	30 UJ	140 J	24 UJ	22 UJ	28 UJ
DIBENZOFURAN	NC	NC	NC	NC	500 U	360 U	390 U	360 U	450 U
DIETHYL PHTHALATE	160000000	35000000	NC	35000000	500 U	360 U	390 U	360 U	450 U
DIMETHYL PHTHALATE	NC	NC	NC	NC	500 U	360 U	390 U	360 U	450 U
FLUORANTHENE	7300000	1700000	NC	1700000	500 U	880	390 U	360 U	450 U
FLUORENE	2700000	1400000	120000	120000	500 U	360 U	390 U	360 U	450 U
HEXACHLOROBENZENE	1800	1100	NC	1100	30 U	22 U	24 U	22 U	28 U
HEXACHLOROBUTADIENE	37000	23000	NC	23000	500 U	360 U	390 U	360 U	450 U
HEXACHLOROCYCLOPENTADIENE	NC	NC	NC	NC	500 U	360 U	390 U	360 U	450 U
HEXACHLOROETHANE	210000	44000	NC	44000	500 U	360 U	390 U	360 U	450 U
INDENO(1,2,3-CD)PYRENE	3500	440	NC	440	21 J	410	24 U	22 U	19 J
ISOPHORONE	NC	NC	NC	NC	500 UJ	360 UJ	390 UJ	360 UJ	450 UJ
N-NITROSO-DI-N-PROPYLAMINE	NC	NC	NC	NC	30 UJ	22 UJ	24 UJ	22 U	28 UJ
N-NITROSODIPHENYLAMINE	NC	NC	NC	NC	500 U	360 U	390 U	360 U	450 U
NAPHTHALENE	200000	330000	1700	1700	500 U	360 U	390 U	360 U	450 U
NITROBENZENE	NC	NC	NC	NC	500 U	360 U	390 U	360 U	450 U
PENTACHLOROPHENOL	15000	11000	NC	11000	46 UJ	17 J	36 UJ	33 UJ	41 UJ
PHENANTHRENE	3600000	1200000	97000	97000	500 U	560	390 U	360 U	450 U
PHENOL	62000000	13000000	NC	13000000	500 U	360 U	390 U	360 U	450 U
PYRENE	5500000	1200000	NC	1200000	500 U	990	390 U	360 U	450 U
Pesticides/PCBs (ug/kg)									
4,4'-DDD	12000	7500	NC	7500	3.8 J	38 J	3.9 U	3.6 U	3.4 J
4,4'-DDE	8500	5300	NC	5300	0.92 J	23 J	3.9 UJ	3.6 U	1.6 J
4,4'-DDT	12000	6400	NC	6400	1.7 J	68 J	3.9 U	0.92 J	2.6 J
ALDRIN	170	110	NC	110	2.6 U	1.8 UJ	2 U	1.8 U	2.3 U
ALPHA-BHC	460	290	NC	290	2.6 U	1.8 UJ	2 UJ	1.8 U	2.3 UJ
ALPHA-CHLORDANE	NC	NC	NC	NC	2.6 U	1.7 J	2 UJ	1.8 U	2.3 UJ
AROCLOR-1016	NC	NC	NC	NC	26 UJ	18 UJ	20 U	18 UJ	23 U

TABLE D-1

SOIL SAMPLING ANALYTICAL RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID TOP DEPTH BOTTOM DEPTH SAMPLE DATE	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	02 SB-02-301 SB-2-301-0406 4 6 20081008	02 SB-02-302 SB-2-302-0002 0 2 20081008	02 SB-02-303 SB-2-303-1214 12 14 20081007	02 SB-02-304 SB-2-304-1620 16 20 20081009	02 SB-02-305 SB-2-305-0507 5 7 20081007
AROCLOR-1221	NC	NC	NC	NC	26 U	18 U	20 U	18 U	23 U
AROCLOR-1232	NC	NC	NC	NC	26 U	18 U	20 U	18 U	23 U
AROCLOR-1242	NC	NC	NC	NC	26 U	18 U	20 U	18 U	23 U
AROCLOR-1248	NC	NC	NC	NC	26 U	18 U	20 U	18 U	23 U
AROCLOR-1254	NC	NC	NC	NC	26 U	18 U	20 U	18 U	23 U
AROCLOR-1260	NC	NC	NC	NC	26 UJ	18 UJ	20 U	18 UJ	23 U
BETA-BHC	1600	1000	NC	1000	2.6 U	1.8 UJ	2 UJ	1.8 U	2.3 UJ
DELTA-BHC	NC	NC	NC	NC	2.6 U	1.8 UJ	2 UJ	1.8 U	2.3 UJ
DIELDRIN	180	110	NC	110	5 U	3.6 UJ	3.9 UJ	3.6 U	4.5 UJ
ENDOSULFAN I	NC	NC	NC	NC	2.6 U	1.8 UJ	2 U	1.8 U	2.3 U
ENDOSULFAN II	NC	NC	NC	NC	5 U	3.6 UJ	3.9 U	3.6 U	0.86 J
ENDOSULFAN SULFATE	NC	NC	NC	NC	5 UJ	3.6 UJ	3.9 U	3.6 UJ	4.5 U
ENDRIN	62000	13000	NC	13000	5 U	3.6 UJ	3.9 UJ	3.6 U	4.5 UJ
ENDRIN ALDEHYDE	NC	NC	NC	NC	5 U	3.6 UJ	3.9 U	3.6 U	4.5 U
ENDRIN KETONE	NC	NC	NC	NC	5 UJ	3.6 UJ	3.9 UJ	3.6 UJ	4.5 UJ
GAMMA-BHC (LINDANE)	1100	200	NC	200	2.6 U	1.8 UJ	2 UJ	1.8 U	2.3 UJ
GAMMA-CHLORDANE	NC	NC	NC	NC	2.6 U	1.7 J	2 UJ	1.8 U	2.3 UJ
HEPTACHLOR	640	400	NC	400	2.6 U	1.8 UJ	2 U	1.8 U	2.3 U
HEPTACHLOR EPOXIDE	320	200	NC	200	2.6 U	1.8 UJ	2 UJ	1.8 U	2.3 UJ
METHOXYCHLOR	1000000	220000	NC	220000	26 U	18 UJ	20 UJ	18 U	23 UJ
TOXAPHENE	NC	NC	NC	NC	50 U	36 UJ	39 U	36 U	45 U
Dioxins/Furans (ng/kg)									
1,2,3,4,6,7,8,9-OCDD	1.03E+05	5.67E+04	NC	5.67E+04					
1,2,3,4,6,7,8,9-OCDF	1.03E+05	5.67E+04	NC	5.67E+04					
1,2,3,4,6,7,8-HPCDD	3.10E+03	1.70E+03	NC	1.70E+03					
1,2,3,4,6,7,8-HPCDF	3.10E+03	1.70E+03	NC	1.70E+03					
1,2,3,4,7,8,9-HPCDF	3.10E+03	1.70E+03	NC	1.70E+03					
1,2,3,4,7,8-HXCDD	3.10E+02	1.70E+02	NC	1.70E+02					
1,2,3,4,7,8-HXCDF	3.10E+02	1.70E+02	NC	1.70E+02					
1,2,3,6,7,8-HXCDD	3.10E+02	1.70E+02	NC	1.70E+02					
1,2,3,6,7,8-HXCDF	3.10E+02	1.70E+02	NC	1.70E+02					
1,2,3,7,8,9-HXCDD	3.10E+02	1.70E+02	NC	1.70E+02					
1,2,3,7,8,9-HXCDF	3.10E+02	1.70E+02	NC	1.70E+02					
1,2,3,7,8-PECDD	3.10E+01	1.70E+01	NC	1.70E+01					
1,2,3,7,8-PECDF	1.03E+03	5.67E+02	NC	5.67E+02					
2,3,4,6,7,8-HXCDF	3.10E+02	1.70E+02	NC	1.70E+02					
2,3,4,7,8-PECDF	1.03E+02	5.67E+01	NC	5.67E+01					
2,3,7,8-TCDD	3.10E+01	1.70E+01	NC	1.70E+01					

TABLE D-1

SOIL SAMPLING ANALYTICAL RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	02	02	02	02	02
LOCATION					SB-02-301	SB-02-302	SB-02-303	SB-02-304	SB-02-305
SAMPLE ID					SB-2-301-0406	SB-2-302-0002	SB-2-303-1214	SB-2-304-1620	SB-2-305-0507
TOP DEPTH					4	0	12	16	5
BOTTOM DEPTH					6	2	14	20	7
SAMPLE DATE					20081008	20081008	20081007	20081009	20081007
2,3,7,8-TCDF	3.10E+02	1.70E+02	NC	1.70E+02					
TOTAL HPCDD	NC	NC	NC	NC					
TOTAL HPCDF	NC	NC	NC	NC					
TOTAL HXCDD	NC	NC	NC	NC					
TOTAL HXCDF	NC	NC	NC	NC					
TOTAL PECDD	NC	NC	NC	NC					
TOTAL PECDF	NC	NC	NC	NC					
TOTAL TCDD	NC	NC	NC	NC					
TOTAL TCDF	NC	NC	NC	NC					
Inorganics (mg/kg)									
ALUMINUM	340000	57000	NC	57000	11200	8300	7050	4520	8780
ANTIMONY	140	23	NC	23	0.05 UJ	0.1 UJ	0.05 UJ	0.05 UJ	0.17 J
ARSENIC	0.42	0.23	NC	0.23	1.5 J	3 J	1.9	1.9 J	1.5
BARIUM	68000	11000	NC	11000	13.8	32.7	26.5	18.7	13.8
BERYLLIUM	680	110	NC	110	0.45 J	0.45	0.44	0.25 J	0.39 J
CADMIUM	19	3.6	NC	3.6	0.05 UJ	0.38 J	0.01 U	0.02 UJ	0.01 UJ
CALCIUM	NC	NC	NC	NC	679 J	3380 J	1300	990 J	352
CHROMIUM	NC	NC	NC	NC	7.9 J	22.6 J	11.4	7.9 J	8
COBALT	100	17	NC	17	1.4 J	3.5	3.6	3	2.4 J
COPPER	4800	790	NC	790	3 J	17.4 J	8.5	5.6 J	4.1
IRON	240000	40000	NC	40000	7200	11200	10800 J	8000	5940 J
LEAD	560	280	NC	280	8	75.5	3.4 J	2.3	6.3 J
MAGNESIUM	NC	NC	NC	NC	659	1840	2700	1950	925
MANGANESE	8000	1400	NC	1400	73.1 J	128 J	135 J	133 J	57.1 J
MERCURY	100	17	NC	17	0.04 J	1.2 J	0.01 U	0.01 U	0.05
NICKEL	1000	170	NC	170	4	12.8	9.1	6.8	5.6
POTASSIUM	NC	NC	NC	NC	284	912	1580	1110	409
SELENIUM	680	110	NC	110	0.51 UJ	0.34 UJ	0.36 UJ	0.33 U	0.4 U
SILVER	1700	280	NC	280	0.08 UJ	0.87 J	0.06 UJ	0.1 UJ	0.07 U
SODIUM	NC	NC	NC	NC	51.6 J	198 J	79.7 UJ	70.3 J	40.1 UJ
THALLIUM	27	4.5	NC	4.5	0.08 UJ	0.08 UJ	0.1 UJ	0.08 UJ	0.08 UJ
VANADIUM	2400	400	NC	400	15.7	18.8	19.2	13.5	15.2
ZINC	100000	17000	NC	17000	17 J	64.3 J	20.8 J	16.6 J	15.2 J
Miscellaneous Parameters (%)									
PERCENT MOISTURE	NC	NC	NC	NC					
PERCENT SOLIDS	NC	NC	NC	NC					

TABLE D-1

SOIL SAMPLING ANALYTICAL RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID TOP DEPTH BOTTOM DEPTH SAMPLE DATE	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	02 SB-02-306 SB-2-306-1620 16 20 20081007	02 SB-02-307 SB-2-307-0507 5 7 20081006	02 SB-02-308 SB-2-308-0003 0 3 20081006	02 SB-02-309 SB-2-309-0002 0 2 20081008	02 SB-02-309 SB-2-309-0002-AVG 0 2 20081008
Volatile Organics (ug/kg)									
1,1,1-TRICHLOROETHANE	660000000	110000000	730000	730000	4 U	3 U	4 U	4 U	4 U
1,1,2,2-TETRACHLOROETHANE	21000	11000	22	22	4 U	3 U	4 U	4 U	4 U
1,1,2-TRICHLOROETHANE	79000	41000	NC	41000	4 U	3 U	4 U	4 U	4 U
1,1-DICHLOROETHANE	820000	410000	980	980	4 U	3 U	4 U	4 U	4 U
1,1-DICHLOROETHENE	17000000	2800000	2200	2200	4 U	3 U	4 U	4 U	4 U
1,2-DICHLOROBENZENE	9700000	1700000	12000	12000	4 U	3 U	4 U	4 U	4 U
1,2-DICHLOROETHANE	47000	25000	360	360	4 U	3 U	4 U	4 U	4 U
1,2-DICHLOROPROPANE	130000	65000	NC	65000	4 U	3 U	4 U	4 U	4 U
1,3-DICHLOROBENZENE	680000	110000	1100	1100	4 U	3 U	4 U	4 U	4 U
1,4-DICHLOROBENZENE	530000	360000	4000	4000	4 U	3 U	4 U	4 U	4 U
2-BUTANONE	190000000	34000000	NC	34000000	18 U	17 U	19 U	20 U	21 U
2-HEXANONE	NC	NC	NC	NC	18 U	17 U	19 U	20 U	21 U
4-METHYL-2-PENTANONE	27000000	4500000	NC	4500000	18 U	17 U	19 U	20 U	21 U
ACETONE	300000000	51000000	NC	51000000	18 U	17	27	100 J	55.5 J
BENZENE	86000	28000	510	510	4 U	3 U	4 U	4 U	4 U
BROMODICHLOROMETHANE	68000	37000	NC	37000	4 U	3 U	4 U	4 U	4 U
BROMOFORM	360000	230000	NC	230000	4 U	3 U	4 U	4 U	4 U
BROMOMETHANE	410000	78000	NC	78000	7 U	7 U	7 U	8 U	8.5 U
CARBON DISULFIDE	34000000	5700000	NC	5700000	4 U	3 U	4 U	4 U	4 U
CARBON TETRACHLORIDE	36000	18000	300	300	4 U	3 U	4 U	4 U	4 U
CHLOROBENZENE	6800000	1100000	1500	1500	4 U	3 U	4 U	4 U	4 U
CHLORODIBROMOMETHANE	52000	27000	NC	27000	4 U	3 U	4 U	4 U	4 U
CHLOROETHANE	3400000	570000	NC	570000	7 U	7 U	7 U	8 U	8.5 U
CHLOROFORM	140000	75000	NC	75000	4 U	3 U	4 U	4 U	4 U
CHLOROMETHANE	NC	NC	NC	NC	7 U	7 U	7 U	8 U	8.5 U
CIS-1,2-DICHLOROETHENE	3400000	570000	980	980	4 U	3 U	4 U	4 U	4 U
CIS-1,3-DICHLOROPROPENE	NC	NC	NC	NC	4 U	3 U	4 U	4 U	4 U
ETHYLBENZENE	420000	210000	810	810	4 U	3 U	4 U	4 U	4 U
M+P-XYLENES	NC	NC	NC	NC	7 U	7 U	7 U	8 U	8.5 U
METHYLENE CHLORIDE	630000	310000	NC	310000	4 U	3 U	4 U	4 U	4 U
O-XYLENE	NC	NC	NC	NC	4 U	3 U	4 U	4 U	4 U
STYRENE	58000000	11000000	NC	11000000	4 U	3 U	4 U	4 U	4 U
TETRACHLOROETHENE	8800	4400	430	430	4 U	3 U	4 U	4 U	4 UJ
TOLUENE	27000000	4500000	8100	8100	4 U	3 U	4 U	4 U	4 U
TOTAL XYLENES	52000000	11000000	26000	26000	11 U	10 U	11 U	12 U	12.5 U
TRANS-1,2-DICHLOROETHENE	6700000	1100000	3300	3300	4 U	3 U	4 U	4 U	4 U
TRANS-1,3-DICHLOROPROPENE	NC	NC	NC	NC	4 U	3 U	4 U	4 U	4 U

TABLE D-1

SOIL SAMPLING ANALYTICAL RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID TOP DEPTH BOTTOM DEPTH SAMPLE DATE	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	02 SB-02-306 SB-2-306-1620 16 20 20081007	02 SB-02-307 SB-2-307-0507 5 7 20081006	02 SB-02-308 SB-2-308-0003 0 3 20081006	02 SB-02-309 SB-2-309-0002 0 2 20081008	02 SB-02-309 SB-2-309-0002-AVG 0 2 20081008
TRICHLOROETHENE	360000	180000	1500	1500	4 U	3 U	4 U	4 U	4 U
VINYL CHLORIDE	6600	94	160	94	4 U	3 U	4 U	4 U	4 U
Semivolatile Organics (ug/kg)									
1,1-BIPHENYL	17000000	2800000	NC	2800000	410 U	360 U	380 U	450 U	450 U
2,2'-OXYBIS(1-CHLOROPROPANE)	NC	NC	NC	NC	410 U	360 U	380 U	450 U	450 U
2,4,5-TRICHLOROPHENOL	1600000	350000	NC	350000	1000 U	910 U	950 U	1100 U	1100 U
2,4,6-TRICHLOROPHENOL	210000	44000	NC	44000	410 U	360 U	380 U	450 U	450 U
2,4-DICHLOROPHENOL	620000	130000	NC	130000	410 U	360 U	380 U	450 U	450 U
2,4-DIMETHYLPHENOL	4100000	890000	NC	890000	410 U	360 U	380 U	450 U	450 U
2,4-DINITROPHENOL	410000	89000	NC	89000	1000 U	910 U	950 U	1100 U	1100 U
2,4-DINITROTOLUENE	9300	5800	NC	5800	410 U	360 U	380 U	450 U	450 U
2,6-DINITROTOLUENE	4200	2600	NC	2600	410 U	360 U	380 U	450 U	450 U
2-CHLORONAPHTHALENE	NC	NC	NC	NC	410 U	360 U	380 U	450 U	450 U
2-CHLOROPHENOL	1700000	280000	NC	280000	410 U	360 U	380 U	450 U	450 U
2-METHYLNAPHTHALENE	480000	160000	3600	3600	410 U	360 U	380 U	450 U	450 U
2-METHYLPHENOL	10000000	2200000	NC	2200000	410 U	360 U	380 U	450 U	450 U
2-NITROANILINE	NC	NC	NC	NC	1000 U	910 U	950 U	1100 U	1100 U
2-NITROPHENOL	NC	NC	NC	NC	410 U	360 U	380 U	450 U	450 U
3&4-METHYLPHENOL	NC	NC	NC	NC	410 U	360 U	380 U	450 U	450 U
3,3'-DICHLOROBENZIDINE	6400	4000	NC	4000	410 U	360 U	380 U	450 U	450 U
3-NITROANILINE	NC	NC	NC	NC	1000 U	910 U	950 U	1100 U	1100 U
4,6-DINITRO-2-METHYLPHENOL	NC	NC	NC	NC	1000 U	910 U	950 U	1100 U	1100 U
4-BROMOPHENYL PHENYL ETHER	NC	NC	NC	NC	410 U	360 U	380 U	450 U	450 U
4-CHLORO-3-METHYLPHENOL	NC	NC	NC	NC	410 U	360 U	380 U	450 U	450 U
4-CHLOROANILINE	14000	9000	NC	9000	410 U	360 U	380 U	450 U	450 U
4-CHLOROPHENYL PHENYL ETHER	NC	NC	NC	NC	410 U	360 U	380 U	450 U	450 U
4-NITROANILINE	NC	NC	NC	NC	1000 U	910 U	950 U	1100 U	1100 U
4-NITROPHENOL	NC	NC	NC	NC	1000 U	910 U	950 U	1100 U	1100 U
ACENAPHTHENE	2000000	1600000	170000	170000	410 U	360 U	380 U	450 U	450 U
ACENAPHTHYLENE	2200000	1700000	68000	68000	410 U	360 U	380 U	450 U	450 U
ACETOPHENONE	NC	NC	NC	NC	410 U	360 U	380 U	450 U	450 U
ANTHRACENE	7800000	7200000	2400000	2400000	410 U	360 U	380 U	450 U	450 U
ATRAZINE	12000	7800	NC	7800	410 UJ	360 UJ	380 UJ	450 UJ	450 UJ
BENZALDEHYDE	NC	NC	NC	NC	410 UJ	360 UJ	380 UJ	450 UJ	450 UJ
BENZO(A)ANTHRACENE	3500	440	NC	440	25 U	22 U	2.5 J	49	51.5
BENZO(A)PYRENE	350	44	NC	44	25 UJ	22 UJ	23 UJ	54 J	56.5 J
BENZO(B)FLUORANTHENE	3500	440	NC	440	25 U	22 U	23 U	81 J	83.5 J
BENZO(G,H,I)PERYLENE	5500000	1200000	NC	1200000	410 U	360 U	380 U	450 U	450 U

TABLE D-1

SOIL SAMPLING ANALYTICAL RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID TOP DEPTH BOTTOM DEPTH SAMPLE DATE	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	02 SB-02-306 SB-2-306-1620 16 20 20081007	02 SB-02-307 SB-2-307-0507 5 7 20081006	02 SB-02-308 SB-2-308-0003 0 3 20081006	02 SB-02-309 SB-2-309-0002 0 2 20081008	02 SB-02-309 SB-2-309-0002-AVG 0 2 20081008
BENZO(K)FLUORANTHENE	35000	4400	NC	4400	410 UJ	360 UJ	380 UJ	450 UJ	450 UJ
BIS(2-CHLOROETHOXY)METHANE	NC	NC	NC	NC	410 U	360 U	380 U	450 U	450 U
BIS(2-CHLOROETHYL)ETHER	NC	NC	NC	NC	25 U	22 U	23 U	27 U	27 U
BIS(2-ETHYLHEXYL)PHTHALATE	210000	130000	NC	130000	410 U	360 U	380 U	450 U	450 U
BUTYL BENZYL PHTHALATE	1500000	950000	NC	950000	410 U	360 U	380 U	450 U	450 U
CAPROLACTAM	NC	NC	NC	NC	410 U	360 U	380 U	450 U	450 U
CARBAZOLE	NC	NC	NC	NC	410 U	360 U	380 U	450 U	450 U
CHRYSENE	350000	44000	NC	44000	410 U	360 U	380 U	450 U	450 U
DI-N-BUTYL PHTHALATE	21000000	4400000	NC	4400000	410 U	360 U	380 U	450 U	450 U
DI-N-OCTYL PHTHALATE	NC	NC	NC	NC	410 U	360 U	380 U	450 UJ	450 UJ
DIBENZO(A,H)ANTHRACENE	350	44	NC	44	25 UJ	22 UJ	23 UJ	17 J	18.5 J
DIBENZOFURAN	NC	NC	NC	NC	410 U	360 U	380 U	450 U	450 U
DIETHYL PHTHALATE	160000000	35000000	NC	35000000	410 U	360 U	380 U	450 U	450 U
DIMETHYL PHTHALATE	NC	NC	NC	NC	410 U	360 U	380 U	450 U	450 U
FLUORANTHENE	7300000	1700000	NC	1700000	410 U	360 U	380 U	450 U	450 U
FLUORENE	2700000	1400000	120000	120000	410 U	360 U	380 U	450 U	450 U
HEXACHLOROBENZENE	1800	1100	NC	1100	25 U	22 U	23 U	27 U	27 U
HEXACHLOROBUTADIENE	37000	23000	NC	23000	410 U	360 U	380 U	450 U	450 U
HEXACHLOROCYCLOPENTADIENE	NC	NC	NC	NC	410 U	360 U	380 U	450 U	450 U
HEXACHLOROETHANE	210000	44000	NC	44000	410 U	360 U	380 U	450 U	450 U
INDENO(1,2,3-CD)PYRENE	3500	440	NC	440	9.4 J	22 U	10 J	54	56.5
ISOPHORONE	NC	NC	NC	NC	410 UJ	360 UJ	380 UJ	450 UJ	450 UJ
N-NITROSO-DI-N-PROPYLAMINE	NC	NC	NC	NC	25 UJ	22 UJ	23 UJ	27 U	27 U
N-NITROSODIPHENYLAMINE	NC	NC	NC	NC	410 U	360 U	380 U	450 U	450 U
NAPHTHALENE	200000	330000	1700	1700	410 U	360 U	380 U	450 U	450 U
NITROBENZENE	NC	NC	NC	NC	410 U	360 U	380 U	450 U	450 U
PENTACHLOROPHENOL	15000	11000	NC	11000	37 UJ	33 UJ	35 UJ	41 UJ	41 UJ
PHENANTHRENE	3600000	1200000	97000	97000	410 U	360 U	380 U	450 U	450 U
PHENOL	62000000	13000000	NC	13000000	410 U	360 U	380 U	450 U	450 U
PYRENE	5500000	1200000	NC	1200000	410 U	360 U	380 U	450 U	450 U
Pesticides/PCBs (ug/kg)									
4,4'-DDD	12000	7500	NC	7500	4.1 U	3.6 U	3.8 U	14	11.8
4,4'-DDE	8500	5300	NC	5300	4.1 UJ	3.6 UJ	3.8 UJ	86	70.5
4,4'-DDT	12000	6400	NC	6400	4.1 U	3.6 U	3.8 U	95 J	102 J
ALDRIN	170	110	NC	110	2.1 U	1.9 U	2 U	2.3 U	2.3 U
ALPHA-BHC	460	290	NC	290	2.1 UJ	1.9 UJ	2 UJ	2.3 U	2.3 U
ALPHA-CHLORDANE	NC	NC	NC	NC	2.1 UJ	1.9 UJ	2 UJ	0.83 J	0.735 J
AROCLOR-1016	NC	NC	NC	NC	21 U	19 U	20 U	23 UJ	23 UJ

TABLE D-1

SOIL SAMPLING ANALYTICAL RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID TOP DEPTH BOTTOM DEPTH SAMPLE DATE	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	02 SB-02-306 SB-2-306-1620 16 20 20081007	02 SB-02-307 SB-2-307-0507 5 7 20081006	02 SB-02-308 SB-2-308-0003 0 3 20081006	02 SB-02-309 SB-2-309-0002 0 2 20081008	02 SB-02-309 SB-2-309-0002-AVG 0 2 20081008
AROCLOR-1221	NC	NC	NC	NC	21 U	19 U	20 U	23 U	23 U
AROCLOR-1232	NC	NC	NC	NC	21 U	19 U	20 U	23 U	23 U
AROCLOR-1242	NC	NC	NC	NC	21 U	19 U	20 U	23 U	23 U
AROCLOR-1248	NC	NC	NC	NC	21 U	19 U	20 U	23 U	23 U
AROCLOR-1254	NC	NC	NC	NC	21 U	19 U	20 U	23 U	23 U
AROCLOR-1260	NC	NC	NC	NC	21 U	19 U	20 U	23 UJ	23 UJ
BETA-BHC	1600	1000	NC	1000	2.1 UJ	1.9 UJ	2 UJ	2.3 U	2.3 U
DELTA-BHC	NC	NC	NC	NC	2.1 UJ	1.9 UJ	2 UJ	2.3 U	2.3 U
DIELDRIN	180	110	NC	110	4.1 UJ	3.6 UJ	3.8 UJ	4.5 U	4.5 U
ENDOSULFAN I	NC	NC	NC	NC	2.1 U	1.9 U	2 U	2.3 U	2.3 U
ENDOSULFAN II	NC	NC	NC	NC	4.1 U	3.6 U	3.8 U	4.5 U	4.5 U
ENDOSULFAN SULFATE	NC	NC	NC	NC	4.1 U	3.6 U	3.8 U	4.5 UJ	4.5 UJ
ENDRIN	62000	13000	NC	13000	4.1 UJ	3.6 UJ	3.8 UJ	4.5 U	4.5 U
ENDRIN ALDEHYDE	NC	NC	NC	NC	4.1 U	3.6 U	3.8 U	4.5 U	4.5 U
ENDRIN KETONE	NC	NC	NC	NC	4.1 UJ	3.6 UJ	3.8 UJ	4.5 UJ	4.5 UJ
GAMMA-BHC (LINDANE)	1100	200	NC	200	2.1 UJ	1.9 UJ	2 UJ	2.3 U	2.3 U
GAMMA-CHLORDANE	NC	NC	NC	NC	2.1 UJ	1.9 UJ	2 UJ	1 J	0.965 J
HEPTACHLOR	640	400	NC	400	2.1 U	1.9 U	2 U	2.3 U	2.3 U
HEPTACHLOR EPOXIDE	320	200	NC	200	2.1 UJ	1.9 UJ	2 UJ	2.3 U	2.3 U
METHOXYCHLOR	1000000	220000	NC	220000	21 UJ	19 UJ	20 UJ	23 U	23 U
TOXAPHENE	NC	NC	NC	NC	41 U	36 U	38 U	45 U	45 U
Dioxins/Furans (ng/kg)									
1,2,3,4,6,7,8,9-OCDD	1.03E+05	5.67E+04	NC	5.67E+04					
1,2,3,4,6,7,8,9-OCDF	1.03E+05	5.67E+04	NC	5.67E+04					
1,2,3,4,6,7,8-HPCDD	3.10E+03	1.70E+03	NC	1.70E+03					
1,2,3,4,6,7,8-HPCDF	3.10E+03	1.70E+03	NC	1.70E+03					
1,2,3,4,7,8,9-HPCDF	3.10E+03	1.70E+03	NC	1.70E+03					
1,2,3,4,7,8-HXCDD	3.10E+02	1.70E+02	NC	1.70E+02					
1,2,3,4,7,8-HXCDF	3.10E+02	1.70E+02	NC	1.70E+02					
1,2,3,6,7,8-HXCDD	3.10E+02	1.70E+02	NC	1.70E+02					
1,2,3,6,7,8-HXCDF	3.10E+02	1.70E+02	NC	1.70E+02					
1,2,3,7,8,9-HXCDD	3.10E+02	1.70E+02	NC	1.70E+02					
1,2,3,7,8,9-HXCDF	3.10E+02	1.70E+02	NC	1.70E+02					
1,2,3,7,8-PECDD	3.10E+01	1.70E+01	NC	1.70E+01					
1,2,3,7,8-PECDF	1.03E+03	5.67E+02	NC	5.67E+02					
2,3,4,6,7,8-HXCDF	3.10E+02	1.70E+02	NC	1.70E+02					
2,3,4,7,8-PECDF	1.03E+02	5.67E+01	NC	5.67E+01					
2,3,7,8-TCDD	3.10E+01	1.70E+01	NC	1.70E+01					

TABLE D-1

SOIL SAMPLING ANALYTICAL RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID TOP DEPTH BOTTOM DEPTH SAMPLE DATE	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	02 SB-02-306 SB-2-306-1620 16 20 20081007	02 SB-02-307 SB-2-307-0507 5 7 20081006	02 SB-02-308 SB-2-308-0003 0 3 20081006	02 SB-02-309 SB-2-309-0002 0 2 20081008	02 SB-02-309 SB-2-309-0002-AVG 0 2 20081008
2,3,7,8-TCDF	3.10E+02	1.70E+02	NC	1.70E+02					
TOTAL HPCDD	NC	NC	NC	NC					
TOTAL HPCDF	NC	NC	NC	NC					
TOTAL HXCDD	NC	NC	NC	NC					
TOTAL HXCDF	NC	NC	NC	NC					
TOTAL PECDD	NC	NC	NC	NC					
TOTAL PECDF	NC	NC	NC	NC					
TOTAL TCDD	NC	NC	NC	NC					
TOTAL TCDF	NC	NC	NC	NC					
Inorganics (mg/kg)									
ALUMINUM	340000	57000	NC	57000	7890	3440	11000	24300	24000
ANTIMONY	140	23	NC	23	0.16 UJ	0.05 J	0.14 J	0.09 UJ	0.105 UJ
ARSENIC	0.42	0.23	NC	0.23	1.6	2	1.9	6.9 J	6.8 J
BARIUM	68000	11000	NC	11000	32.8	11	19.8	94.6	94.2
BERYLLIUM	680	110	NC	110	0.35 J	0.26 J	0.54	1.1	1.1
CADMIUM	19	3.6	NC	3.6	0.01 U	0.01 U	0.01 U	0.19 UJ	0.235 UJ
CALCIUM	NC	NC	NC	NC	1310	559	358	2400 J	2400 J
CHROMIUM	NC	NC	NC	NC	14.5	6.3	11.9	40.7 J	40.8 J
COBALT	100	17	NC	17	4.8	2.4 J	3.8	12.9	12.4
COPPER	4800	790	NC	790	10	5.2	5.9	31.1 J	30.7 J
IRON	240000	40000	NC	40000	12000 J	6550 J	10000 J	29700	29200
LEAD	560	280	NC	280	3.3 J	2.5 J	5.7 J	22.6	25.6
MAGNESIUM	NC	NC	NC	NC	3260	1460	1710	7640	7480
MANGANESE	8000	1400	NC	1400	190 J	123 J	119 J	613 J	518 J
MERCURY	100	17	NC	17	0.01 U	0.01 U	0.02 UJ	0.3 J	0.485 J
NICKEL	1000	170	NC	170	10.7	6.5	9.5	37.8	37.1
POTASSIUM	NC	NC	NC	NC	1960	829	803	4190	4220
SELENIUM	680	110	NC	110	0.33 U	0.31 U	0.31 U	0.63 U	0.915 UJ
SILVER	1700	280	NC	280	0.06 UJ	0.06 U	0.06 U	0.11 UJ	0.13 UJ
SODIUM	NC	NC	NC	NC	91 UJ	46.7 UJ	54.8 UJ	212 J	211 J
THALLIUM	27	4.5	NC	4.5	0.14 UJ	0.08 UJ	0.1 UJ	0.24 U	0.25 U
VANADIUM	2400	400	NC	400	22	9.4	17.5	66.5	68.6
ZINC	100000	17000	NC	17000	26.3 J	14 J	20 J	84.2 J	89.9 J
Miscellaneous Parameters (%)									
PERCENT MOISTURE	NC	NC	NC	NC					
PERCENT SOLIDS	NC	NC	NC	NC					

TABLE D-1

SOIL SAMPLING ANALYTICAL RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID TOP DEPTH BOTTOM DEPTH SAMPLE DATE	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	02 SB-02-309 SB-2-309-0002-D 0 2 20081008	02 SB-02-310 SB-2-310-0406 4 6 20081009	02 SB-02-310 SB-2-310-0406-AVG 4 6 20081009	02 SB-02-310 SB-2-310-0406-D 4 6 20081009	02 TP-02-01 TP-2-01-0006 0 0.5 20081001
Volatile Organics (ug/kg)									
1,1,1-TRICHLOROETHANE	660000000	110000000	730000	730000	4 U	4 U	4 U	4 U	4 U
1,1,2,2-TETRACHLOROETHANE	21000	11000	22	22	4 U	4 U	4 U	4 U	4 UJ
1,1,2-TRICHLOROETHANE	79000	41000	NC	41000	4 U	4 U	4 U	4 U	4 U
1,1-DICHLOROETHANE	820000	410000	980	980	4 U	4 U	4 U	4 U	4 U
1,1-DICHLOROETHENE	17000000	2800000	2200	2200	4 U	4 U	4 U	4 U	4 U
1,2-DICHLOROBENZENE	9700000	1700000	12000	12000	4 U	4 U	4 U	4 U	4 UJ
1,2-DICHLOROETHANE	47000	25000	360	360	4 U	4 U	4 U	4 U	4 U
1,2-DICHLOROPROPANE	130000	65000	NC	65000	4 U	4 U	4 U	4 U	4 U
1,3-DICHLOROBENZENE	680000	110000	1100	1100	4 U	4 U	4 U	4 U	4 UJ
1,4-DICHLOROBENZENE	530000	360000	4000	4000	4 U	4 U	4 U	4 U	4 UJ
2-BUTANONE	190000000	34000000	NC	34000000	22 U	20 U	21 U	22 U	22 U
2-HEXANONE	NC	NC	NC	NC	22 U	20 U	21 U	22 U	22 U
4-METHYL-2-PENTANONE	27000000	4500000	NC	4500000	22 U	20 U	21 U	22 U	22 U
ACETONE	300000000	51000000	NC	51000000	22 UJ	89	90.5	92	170
BENZENE	86000	28000	510	510	4 U	2 J	2 J	2 J	2 J
BROMODICHLOROMETHANE	68000	37000	NC	37000	4 U	4 U	4 U	4 U	4 U
BROMOFORM	360000	230000	NC	230000	4 U	4 U	4 U	4 U	4 U
BROMOMETHANE	410000	78000	NC	78000	9 U	8 U	8.5 U	9 U	9 U
CARBON DISULFIDE	34000000	5700000	NC	5700000	4 U	4 U	4 U	4 U	4 U
CARBON TETRACHLORIDE	36000	18000	300	300	4 U	4 U	4 U	4 U	4 U
CHLOROBENZENE	6800000	1100000	1500	1500	4 U	4 U	4 U	4 U	4 U
CHLORODIBROMOMETHANE	52000	27000	NC	27000	4 U	4 U	4 U	4 U	4 U
CHLOROETHANE	3400000	570000	NC	570000	9 U	8 U	8.5 U	9 U	9 U
CHLOROFORM	140000	75000	NC	75000	4 U	4 U	4 U	4 U	4 U
CHLOROMETHANE	NC	NC	NC	NC	9 U	8 U	8.5 U	9 U	9 U
CIS-1,2-DICHLOROETHENE	3400000	570000	980	980	4 U	4 U	4 U	4 U	4 U
CIS-1,3-DICHLOROPROPENE	NC	NC	NC	NC	4 U	4 U	4 U	4 U	4 U
ETHYLBENZENE	420000	210000	810	810	4 U	1 J	1.5 J	2 J	4 U
M+P-XYLENES	NC	NC	NC	NC	9 U	8 U	8.5 U	9 U	9 U
METHYLENE CHLORIDE	630000	310000	NC	310000	4 U	4 U	4 U	4 U	4 U
O-XYLENE	NC	NC	NC	NC	4 U	4 U	4 U	4 U	4 U
STYRENE	58000000	11000000	NC	11000000	4 U	4 U	4 U	4 U	4 U
TETRACHLOROETHENE	8800	4400	430	430	4 UJ	4 UJ	4 UJ	4 UJ	4 U
TOLUENE	27000000	4500000	8100	8100	4 U	4 U	4 U	4 U	2 J
TOTAL XYLENES	52000000	11000000	26000	26000	13 U	12 U	12.5 U	13 U	14 U
TRANS-1,2-DICHLOROETHENE	6700000	1100000	3300	3300	4 U	4 U	4 U	4 U	4 U
TRANS-1,3-DICHLOROPROPENE	NC	NC	NC	NC	4 U	4 U	4 U	4 U	4 U

TABLE D-1

SOIL SAMPLING ANALYTICAL RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID TOP DEPTH BOTTOM DEPTH SAMPLE DATE	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	02 SB-02-309 SB-2-309-0002-D 0 2 20081008	02 SB-02-310 SB-2-310-0406 4 6 20081009	02 SB-02-310 SB-2-310-0406-AVG 4 6 20081009	02 SB-02-310 SB-2-310-0406-D 4 6 20081009	02 TP-02-01 TP-2-01-0006 0 0.5 20081001
TRICHLOROETHENE	360000	180000	1500	1500	4 U	4 U	4 U	4 U	4 U
VINYL CHLORIDE	6600	94	160	94	4 U	4 U	4 U	4 U	4 U
Semivolatile Organics (ug/kg)									
1,1-BIPHENYL	17000000	2800000	NC	2800000	450 U	420 U	425 U	430 U	390 U
2,2'-OXYBIS(1-CHLOROPROPANE)	NC	NC	NC	NC	450 U	420 U	425 U	430 U	390 UJ
2,4,5-TRICHLOROPHENOL	1600000	350000	NC	350000	1100 U	1000 U	1050 U	1100 U	970 U
2,4,6-TRICHLOROPHENOL	210000	44000	NC	44000	450 U	420 U	425 U	430 U	390 U
2,4-DICHLOROPHENOL	620000	130000	NC	130000	450 U	420 U	425 U	430 U	390 UJ
2,4-DIMETHYLPHENOL	4100000	890000	NC	890000	450 U	420 U	425 U	430 U	390 UJ
2,4-DINITROPHENOL	410000	89000	NC	89000	1100 U	1000 U	1050 U	1100 U	970 U
2,4-DINITROTOLUENE	9300	5800	NC	5800	450 U	420 U	425 U	430 U	390 U
2,6-DINITROTOLUENE	4200	2600	NC	2600	450 U	420 U	425 U	430 U	390 U
2-CHLORONAPHTHALENE	NC	NC	NC	NC	450 U	420 U	425 U	430 U	390 UJ
2-CHLOROPHENOL	1700000	280000	NC	280000	450 U	420 U	425 U	430 U	390 U
2-METHYLNAPHTHALENE	480000	160000	3600	3600	450 U	420 U	425 U	430 U	390 U
2-METHYLPHENOL	10000000	2200000	NC	2200000	450 U	420 U	425 U	430 U	390 UJ
2-NITROANILINE	NC	NC	NC	NC	1100 U	1000 U	1050 U	1100 U	970 U
2-NITROPHENOL	NC	NC	NC	NC	450 U	420 U	425 U	430 U	390 UJ
3&4-METHYLPHENOL	NC	NC	NC	NC	450 U	420 U	425 U	430 U	390 U
3,3'-DICHLOROBENZIDINE	6400	4000	NC	4000	450 U	420 U	425 U	430 U	390 UJ
3-NITROANILINE	NC	NC	NC	NC	1100 U	1000 U	1050 U	1100 U	970 U
4,6-DINITRO-2-METHYLPHENOL	NC	NC	NC	NC	1100 U	1000 U	1050 U	1100 U	970 U
4-BROMOPHENYL PHENYL ETHER	NC	NC	NC	NC	450 U	420 U	425 U	430 U	390 UJ
4-CHLORO-3-METHYLPHENOL	NC	NC	NC	NC	450 U	420 U	425 U	430 U	390 U
4-CHLOROANILINE	14000	9000	NC	9000	450 U	420 U	425 U	430 U	390 U
4-CHLOROPHENYL PHENYL ETHER	NC	NC	NC	NC	450 U	420 U	425 U	430 U	390 UJ
4-NITROANILINE	NC	NC	NC	NC	1100 U	1000 U	1050 U	1100 U	970 U
4-NITROPHENOL	NC	NC	NC	NC	1100 U	1000 U	1050 U	1100 U	970 U
ACENAPHTHENE	2000000	1600000	170000	170000	450 U	420 U	425 U	430 U	390 U
ACENAPHTHYLENE	2200000	1700000	68000	68000	450 U	420 U	425 U	430 U	390 U
ACETOPHENONE	NC	NC	NC	NC	450 U	420 U	425 U	430 U	390 U
ANTHRACENE	7800000	7200000	2400000	2400000	450 U	420 U	425 U	430 U	390 U
ATRAZINE	12000	7800	NC	7800	450 UJ	420 UJ	425 UJ	430 UJ	390 U
BENZALDEHYDE	NC	NC	NC	NC	450 UJ	420 UJ	425 UJ	430 UJ	390 UJ
BENZO(A)ANTHRACENE	3500	440	NC	440	54	26	30	34	50
BENZO(A)PYRENE	350	44	NC	44	59 J	30 J	34 J	38 J	52
BENZO(B)FLUORANTHENE	3500	440	NC	440	86 J	52 J	56 J	60 J	120
BENZO(G,H,I)PERYLENE	5500000	1200000	NC	1200000	450 U	420 U	425 U	430 U	390 U

TABLE D-1

SOIL SAMPLING ANALYTICAL RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID TOP DEPTH BOTTOM DEPTH SAMPLE DATE	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	02 SB-02-309 SB-2-309-0002-D 0 2 20081008	02 SB-02-310 SB-2-310-0406 4 6 20081009	02 SB-02-310 SB-2-310-0406-AVG 4 6 20081009	02 SB-02-310 SB-2-310-0406-D 4 6 20081009	02 TP-02-01 TP-2-01-0006 0 0.5 20081001
BENZO(K)FLUORANTHENE	35000	4400	NC	4400	450 UJ	420 UJ	425 UJ	430 UJ	390 U
BIS(2-CHLOROETHOXY)METHANE	NC	NC	NC	NC	450 U	420 U	425 U	430 U	390 UJ
BIS(2-CHLOROETHYL)ETHER	NC	NC	NC	NC	27 U	25 U	25.5 U	26 U	24 U
BIS(2-ETHYLHEXYL)PHTHALATE	210000	130000	NC	130000	450 U	420 U	425 U	430 U	390 U
BUTYL BENZYL PHTHALATE	1500000	950000	NC	950000	450 U	420 U	425 U	430 U	390 U
CAPROLACTAM	NC	NC	NC	NC	450 U	420 U	425 U	430 U	390 U
CARBAZOLE	NC	NC	NC	NC	450 U	420 U	425 U	430 U	390 U
CHRYSENE	350000	44000	NC	44000	450 U	420 U	425 U	430 U	390 UJ
DI-N-BUTYL PHTHALATE	21000000	4400000	NC	4400000	450 U	420 U	425 U	430 U	390 U
DI-N-OCTYL PHTHALATE	NC	NC	NC	NC	450 UJ	420 UJ	425 UJ	430 UJ	390 U
DIBENZO(A,H)ANTHRACENE	350	44	NC	44	20 J	9.2 J	10.6 J	12 J	21 J
DIBENZOFURAN	NC	NC	NC	NC	450 U	420 U	425 U	430 U	390 U
DIETHYL PHTHALATE	160000000	35000000	NC	35000000	450 U	420 U	425 U	430 U	390 U
DIMETHYL PHTHALATE	NC	NC	NC	NC	450 U	420 U	425 U	430 U	390 U
FLUORANTHENE	7300000	1700000	NC	1700000	450 U	420 U	425 U	430 U	390 UJ
FLUORENE	2700000	1400000	120000	120000	450 U	420 U	425 U	430 U	390 U
HEXACHLOROBENZENE	1800	1100	NC	1100	27 U	25 U	25.5 U	26 U	24 U
HEXACHLOROBUTADIENE	37000	23000	NC	23000	450 U	420 U	425 U	430 U	390 UJ
HEXACHLOROCYCLOPENTADIENE	NC	NC	NC	NC	450 U	420 U	425 U	430 U	390 U
HEXACHLOROETHANE	210000	44000	NC	44000	450 U	420 U	425 U	430 U	390 UJ
INDENO(1,2,3-CD)PYRENE	3500	440	NC	440	59	30	34	38	54
ISOPHORONE	NC	NC	NC	NC	450 UJ	420 UJ	425 UJ	430 UJ	390 U
N-NITROSO-DI-N-PROPYLAMINE	NC	NC	NC	NC	27 U	25 U	25.5 U	26 U	24 U
N-NITROSODIPHENYLAMINE	NC	NC	NC	NC	450 U	420 U	425 U	430 U	390 U
NAPHTHALENE	200000	330000	1700	1700	450 U	420 U	425 U	430 U	390 U
NITROBENZENE	NC	NC	NC	NC	450 U	420 U	425 U	430 U	390 U
PENTACHLOROPHENOL	15000	11000	NC	11000	41 UJ	38 UJ	38.5 UJ	39 UJ	18 J
PHENANTHRENE	3600000	1200000	97000	97000	450 U	420 U	165 J	120 J	390 U
PHENOL	62000000	13000000	NC	13000000	450 U	420 U	425 U	430 U	390 U
PYRENE	5500000	1200000	NC	1200000	450 U	420 U	175 J	140 J	390 U
Pesticides/PCBs (ug/kg)									
4,4'-DDD	12000	7500	NC	7500	9.6	1 J	1.25 J	1.5 J	80
4,4'-DDE	8500	5300	NC	5300	55	4.2 U	4.25 U	4.3 U	960 J
4,4'-DDT	12000	6400	NC	6400	110	1.3 J	1.72 J	4.3 U	2300
ALDRIN	170	110	NC	110	2.3 U	2.2 U	2.2 U	2.2 U	10 U
ALPHA-BHC	460	290	NC	290	2.3 U	2.2 U	2.2 U	2.2 U	10 UJ
ALPHA-CHLORDANE	NC	NC	NC	NC	0.64 J	2.2 U	2.2 U	2.2 U	10 U
AROCLOR-1016	NC	NC	NC	NC	23 UJ	22 UJ	22 UJ	22 UJ	20 U

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SOIL SAMPLING ANALYTICAL RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID TOP DEPTH BOTTOM DEPTH SAMPLE DATE	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	02 SB-02-309 SB-2-309-0002-D 0 2 20081008	02 SB-02-310 SB-2-310-0406 4 6 20081009	02 SB-02-310 SB-2-310-0406-AVG 4 6 20081009	02 SB-02-310 SB-2-310-0406-D 4 6 20081009	02 TP-02-01 TP-2-01-0006 0 0.5 20081001
AROCLOR-1221	NC	NC	NC	NC	23 U	22 U	22 U	22 U	20 U
AROCLOR-1232	NC	NC	NC	NC	23 U	22 U	22 U	22 U	20 U
AROCLOR-1242	NC	NC	NC	NC	23 U	22 U	22 U	22 U	20 U
AROCLOR-1248	NC	NC	NC	NC	23 U	22 U	22 U	22 U	20 U
AROCLOR-1254	NC	NC	NC	NC	23 U	22 U	22 U	22 U	20 U
AROCLOR-1260	NC	NC	NC	NC	23 UJ	22 UJ	22 UJ	22 UJ	20 U
BETA-BHC	1600	1000	NC	1000	2.3 U	2.2 U	2.2 U	2.2 U	10 U
DELTA-BHC	NC	NC	NC	NC	2.3 U	2.2 U	2.2 U	2.2 U	10 U
DIELDRIN	180	110	NC	110	4.5 U	4.2 U	4.25 U	4.3 U	19 U
ENDOSULFAN I	NC	NC	NC	NC	2.3 U	2.2 U	2.2 U	2.2 U	10 U
ENDOSULFAN II	NC	NC	NC	NC	4.5 U	4.2 U	4.25 U	4.3 U	19 U
ENDOSULFAN SULFATE	NC	NC	NC	NC	4.5 UJ	4.2 UJ	4.25 UJ	4.3 UJ	19 U
ENDRIN	62000	13000	NC	13000	4.5 U	4.2 U	4.25 U	4.3 U	19 U
ENDRIN ALDEHYDE	NC	NC	NC	NC	4.5 U	4.2 U	4.25 U	4.3 U	19 U
ENDRIN KETONE	NC	NC	NC	NC	4.5 UJ	4.2 UJ	4.25 UJ	4.3 UJ	19 U
GAMMA-BHC (LINDANE)	1100	200	NC	200	2.3 U	2.2 U	2.2 U	2.2 U	10 U
GAMMA-CHLORDANE	NC	NC	NC	NC	0.93 J	2.2 U	2.2 U	2.2 U	10 U
HEPTACHLOR	640	400	NC	400	2.3 U	2.2 U	2.2 U	2.2 U	10 U
HEPTACHLOR EPOXIDE	320	200	NC	200	2.3 U	2.2 U	2.2 U	2.2 U	10 UJ
METHOXYCHLOR	1000000	220000	NC	220000	23 U	22 U	22 U	22 U	100 U
TOXAPHENE	NC	NC	NC	NC	45 U	42 U	42.5 U	43 U	190 U
Dioxins/Furans (ng/kg)									
1,2,3,4,6,7,8,9-OCDD	1.03E+05	5.67E+04	NC	5.67E+04					
1,2,3,4,6,7,8,9-OCDF	1.03E+05	5.67E+04	NC	5.67E+04					
1,2,3,4,6,7,8-HPCDD	3.10E+03	1.70E+03	NC	1.70E+03					
1,2,3,4,6,7,8-HPCDF	3.10E+03	1.70E+03	NC	1.70E+03					
1,2,3,4,7,8,9-HPCDF	3.10E+03	1.70E+03	NC	1.70E+03					
1,2,3,4,7,8-HXCDD	3.10E+02	1.70E+02	NC	1.70E+02					
1,2,3,4,7,8-HXCDF	3.10E+02	1.70E+02	NC	1.70E+02					
1,2,3,6,7,8-HXCDD	3.10E+02	1.70E+02	NC	1.70E+02					
1,2,3,6,7,8-HXCDF	3.10E+02	1.70E+02	NC	1.70E+02					
1,2,3,7,8,9-HXCDD	3.10E+02	1.70E+02	NC	1.70E+02					
1,2,3,7,8,9-HXCDF	3.10E+02	1.70E+02	NC	1.70E+02					
1,2,3,7,8-PECDD	3.10E+01	1.70E+01	NC	1.70E+01					
1,2,3,7,8-PECDF	1.03E+03	5.67E+02	NC	5.67E+02					
2,3,4,6,7,8-HXCDF	3.10E+02	1.70E+02	NC	1.70E+02					
2,3,4,7,8-PECDF	1.03E+02	5.67E+01	NC	5.67E+01					
2,3,7,8-TCDD	3.10E+01	1.70E+01	NC	1.70E+01					

TABLE D-1

SOIL SAMPLING ANALYTICAL RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID TOP DEPTH BOTTOM DEPTH SAMPLE DATE	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	02 SB-02-309 SB-2-309-0002-D 0 2 20081008	02 SB-02-310 SB-2-310-0406 4 6 20081009	02 SB-02-310 SB-2-310-0406-AVG 4 6 20081009	02 SB-02-310 SB-2-310-0406-D 4 6 20081009	02 TP-02-01 TP-2-01-0006 0 0.5 20081001
2,3,7,8-TCDF	3.10E+02	1.70E+02	NC	1.70E+02					
TOTAL HPCDD	NC	NC	NC	NC					
TOTAL HPCDF	NC	NC	NC	NC					
TOTAL HXCDD	NC	NC	NC	NC					
TOTAL HXCDF	NC	NC	NC	NC					
TOTAL PECDD	NC	NC	NC	NC					
TOTAL PECDF	NC	NC	NC	NC					
TOTAL TCDD	NC	NC	NC	NC					
TOTAL TCDF	NC	NC	NC	NC					
Inorganics (mg/kg)									
ALUMINUM	340000	57000	NC	57000	23800	8610	8860	9110	6920
ANTIMONY	140	23	NC	23	0.12 UJ	0.07 UJ	0.06 UJ	0.05 UJ	1.8 J
ARSENIC	0.42	0.23	NC	0.23	6.7 J	1.3 J	1.35 J	1.4 J	2.9
BARIUM	68000	11000	NC	11000	93.9	12.9	13.2	13.4	109
BERYLLIUM	680	110	NC	110	1.1	0.35 J	0.365 J	0.38 J	0.29 J
CADMIUM	19	3.6	NC	3.6	0.28 UJ	0.04 UJ	0.045 UJ	0.05 UJ	2
CALCIUM	NC	NC	NC	NC	2400 J	338 J	353 J	368 J	1400
CHROMIUM	NC	NC	NC	NC	41 J	6.7 J	6.95 J	7.2 J	37.4
COBALT	100	17	NC	17	12	1.6 J	1.55 J	1.5 J	3.3
COPPER	4800	790	NC	790	30.3 J	3 J	3 J	3 J	244
IRON	240000	40000	NC	40000	28800	7400	7450	7500	10200 J
LEAD	560	280	NC	280	28.7	6	6.1	6.2	175 J
MAGNESIUM	NC	NC	NC	NC	7330	702	723	744	1570
MANGANESE	8000	1400	NC	1400	423 J	96.7 J	92 J	87.3 J	212 J
MERCURY	100	17	NC	17	0.67 J	0.04 J	0.04 J	0.04 J	0.22
NICKEL	1000	170	NC	170	36.4	3.7 J	3.8 J	3.9	15
POTASSIUM	NC	NC	NC	NC	4240	314	333	352	912
SELENIUM	680	110	NC	110	1.2 UJ	0.52 UJ	0.52 UJ	0.52 UJ	0.33 U
SILVER	1700	280	NC	280	0.15 UJ	0.15 UJ	0.14 UJ	0.13 UJ	3.2
SODIUM	NC	NC	NC	NC	210 J	41.7 J	40.3 J	38.9 J	107 UJ
THALLIUM	27	4.5	NC	4.5	0.26 U	0.07 UJ	0.065 UJ	0.06 UJ	0.09 UJ
VANADIUM	2400	400	NC	400	70.7	13.4	13.9	14.4	19
ZINC	100000	17000	NC	17000	95.6 J	13.8 J	14.2 J	14.7 J	1310 J
Miscellaneous Parameters (%)									
PERCENT MOISTURE	NC	NC	NC	NC					
PERCENT SOLIDS	NC	NC	NC	NC					

TABLE D-1

SOIL SAMPLING ANALYTICAL RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID TOP DEPTH BOTTOM DEPTH SAMPLE DATE	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	02 TP-02-01 TP-2-01-0203 2 3 20081001	02 TP-02-02 TP-2-02-0006 0 0.5 20081001	02 TP-02-02 TP-2-02-0102 1 2 20081001	02 TP-02-02 TP-2-02-0102-AVG 1 2 20081001	02 TP-02-02 TP-2-02-0102-D 1 2 20081001
Volatile Organics (ug/kg)									
1,1,1-TRICHLOROETHANE	660000000	110000000	730000	730000	4 U	4 U	10 U	11 U	12 U
1,1,2,2-TETRACHLOROETHANE	21000	11000	22	22	4 U	4 U	10 U	11 U	12 U
1,1,2-TRICHLOROETHANE	79000	41000	NC	41000	4 U	4 U	10 U	11 U	12 U
1,1-DICHLOROETHANE	820000	410000	980	980	4 U	4 U	10 U	11 U	12 U
1,1-DICHLOROETHENE	17000000	2800000	2200	2200	4 UJ	4 UJ	10 U	11 UJ	12 UJ
1,2-DICHLOROBENZENE	9700000	1700000	12000	12000	4 U	4 U	10 U	11 U	12 U
1,2-DICHLOROETHANE	47000	25000	360	360	4 U	4 U	10 U	11 U	12 U
1,2-DICHLOROPROPANE	130000	65000	NC	65000	4 U	4 U	10 U	11 U	12 U
1,3-DICHLOROBENZENE	680000	110000	1100	1100	4 U	4 U	10 U	11 U	12 U
1,4-DICHLOROBENZENE	530000	360000	4000	4000	4 U	4 U	10 U	11 U	12 U
2-BUTANONE	190000000	34000000	NC	34000000	18 U	22 U	53 U	56 U	59 U
2-HEXANONE	NC	NC	NC	NC	18 U	22 U	53 U	56 U	59 U
4-METHYL-2-PENTANONE	27000000	4500000	NC	4500000	18 U	22 U	53 U	56 U	59 U
ACETONE	300000000	51000000	NC	51000000	36	100	86	78	70
BENZENE	86000	28000	510	510	4 U	4 U	10 U	11 U	12 U
BROMODICHLOROMETHANE	68000	37000	NC	37000	4 U	4 U	10 U	11 U	12 U
BROMOFORM	360000	230000	NC	230000	4 U	4 U	10 U	11 U	12 U
BROMOMETHANE	410000	78000	NC	78000	7 U	9 U	21 U	22.5 U	24 U
CARBON DISULFIDE	34000000	5700000	NC	5700000	4 U	4 U	10 U	8 J	11 J
CARBON TETRACHLORIDE	36000	18000	300	300	4 U	4 U	10 U	11 U	12 U
CHLOROBENZENE	6800000	1100000	1500	1500	4 U	4 U	10 U	11 U	12 U
CHLORODIBROMOMETHANE	52000	27000	NC	27000	4 U	4 U	10 U	11 U	12 U
CHLOROETHANE	3400000	570000	NC	570000	7 U	9 U	21 U	22.5 U	24 U
CHLOROFORM	140000	75000	NC	75000	4 U	4 U	10 U	11 U	12 U
CHLOROMETHANE	NC	NC	NC	NC	7 U	9 U	21 U	22.5 U	24 U
CIS-1,2-DICHLOROETHENE	3400000	570000	980	980	4 U	4 U	10 U	11 U	12 U
CIS-1,3-DICHLOROPROPENE	NC	NC	NC	NC	4 U	4 U	10 U	11 U	12 U
ETHYLBENZENE	420000	210000	810	810	4 U	4 U	10 U	11 U	12 U
M+P-XYLENES	NC	NC	NC	NC	7 U	9 U	21 U	22.5 U	24 U
METHYLENE CHLORIDE	630000	310000	NC	310000	4 U	4 U	10 U	11 U	12 U
O-XYLENE	NC	NC	NC	NC	4 U	4 U	10 U	11 U	12 U
STYRENE	58000000	11000000	NC	11000000	4 U	4 U	10 U	11 U	12 U
TETRACHLOROETHENE	8800	4400	430	430	4 U	4 U	10 U	11 U	12 U
TOLUENE	27000000	4500000	8100	8100	4 U	4 U	10 U	11 U	12 U
TOTAL XYLENES	52000000	11000000	26000	26000	11 U	13 U	32 U	34 U	36 U
TRANS-1,2-DICHLOROETHENE	6700000	1100000	3300	3300	4 U	4 U	10 U	11 U	12 U
TRANS-1,3-DICHLOROPROPENE	NC	NC	NC	NC	4 U	4 U	10 U	11 U	12 U

TABLE D-1

SOIL SAMPLING ANALYTICAL RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID TOP DEPTH BOTTOM DEPTH SAMPLE DATE	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	02 TP-02-01 TP-2-01-0203 2 3 20081001	02 TP-02-02 TP-2-02-0006 0 0.5 20081001	02 TP-02-02 TP-2-02-0102 1 2 20081001	02 TP-02-02 TP-2-02-0102-AVG 1 2 20081001	02 TP-02-02 TP-2-02-0102-D 1 2 20081001
TRICHLOROETHENE	360000	180000	1500	1500	4 U	4 U	10 U	11 U	12 U
VINYL CHLORIDE	6600	94	160	94	4 U	4 U	10 U	11 U	12 U
Semivolatile Organics (ug/kg)									
1,1-BIPHENYL	17000000	2800000	NC	2800000	370 U	420 U	690 U	755 U	820 U
2,2'-OXYBIS(1-CHLOROPROPANE)	NC	NC	NC	NC	370 UJ	420 UJ	690 U	755 UJ	820 UJ
2,4,5-TRICHLOROPHENOL	1600000	350000	NC	350000	930 U	1000 U	1700 UJ	1850 UJ	2000 UJ
2,4,6-TRICHLOROPHENOL	210000	44000	NC	44000	370 U	420 U	690 UJ	755 UJ	820 UJ
2,4-DICHLOROPHENOL	620000	130000	NC	130000	370 UJ	420 UJ	690 UJ	755 UJ	820 UJ
2,4-DIMETHYLPHENOL	4100000	890000	NC	890000	370 UJ	420 UJ	690 UJ	755 UJ	820 UJ
2,4-DINITROPHENOL	410000	89000	NC	89000	930 U	1000 U	1700 UJ	1850 UJ	2000 UJ
2,4-DINITROTOLUENE	9300	5800	NC	5800	370 U	420 U	690 U	755 U	820 U
2,6-DINITROTOLUENE	4200	2600	NC	2600	370 U	420 U	690 U	755 U	820 U
2-CHLORONAPHTHALENE	NC	NC	NC	NC	370 UJ	420 UJ	690 U	755 UJ	820 UJ
2-CHLOROPHENOL	1700000	280000	NC	280000	370 U	420 U	690 UJ	755 UJ	820 UJ
2-METHYLNAPHTHALENE	480000	160000	3600	3600	370 U	420 U	690 U	755 U	820 U
2-METHYLPHENOL	10000000	2200000	NC	2200000	370 UJ	420 UJ	690 UJ	755 UJ	820 UJ
2-NITROANILINE	NC	NC	NC	NC	930 U	1000 U	1700 U	1850 U	2000 U
2-NITROPHENOL	NC	NC	NC	NC	370 UJ	420 UJ	690 UJ	755 UJ	820 UJ
3&4-METHYLPHENOL	NC	NC	NC	NC	370 U	420 U	690 UJ	755 UJ	820 UJ
3,3'-DICHLOROBENZIDINE	6400	4000	NC	4000	370 UJ	420 U	690 U	755 UJ	820 UJ
3-NITROANILINE	NC	NC	NC	NC	930 U	1000 U	1700 U	1850 U	2000 U
4,6-DINITRO-2-METHYLPHENOL	NC	NC	NC	NC	930 U	1000 U	1700 UJ	1850 UJ	2000 UJ
4-BROMOPHENYL PHENYL ETHER	NC	NC	NC	NC	370 UJ	420 UJ	690 U	755 UJ	820 UJ
4-CHLORO-3-METHYLPHENOL	NC	NC	NC	NC	370 U	420 U	690 UJ	755 UJ	820 UJ
4-CHLOROANILINE	14000	9000	NC	9000	370 U	420 U	690 U	755 U	820 U
4-CHLOROPHENYL PHENYL ETHER	NC	NC	NC	NC	370 UJ	420 UJ	690 U	755 UJ	820 UJ
4-NITROANILINE	NC	NC	NC	NC	930 U	1000 U	1700 U	1850 U	2000 U
4-NITROPHENOL	NC	NC	NC	NC	930 U	1000 U	1700 UJ	1850 UJ	2000 UJ
ACENAPHTHENE	2000000	1600000	170000	170000	370 U	320 J	690 U	755 U	820 U
ACENAPHTHYLENE	2200000	1700000	68000	68000	370 U	420 U	690 U	755 U	820 U
ACETOPHENONE	NC	NC	NC	NC	370 U	420 U	690 U	755 U	820 U
ANTHRACENE	7800000	7200000	2400000	2400000	370 U	420	690 U	755 U	820 U
ATRAZINE	12000	7800	NC	7800	370 U	420 U	690 UJ	755 UJ	820 U
BENZALDEHYDE	NC	NC	NC	NC	370 UJ	420 UJ	690 UJ	755 UJ	820 UJ
BENZO(A)ANTHRACENE	3500	440	NC	440	23 U	1400	640 J	440 J	240 J
BENZO(A)PYRENE	350	44	NC	44	23 U	1200	470 J	345 J	220 J
BENZO(B)FLUORANTHENE	3500	440	NC	440	23 U	25 U	590	495 J	400 J
BENZO(G,H,I)PERYLENE	5500000	1200000	NC	1200000	370 U	560	690 U	755 U	820 U

TABLE D-1

SOIL SAMPLING ANALYTICAL RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID TOP DEPTH BOTTOM DEPTH SAMPLE DATE	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	02 TP-02-01 TP-2-01-0203 2 3 20081001	02 TP-02-02 TP-2-02-0006 0 0.5 20081001	02 TP-02-02 TP-2-02-0102 1 2 20081001	02 TP-02-02 TP-2-02-0102-AVG 1 2 20081001	02 TP-02-02 TP-2-02-0102-D 1 2 20081001
BENZO(K)FLUORANTHENE	35000	4400	NC	4400	370 U	1100	520 J	400 J	280 J
BIS(2-CHLOROETHOXY)METHANE	NC	NC	NC	NC	370 UJ	420 UJ	690 U	755 UJ	820 UJ
BIS(2-CHLOROETHYL)ETHER	NC	NC	NC	NC	23 U	25 U	42 U	46 U	50 U
BIS(2-ETHYLHEXYL)PHTHALATE	210000	130000	NC	130000	370 U	130 J	690 U	755 U	820 U
BUTYL BENZYL PHTHALATE	1500000	950000	NC	950000	370 U	420 U	690 U	755 U	820 U
CAPROLACTAM	NC	NC	NC	NC	370 U	420 U	690 U	755 U	820 U
CARBAZOLE	NC	NC	NC	NC	370 U	250 J	690 U	755 U	820 U
CHRYSENE	350000	44000	NC	44000	370 UJ	1200 J	690 J	470 J	250 J
DI-N-BUTYL PHTHALATE	21000000	4400000	NC	4400000	370 U	420 U	690 U	755 U	820 U
DI-N-OCTYL PHTHALATE	NC	NC	NC	NC	370 U	420 U	690 U	755 U	820 U
DIBENZO(A,H)ANTHRACENE	350	44	NC	44	23 UJ	390 J	160 J	114 J	68 J
DIBENZOFURAN	NC	NC	NC	NC	370 U	160 J	690 U	755 U	820 U
DIETHYL PHTHALATE	160000000	35000000	NC	35000000	370 U	420 U	690 U	755 U	820 U
DIMETHYL PHTHALATE	NC	NC	NC	NC	370 U	420 U	690 U	755 U	820 U
FLUORANTHENE	7300000	1700000	NC	1700000	370 UJ	2200 J	1400	930 J	460 J
FLUORENE	2700000	1400000	120000	120000	370 U	240 J	690 U	755 U	820 U
HEXACHLOROBENZENE	1800	1100	NC	1100	23 U	25 U	42 UJ	46 UJ	50 UJ
HEXACHLOROBUTADIENE	37000	23000	NC	23000	370 UJ	420 UJ	690 U	755 UJ	820 UJ
HEXACHLOROCYCLOPENTADIENE	NC	NC	NC	NC	370 U	420 U	690 U	755 U	820 U
HEXACHLOROETHANE	210000	44000	NC	44000	370 UJ	420 UJ	690 U	755 UJ	820 UJ
INDENO(1,2,3-CD)PYRENE	3500	440	NC	440	23 U	1000	280	225 J	170 J
ISOPHORONE	NC	NC	NC	NC	370 U	420 U	690 U	755 U	820 U
N-NITROSO-DI-N-PROPYLAMINE	NC	NC	NC	NC	23 U	25 U	42 U	46 U	50 U
N-NITROSODIPHENYLAMINE	NC	NC	NC	NC	370 U	420 U	690 U	755 U	820 U
NAPHTHALENE	200000	330000	1700	1700	370 U	210 J	690 U	755 U	820 U
NITROBENZENE	NC	NC	NC	NC	370 U	420 U	690 U	755 U	820 U
PENTACHLOROPHENOL	15000	11000	NC	11000	34 U	38 U	63 U	68.5 U	74 U
PHENANTHRENE	3600000	1200000	97000	97000	370 U	2000	1200	715 J	230 J
PHENOL	62000000	13000000	NC	13000000	370 U	420 U	690 UJ	755 UJ	820 UJ
PYRENE	5500000	1200000	NC	1200000	370 U	2800	1500	980 J	460 J
Pesticides/PCBs (ug/kg)									
4,4'-DDD	12000	7500	NC	7500	3.7 U	22	5.4 J	9.7 J	14
4,4'-DDE	8500	5300	NC	5300	0.99 J	460 J	24 J	32 J	40 J
4,4'-DDT	12000	6400	NC	6400	1.8 J	1000	160	195	230
ALDRIN	170	110	NC	110	1.9 U	2.2 U	3.6 U	3.9 U	4.2 U
ALPHA-BHC	460	290	NC	290	1.9 UJ	2.2 UJ	3.6 UJ	3.9 UJ	4.2 UJ
ALPHA-CHLORDANE	NC	NC	NC	NC	1.9 U	2.2 U	9.7 J	5.9 J	4.2 UJ
AROCLOR-1016	NC	NC	NC	NC	19 U	22 U	36 U	39 U	42 U

TABLE D-1

SOIL SAMPLING ANALYTICAL RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID TOP DEPTH BOTTOM DEPTH SAMPLE DATE	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	02 TP-02-01 TP-2-01-0203 2 3 20081001	02 TP-02-02 TP-2-02-0006 0 0.5 20081001	02 TP-02-02 TP-2-02-0102 1 2 20081001	02 TP-02-02 TP-2-02-0102-AVG 1 2 20081001	02 TP-02-02 TP-2-02-0102-D 1 2 20081001
AROCLOR-1221	NC	NC	NC	NC	19 U	22 U	36 U	39 U	42 U
AROCLOR-1232	NC	NC	NC	NC	19 U	22 U	36 U	39 U	42 U
AROCLOR-1242	NC	NC	NC	NC	19 U	22 U	36 U	39 U	42 U
AROCLOR-1248	NC	NC	NC	NC	19 U	22 U	36 U	39 U	42 U
AROCLOR-1254	NC	NC	NC	NC	19 U	22 U	36 U	39 U	42 U
AROCLOR-1260	NC	NC	NC	NC	19 U	22 U	36 U	39 U	42 U
BETA-BHC	1600	1000	NC	1000	1.9 U	2.2 U	3.6 U	3.9 U	4.2 U
DELTA-BHC	NC	NC	NC	NC	1.9 UJ	2.2 UJ	3.6 UJ	3.9 UJ	4.2 UJ
DIELDRIN	180	110	NC	110	3.7 U	4.2 U	6.9 U	7.55 U	8.2 U
ENDOSULFAN I	NC	NC	NC	NC	1.9 U	2.2 U	3.6 U	3.9 U	4.2 U
ENDOSULFAN II	NC	NC	NC	NC	3.7 U	4.2 U	6.9 U	7.55 U	8.2 U
ENDOSULFAN SULFATE	NC	NC	NC	NC	3.7 U	4.2 U	6.9 U	7.55 U	8.2 U
ENDRIN	62000	13000	NC	13000	3.7 U	4.2 U	6.9 U	7.55 U	8.2 U
ENDRIN ALDEHYDE	NC	NC	NC	NC	3.7 U	4.2 U	6.9 U	7.55 U	8.2 U
ENDRIN KETONE	NC	NC	NC	NC	3.7 U	4.2 U	6.9 U	7.55 U	8.2 U
GAMMA-BHC (LINDANE)	1100	200	NC	200	1.9 U	2.2 U	3.6 U	3.9 U	4.2 U
GAMMA-CHLORDANE	NC	NC	NC	NC	1.9 U	2.2 U	9.7 J	5.9 J	4.2 UJ
HEPTACHLOR	640	400	NC	400	1.9 U	2.2 U	3.6 U	3.9 U	4.2 U
HEPTACHLOR EPOXIDE	320	200	NC	200	1.9 UJ	2.2 UJ	3.6 UJ	3.9 UJ	4.2 UJ
METHOXYCHLOR	1000000	220000	NC	220000	19 U	22 U	36 U	39 U	42 U
TOXAPHENE	NC	NC	NC	NC	37 U	42 U	69 U	75.5 U	82 U
Dioxins/Furans (ng/kg)									
1,2,3,4,6,7,8,9-OCDD	1.03E+05	5.67E+04	NC	5.67E+04			73	81	89
1,2,3,4,6,7,8,9-OCDF	1.03E+05	5.67E+04	NC	5.67E+04			0.15 UJ	3.44 J	6.8 J
1,2,3,4,6,7,8-HPCDD	3.10E+03	1.70E+03	NC	1.70E+03			8.1	8.85	9.6
1,2,3,4,6,7,8-HPCDF	3.10E+03	1.70E+03	NC	1.70E+03			5.2 J	5.4 J	5.6
1,2,3,4,7,8,9-HPCDF	3.10E+03	1.70E+03	NC	1.70E+03			0.2 U	0.205 J	0.31 J
1,2,3,4,7,8-HXCDD	3.10E+02	1.70E+02	NC	1.70E+02			0.25 UJ	0.255 UJ	0.26 UJ
1,2,3,4,7,8-HXCDF	3.10E+02	1.70E+02	NC	1.70E+02			0.26 UJ	0.385 UJ	0.51 UJ
1,2,3,6,7,8-HXCDD	3.10E+02	1.70E+02	NC	1.70E+02			0.61 J	0.59 J	0.57 J
1,2,3,6,7,8-HXCDF	3.10E+02	1.70E+02	NC	1.70E+02			0.92 UJ	1.06 UJ	1.2 UJ
1,2,3,7,8,9-HXCDD	3.10E+02	1.70E+02	NC	1.70E+02			0.13 U	0.145 U	0.16 U
1,2,3,7,8,9-HXCDF	3.10E+02	1.70E+02	NC	1.70E+02			0.4 UJ	0.46 UJ	0.52 UJ
1,2,3,7,8-PECDD	3.10E+01	1.70E+01	NC	1.70E+01			0.26 J	0.195 J	0.13 J
1,2,3,7,8-PECDF	1.03E+03	5.67E+02	NC	5.67E+02			0.25 UJ	0.305 UJ	0.36 UJ
2,3,4,6,7,8-HXCDF	3.10E+02	1.70E+02	NC	1.70E+02			0.56 U	0.675 U	0.79 U
2,3,4,7,8-PECDF	1.03E+02	5.67E+01	NC	5.67E+01			0.28 UJ	0.36 UJ	0.44 U
2,3,7,8-TCDD	3.10E+01	1.70E+01	NC	1.70E+01			0.11 U	0.265 UJ	0.42 UJ

TABLE D-1

SOIL SAMPLING ANALYTICAL RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID TOP DEPTH BOTTOM DEPTH SAMPLE DATE	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	02 TP-02-01 TP-2-01-0203 2 3 20081001	02 TP-02-02 TP-2-02-0006 0 0.5 20081001	02 TP-02-02 TP-2-02-0102 1 2 20081001	02 TP-02-02 TP-2-02-0102-AVG 1 2 20081001	02 TP-02-02 TP-2-02-0102-D 1 2 20081001
2,3,7,8-TCDF	3.10E+02	1.70E+02	NC	1.70E+02			1.2 UJ	1.1 J	1.6
TOTAL HPCDD	NC	NC	NC	NC			8.1 J	14.6 J	21 J
TOTAL HPCDF	NC	NC	NC	NC			5.2	5.4	5.6
TOTAL HXCDD	NC	NC	NC	NC			0.91 J	2.9 J	4.9 J
TOTAL HXCDF	NC	NC	NC	NC			0.56 UJ	2.19 J	4.1 J
TOTAL PECDD	NC	NC	NC	NC			0.2 U	0.285 UJ	0.37 UJ
TOTAL PECDF	NC	NC	NC	NC			14	15	16
TOTAL TCDD	NC	NC	NC	NC			0.35 J	0.725 J	1.1 J
TOTAL TCDF	NC	NC	NC	NC			19	16	13
Inorganics (mg/kg)									
ALUMINUM	340000	57000	NC	57000	3150	9090	1450	1660	1870
ANTIMONY	140	23	NC	23	0.12 J	1.2 J	1.8 J	1.55 J	1.3 J
ARSENIC	0.42	0.23	NC	0.23	0.85	5.4	4.6	3.55	2.5
BARIUM	68000	11000	NC	11000	5	64.6	51.2	49.8	48.5
BERYLLIUM	680	110	NC	110	0.18 J	0.61	0.02 U	0.02 U	0.02 U
CADMIUM	19	3.6	NC	3.6	0.01 U	2.2	0.08 UJ	0.095 UJ	0.11 UJ
CALCIUM	NC	NC	NC	NC	289	2030	3270	4140	5000
CHROMIUM	NC	NC	NC	NC	3.3	28.5	10.1	11.6	13.1
COBALT	100	17	NC	17	0.53 J	6.1	4.8 J	4.8 J	4.8 J
COPPER	4800	790	NC	790	1.9 J	94.5	48.2	40.7	33.2
IRON	240000	40000	NC	40000	2820 J	13300 J	23000 J	15400 J	7740 J
LEAD	560	280	NC	280	2.8 J	105 J	53 J	88 J	123 J
MAGNESIUM	NC	NC	NC	NC	509	2080	382	498	615
MANGANESE	8000	1400	NC	1400	26.6 J	190 J	89.2 J	62.4 J	35.6 J
MERCURY	100	17	NC	17	0.01 U	0.36	0.26	0.275	0.29
NICKEL	1000	170	NC	170	2 J	389	510	520	530
POTASSIUM	NC	NC	NC	NC	287	1410	495 J	608 J	720
SELENIUM	680	110	NC	110	0.34 U	0.37 U	1.2 UJ	0.97 UJ	0.74 U
SILVER	1700	280	NC	280	0.06 U	1.8 J	0.19 UJ	0.325 UJ	0.46 UJ
SODIUM	NC	NC	NC	NC	32.3 UJ	133 UJ	149 UJ	99.2 J	124 J
THALLIUM	27	4.5	NC	4.5	0.04 UJ	0.13 UJ	0.04 UJ	0.04 UJ	0.04 UJ
VANADIUM	2400	400	NC	400	6.1	453	6030	5380	4730
ZINC	100000	17000	NC	17000	4.9 J	149 J	11.6 J	12 J	12.3 J
Miscellaneous Parameters (%)									
PERCENT MOISTURE	NC	NC	NC	NC			49.3	50.4	51.6
PERCENT SOLIDS	NC	NC	NC	NC			50.7	49.6	48.4

TABLE D-1

SOIL SAMPLING ANALYTICAL RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID TOP DEPTH BOTTOM DEPTH SAMPLE DATE	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	02 TP-02-04 TP-2-04-0304 3 4 20081001	02 TP-02-05 TP-2-05-0102 1 2 20081002	02 TP-02-05 TP-2-05-0708 7 8 20081002	02 TP-02-06 TP-2-06-0102 1 2 20081002	02 TP-02-07 TP-2-07-0304 3 4 20081002
Volatile Organics (ug/kg)									
1,1,1-TRICHLOROETHANE	660000000	110000000	730000	730000	12 UJ	6 U	5 U	4 U	4 U
1,1,2,2-TETRACHLOROETHANE	21000	11000	22	22	12 UJ	6 U	5 UJ	4 U	4 U
1,1,2-TRICHLOROETHANE	79000	41000	NC	41000	12 UJ	6 U	5 U	4 U	4 U
1,1-DICHLOROETHANE	820000	410000	980	980	12 UJ	6 U	5 U	4 U	4 U
1,1-DICHLOROETHENE	17000000	2800000	2200	2200	12 UJ	6 U	5 U	4 UJ	4 UJ
1,2-DICHLOROBENZENE	9700000	1700000	12000	12000	12 UJ	6 U	5 UJ	4 U	4 U
1,2-DICHLOROETHANE	47000	25000	360	360	12 UJ	6 U	5 U	4 U	4 U
1,2-DICHLOROPROPANE	130000	65000	NC	65000	12 UJ	6 U	5 U	4 U	4 U
1,3-DICHLOROBENZENE	680000	110000	1100	1100	12 UJ	6 U	5 UJ	4 U	4 U
1,4-DICHLOROBENZENE	530000	360000	4000	4000	12 UJ	6 U	5 UJ	4 U	4 U
2-BUTANONE	190000000	34000000	NC	34000000	63 UJ	28 U	26 U	18 U	21 U
2-HEXANONE	NC	NC	NC	NC	63 UJ	28 U	26 U	18 U	21 U
4-METHYL-2-PENTANONE	27000000	4500000	NC	4500000	63 UJ	28 U	26 U	18 U	21 U
ACETONE	300000000	51000000	NC	51000000	54 J	110	59	21	36
BENZENE	86000	28000	510	510	16 J	6 U	5 U	4 U	4 U
BROMODICHLOROMETHANE	68000	37000	NC	37000	12 UJ	6 U	5 U	4 U	4 U
BROMOFORM	360000	230000	NC	230000	12 UJ	6 U	5 U	4 U	4 U
BROMOMETHANE	410000	78000	NC	78000	25 UJ	11 U	10 U	7 U	8 U
CARBON DISULFIDE	34000000	5700000	NC	5700000	12 UJ	6 U	5 U	4 U	4 U
CARBON TETRACHLORIDE	36000	18000	300	300	12 UJ	6 U	5 U	4 U	4 U
CHLOROBENZENE	6800000	1100000	1500	1500	12 UJ	6 U	5 U	4 U	4 U
CHLORODIBROMOMETHANE	52000	27000	NC	27000	12 UJ	6 U	5 U	4 U	4 U
CHLOROETHANE	3400000	570000	NC	570000	25 UJ	11 U	10 U	7 U	8 U
CHLOROFORM	140000	75000	NC	75000	10 J	6 U	5 U	4 U	4 U
CHLOROMETHANE	NC	NC	NC	NC	25 UJ	11 U	10 U	7 U	8 U
CIS-1,2-DICHLOROETHENE	3400000	570000	980	980	12 UJ	6 U	5 U	4 U	4 U
CIS-1,3-DICHLOROPROPENE	NC	NC	NC	NC	12 UJ	6 U	5 U	4 U	4 U
ETHYLBENZENE	420000	210000	810	810	12 UJ	6 U	5 U	4 U	4 U
M+P-XYLENES	NC	NC	NC	NC	25 UJ	11 U	10 U	7 U	8 U
METHYLENE CHLORIDE	630000	310000	NC	310000	12 UJ	6 U	5 U	4 U	4 U
O-XYLENE	NC	NC	NC	NC	12 UJ	6 U	5 U	4 U	4 U
STYRENE	58000000	11000000	NC	11000000	12 UJ	6 U	5 U	4 U	4 U
TETRACHLOROETHENE	8800	4400	430	430	10 J	6 U	5 U	4 U	4 U
TOLUENE	27000000	4500000	8100	8100	12 UJ	6 U	5 U	4 U	4 U
TOTAL XYLENES	52000000	11000000	26000	26000	38 UJ	16 U	15 U	11 U	13 U
TRANS-1,2-DICHLOROETHENE	6700000	1100000	3300	3300	12 UJ	6 U	5 U	4 U	4 U
TRANS-1,3-DICHLOROPROPENE	NC	NC	NC	NC	12 UJ	6 U	5 U	4 U	4 U

TABLE D-1

SOIL SAMPLING ANALYTICAL RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID TOP DEPTH BOTTOM DEPTH SAMPLE DATE	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	02 TP-02-04 TP-2-04-0304 3 4 20081001	02 TP-02-05 TP-2-05-0102 1 2 20081002	02 TP-02-05 TP-2-05-0708 7 8 20081002	02 TP-02-06 TP-2-06-0102 1 2 20081002	02 TP-02-07 TP-2-07-0304 3 4 20081002
TRICHLOROETHENE	360000	180000	1500	1500	12 UJ	6 U	5 U	4 U	4 U
VINYL CHLORIDE	6600	94	160	94	12 UJ	6 U	5 U	4 U	4 U
Semivolatile Organics (ug/kg)									
1,1-BIPHENYL	17000000	2800000	NC	2800000	640 UJ	400 U	410 U	360 U	390 U
2,2'-OXYBIS(1-CHLOROPROPANE)	NC	NC	NC	NC	640 UJ	400 U	410 UJ	360 U	390 UJ
2,4,5-TRICHLOROPHENOL	1600000	350000	NC	350000	1600 UJ	1000 U	1000 U	890 U	980 U
2,4,6-TRICHLOROPHENOL	210000	44000	NC	44000	640 UJ	400 U	410 U	360 U	390 U
2,4-DICHLOROPHENOL	620000	130000	NC	130000	640 UJ	400 U	410 UJ	360 U	390 UJ
2,4-DIMETHYLPHENOL	4100000	890000	NC	890000	640 UJ	400 U	410 UJ	360 U	390 UJ
2,4-DINITROPHENOL	410000	89000	NC	89000	1600 UJ	1000 U	1000 U	890 U	980 U
2,4-DINITROTOLUENE	9300	5800	NC	5800	640 UJ	400 U	410 U	360 U	390 U
2,6-DINITROTOLUENE	4200	2600	NC	2600	640 UJ	400 U	410 U	360 U	390 U
2-CHLORONAPHTHALENE	NC	NC	NC	NC	640 UJ	400 U	410 UJ	360 U	390 UJ
2-CHLOROPHENOL	1700000	280000	NC	280000	640 UJ	400 U	410 U	360 U	390 U
2-METHYLNAPHTHALENE	480000	160000	3600	3600	640 UJ	400 U	410 U	360 U	390 U
2-METHYLPHENOL	10000000	2200000	NC	2200000	640 UJ	400 U	410 UJ	360 U	390 UJ
2-NITROANILINE	NC	NC	NC	NC	1600 UJ	1000 U	1000 U	890 U	980 U
2-NITROPHENOL	NC	NC	NC	NC	640 UJ	400 U	410 UJ	360 U	390 UJ
3&4-METHYLPHENOL	NC	NC	NC	NC	640 UJ	400 U	410 U	360 U	390 U
3,3'-DICHLOROBENZIDINE	6400	4000	NC	4000	640 UR	400 U	410 U	360 U	390 UJ
3-NITROANILINE	NC	NC	NC	NC	1600 UJ	1000 U	1000 U	890 U	980 U
4,6-DINITRO-2-METHYLPHENOL	NC	NC	NC	NC	1600 UJ	1000 U	1000 U	890 U	980 U
4-BROMOPHENYL PHENYL ETHER	NC	NC	NC	NC	640 UJ	400 U	410 UJ	360 U	390 UJ
4-CHLORO-3-METHYLPHENOL	NC	NC	NC	NC	640 UJ	400 U	410 U	360 U	390 U
4-CHLOROANILINE	14000	9000	NC	9000	640 UR	400 U	410 U	360 U	390 U
4-CHLOROPHENYL PHENYL ETHER	NC	NC	NC	NC	640 UJ	400 U	410 UJ	360 U	390 UJ
4-NITROANILINE	NC	NC	NC	NC	1600 UJ	1000 U	1000 U	890 U	980 U
4-NITROPHENOL	NC	NC	NC	NC	1600 UJ	1000 U	1000 U	890 U	980 U
ACENAPHTHENE	2000000	1600000	170000	170000	640 UJ	400 U	410 U	360 U	390 U
ACENAPHTHYLENE	2200000	1700000	68000	68000	640 UJ	400 U	410 U	360 U	390 U
ACETOPHENONE	NC	NC	NC	NC	640 UJ	400 U	410 U	360 U	390 U
ANTHRACENE	7800000	7200000	2400000	2400000	640 UJ	220 J	410 U	360 U	390 U
ATRAZINE	12000	7800	NC	7800	640 UJ	400 UJ	410 U	360 UJ	390 U
BENZALDEHYDE	NC	NC	NC	NC	640 UJ	400 UJ	290 J	360 UJ	390 UJ
BENZO(A)ANTHRACENE	3500	440	NC	440	63 J	80	7.2 J	76	180
BENZO(A)PYRENE	350	44	NC	44	41 J	68	7.8 J	58	140
BENZO(B)FLUORANTHENE	3500	440	NC	440	87 J	96	27	64	160
BENZO(G,H,I)PERYLENE	5500000	1200000	NC	1200000	640 UJ	560	410 U	360 U	390 U

TABLE D-1

SOIL SAMPLING ANALYTICAL RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID TOP DEPTH BOTTOM DEPTH SAMPLE DATE	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	02 TP-02-04 TP-2-04-0304 3 4 20081001	02 TP-02-05 TP-2-05-0102 1 2 20081002	02 TP-02-05 TP-2-05-0708 7 8 20081002	02 TP-02-06 TP-2-06-0102 1 2 20081002	02 TP-02-07 TP-2-07-0304 3 4 20081002
BENZO(K)FLUORANTHENE	35000	4400	NC	4400	640 UJ	800 J	410 U	360 UJ	140 J
BIS(2-CHLOROETHOXY)METHANE	NC	NC	NC	NC	640 UJ	400 U	410 UJ	360 U	390 UJ
BIS(2-CHLOROETHYL)ETHER	NC	NC	NC	NC	39 U	24 U	25 U	22 U	24 U
BIS(2-ETHYLHEXYL)PHTHALATE	210000	130000	NC	130000	640 UJ	400 U	410 U	360 U	390 U
BUTYL BENZYL PHTHALATE	1500000	950000	NC	950000	640 UJ	400 U	410 U	360 U	390 U
CAPROLACTAM	NC	NC	NC	NC	640 UJ	400 U	410 U	360 U	390 U
CARBAZOLE	NC	NC	NC	NC	640 UJ	210 J	410 U	360 U	390 U
CHRYSENE	350000	44000	NC	44000	640 UJ	1200	410 UJ	360 U	160 J
DI-N-BUTYL PHTHALATE	21000000	4400000	NC	4400000	640 UJ	400 U	410 U	360 U	390 U
DI-N-OCTYL PHTHALATE	NC	NC	NC	NC	640 UJ	400 UJ	410 U	360 UJ	390 U
DIBENZO(A,H)ANTHRACENE	350	44	NC	44	12 J	21 J	25 UJ	11 J	44 J
DIBENZOFURAN	NC	NC	NC	NC	640 UJ	400 U	410 U	360 U	390 U
DIETHYL PHTHALATE	160000000	35000000	NC	35000000	640 UJ	400 U	410 U	360 U	390 U
DIMETHYL PHTHALATE	NC	NC	NC	NC	640 UJ	400 U	410 U	360 U	390 U
FLUORANTHENE	7300000	1700000	NC	1700000	640 UJ	2400	410 UJ	160 J	330 J
FLUORENE	2700000	1400000	120000	120000	640 UJ	400 U	410 U	360 U	390 U
HEXACHLOROBENZENE	1800	1100	NC	1100	39 UJ	24 U	25 U	22 U	24 U
HEXACHLOROBUTADIENE	37000	23000	NC	23000	640 UJ	400 U	410 UJ	360 U	390 UJ
HEXACHLOROCYCLOPENTADIENE	NC	NC	NC	NC	640 UJ	400 U	410 U	360 U	390 U
HEXACHLOROETHANE	210000	44000	NC	44000	640 UJ	400 U	410 UJ	360 U	390 UJ
INDENO(1,2,3-CD)PYRENE	3500	440	NC	440	34 J	55	16 J	39	96
ISOPHORONE	NC	NC	NC	NC	640 UJ	400 UJ	410 U	360 UJ	390 U
N-NITROSO-DI-N-PROPYLAMINE	NC	NC	NC	NC	39 U	24 U	25 U	22 U	24 U
N-NITROSODIPHENYLAMINE	NC	NC	NC	NC	640 UJ	400 U	410 U	360 U	390 U
NAPHTHALENE	200000	330000	1700	1700	640 UJ	400 U	410 U	360 U	390 U
NITROBENZENE	NC	NC	NC	NC	640 UJ	400 U	410 U	360 U	390 U
PENTACHLOROPHENOL	15000	11000	NC	11000	58 U	37 U	38 U	32 U	36 U
PHENANTHRENE	3600000	1200000	97000	97000	640 UJ	1000	410 U	140 J	280 J
PHENOL	62000000	13000000	NC	13000000	640 UJ	400 U	410 U	360 U	390 U
PYRENE	5500000	1200000	NC	1200000	640 UJ	2000	410 U	140 J	370 J
Pesticides/PCBs (ug/kg)									
4,4'-DDD	12000	7500	NC	7500	1.6 J	2.7 J	0.99 J	3.6 U	23
4,4'-DDE	8500	5300	NC	5300	3.8 J	92 J	7.1 J	1.1 J	95 J
4,4'-DDT	12000	6400	NC	6400	11 J	120	4.2	1.8 J	14
ALDRIN	170	110	NC	110	3.3 UJ	2.1 U	2.1 U	1.8 U	2 U
ALPHA-BHC	460	290	NC	290	3.3 UJ	2.1 UJ	2.1 UJ	1.8 UJ	2 UJ
ALPHA-CHLORDANE	NC	NC	NC	NC	3.3 UJ	2.1 U	2.1 U	1.8 U	2 U
AROCLOR-1016	NC	NC	NC	NC	33 U	21 U	21 U	18 U	20 U

TABLE D-1

SOIL SAMPLING ANALYTICAL RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID TOP DEPTH BOTTOM DEPTH SAMPLE DATE	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	02 TP-02-04 TP-2-04-0304 3 4 20081001	02 TP-02-05 TP-2-05-0102 1 2 20081002	02 TP-02-05 TP-2-05-0708 7 8 20081002	02 TP-02-06 TP-2-06-0102 1 2 20081002	02 TP-02-07 TP-2-07-0304 3 4 20081002
AROCLOR-1221	NC	NC	NC	NC	33 U	21 U	21 U	18 U	20 U
AROCLOR-1232	NC	NC	NC	NC	33 U	21 U	21 U	18 U	20 U
AROCLOR-1242	NC	NC	NC	NC	33 U	21 U	21 U	18 U	20 U
AROCLOR-1248	NC	NC	NC	NC	33 U	21 U	21 U	18 U	20 U
AROCLOR-1254	NC	NC	NC	NC	33 U	21 U	21 U	18 U	20 U
AROCLOR-1260	NC	NC	NC	NC	33 U	21 U	21 U	18 U	20 U
BETA-BHC	1600	1000	NC	1000	3.3 UJ	2.1 U	2.1 U	1.8 U	2 U
DELTA-BHC	NC	NC	NC	NC	3.3 UJ	2.1 UJ	2.1 UJ	1.8 UJ	2 U
DIELDRIN	180	110	NC	110	6.4 UJ	4 U	4.1 U	3.6 U	3.9 U
ENDOSULFAN I	NC	NC	NC	NC	3.3 UJ	2.1 U	2.1 U	1.8 U	2 U
ENDOSULFAN II	NC	NC	NC	NC	6.4 UJ	4 U	4.1 U	3.6 U	3.9 U
ENDOSULFAN SULFATE	NC	NC	NC	NC	6.4 UJ	4 U	4.1 U	3.6 U	3.9 U
ENDRIN	62000	13000	NC	13000	6.4 UJ	4 U	4.1 U	3.6 U	3.9 U
ENDRIN ALDEHYDE	NC	NC	NC	NC	6.4 UJ	4 U	4.1 U	3.6 U	3.9 U
ENDRIN KETONE	NC	NC	NC	NC	6.4 UJ	4 U	4.1 U	3.6 U	3.9 U
GAMMA-BHC (LINDANE)	1100	200	NC	200	3.3 UJ	2.1 U	2.1 U	1.8 U	2 U
GAMMA-CHLORDANE	NC	NC	NC	NC	3.3 UJ	2.1 U	2.1 U	1.8 U	2 U
HEPTACHLOR	640	400	NC	400	3.3 UJ	2.1 U	2.1 U	1.8 U	2 U
HEPTACHLOR EPOXIDE	320	200	NC	200	3.3 UJ	2.1 UJ	2.1 UJ	1.8 UJ	2 UJ
METHOXYCHLOR	1000000	220000	NC	220000	33 UJ	21 U	21 U	18 U	20 U
TOXAPHENE	NC	NC	NC	NC	64 UJ	40 U	41 U	36 U	39 U
Dioxins/Furans (ng/kg)									
1,2,3,4,6,7,8,9-OCDD	1.03E+05	5.67E+04	NC	5.67E+04	36		16		740 J
1,2,3,4,6,7,8,9-OCDF	1.03E+05	5.67E+04	NC	5.67E+04	5.9		0.18 U		28
1,2,3,4,6,7,8-HPCDD	3.10E+03	1.70E+03	NC	1.70E+03	4.8		2.2 U		120
1,2,3,4,6,7,8-HPCDF	3.10E+03	1.70E+03	NC	1.70E+03	5.5		2.1 U		50
1,2,3,4,7,8,9-HPCDF	3.10E+03	1.70E+03	NC	1.70E+03	0.16 J		0.41 J		2.6 J
1,2,3,4,7,8-HXCDD	3.10E+02	1.70E+02	NC	1.70E+02	0.18 U		0.31 U		3
1,2,3,4,7,8-HXCDF	3.10E+02	1.70E+02	NC	1.70E+02	0.36 U		0.47 U		8.3 J
1,2,3,6,7,8-HXCDD	3.10E+02	1.70E+02	NC	1.70E+02	0.48 J		0.42 J		7.4 J
1,2,3,6,7,8-HXCDF	3.10E+02	1.70E+02	NC	1.70E+02	0.52 U		1.2 U		7.8 J
1,2,3,7,8,9-HXCDD	3.10E+02	1.70E+02	NC	1.70E+02	0.18 U		0.31 UJ		4.4 J
1,2,3,7,8,9-HXCDF	3.10E+02	1.70E+02	NC	1.70E+02	0.15 U		0.49 UJ		1.9 U
1,2,3,7,8-PECDD	3.10E+01	1.70E+01	NC	1.70E+01	0.34 J		0.24 J		2.5 J
1,2,3,7,8-PECDF	1.03E+03	5.67E+02	NC	5.67E+02	0.34 U		0.39 UJ		4.5 J
2,3,4,6,7,8-HXCDF	3.10E+02	1.70E+02	NC	1.70E+02	0.34 UJ		0.35 UJ		8.8
2,3,4,7,8-PECDF	1.03E+02	5.67E+01	NC	5.67E+01	0.16 UJ		0.36 UJ		7.9
2,3,7,8-TCDD	3.10E+01	1.70E+01	NC	1.70E+01	0.11 U		0.15 UJ		1 J

TABLE D-1

SOIL SAMPLING ANALYTICAL RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID TOP DEPTH BOTTOM DEPTH SAMPLE DATE	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	02 TP-02-04 TP-2-04-0304 3 4 20081001	02 TP-02-05 TP-2-05-0102 1 2 20081002	02 TP-02-05 TP-2-05-0708 7 8 20081002	02 TP-02-06 TP-2-06-0102 1 2 20081002	02 TP-02-07 TP-2-07-0304 3 4 20081002
2,3,7,8-TCDF	3.10E+02	1.70E+02	NC	1.70E+02	0.79 UJ		0.71 UJ		5.1
TOTAL HPCDD	NC	NC	NC	NC	11		5.4		280
TOTAL HPCDF	NC	NC	NC	NC	5.5		2.1 U		52
TOTAL HXCDD	NC	NC	NC	NC	0.2 U		2.6		96
TOTAL HXCDF	NC	NC	NC	NC	0.52 U		1.7 U		60
TOTAL PECDD	NC	NC	NC	NC	0.19 U		1.4 J		21
TOTAL PECDF	NC	NC	NC	NC	0.34 J		21		59
TOTAL TCDD	NC	NC	NC	NC	0.62 J		0.94 J		35 J
TOTAL TCDF	NC	NC	NC	NC	13		26		130 J
Inorganics (mg/kg)									
ALUMINUM	340000	57000	NC	57000	4390	6210	5380	4970	8010
ANTIMONY	140	23	NC	23	0.4 J	0.33 J	0.25 J	0.44 J	1.2 J
ARSENIC	0.42	0.23	NC	0.23	7.6	2.5	2.4	1.9	3.6
BARIUM	68000	11000	NC	11000	97	31.4	12.8	14	52.8
BERYLLIUM	680	110	NC	110	1.5	0.4 J	0.15 UJ	0.26 J	0.32 J
CADMIUM	19	3.6	NC	3.6	1.5 J	0.31 J	0.01 UJ	0.01 U	1.2 J
CALCIUM	NC	NC	NC	NC	4160	1000	243	3190	901
CHROMIUM	NC	NC	NC	NC	6.8	7.8	3.9	8.4	12.1
COBALT	100	17	NC	17	5.3	3	0.76 J	3.2	2.7
COPPER	4800	790	NC	790	27.6	10.2	4.9	7	47.8
IRON	240000	40000	NC	40000	8400 J	7690 J	6400 J	7280 J	17800 J
LEAD	560	280	NC	280	9.6 J	17.8 J	24.3 J	228 J	56.5 J
MAGNESIUM	NC	NC	NC	NC	373	880	232	1640	1210
MANGANESE	8000	1400	NC	1400	88.4 J	114 J	21.6 J	134 J	116 J
MERCURY	100	17	NC	17	0.13	0.32	0.06	0.02 UJ	0.84
NICKEL	1000	170	NC	170	17	7.4	2.1 J	7.8	14.6
POTASSIUM	NC	NC	NC	NC	738	500	121	843	592
SELENIUM	680	110	NC	110	0.91 UJ	0.48 UJ	0.95 UJ	0.31 U	0.29 U
SILVER	1700	280	NC	280	0.12 U	0.45 J	0.07 U	0.06 U	0.67 J
SODIUM	NC	NC	NC	NC	174 J	62.1 UJ	36.2 UJ	55.7 UJ	48.8 UJ
THALLIUM	27	4.5	NC	4.5	0.3 UJ	0.09 UJ	0.06 UJ	0.07 UJ	0.07 UJ
VANADIUM	2400	400	NC	400	21.5	17.4	8.8	11.8	13.7
ZINC	100000	17000	NC	17000	322 J	42.8 J	8.5 J	18 J	606 J
Miscellaneous Parameters (%)									
PERCENT MOISTURE	NC	NC	NC	NC	50.2		22.6		17
PERCENT SOLIDS	NC	NC	NC	NC	49.8		77.4		82

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SOIL SAMPLING ANALYTICAL RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID TOP DEPTH BOTTOM DEPTH SAMPLE DATE	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	02 TP-02-07 TP-2-07-0607 6 7 20081002	02 TP-02-08 TP-2-08-0304 3 4 20081002	02 TP-02-09 TP-2-09-0506 5 6 20081002	02 TP-02-10 TP-2-10-0405 4 5 20081002	02 TP-02-11 TP-2-11-0405 4 5 20081002	02 TP-02-11 TP-2-11-0708 7 8 20081002
Volatile Organics (ug/kg)										
1,1,1-TRICHLOROETHANE	660000000	110000000	730000	730000	4 U	4 U	3 U	4 U	4 U	3 U
1,1,2,2-TETRACHLOROETHANE	21000	11000	22	22	4 U	4 U	3 U	4 UJ	4 U	3 U
1,1,2-TRICHLOROETHANE	79000	41000	NC	41000	4 U	4 U	3 U	4 U	4 U	3 U
1,1-DICHLOROETHANE	820000	410000	980	980	4 U	4 U	3 U	4 U	4 U	3 U
1,1-DICHLOROETHENE	17000000	2800000	2200	2200	4 UJ	4 UJ	3 UJ	4 U	4 U	3 U
1,2-DICHLOROBENZENE	9700000	1700000	12000	12000	4 U	4 U	3 U	4 UJ	4 U	3 U
1,2-DICHLOROETHANE	47000	25000	360	360	4 U	4 U	3 U	4 U	4 U	3 U
1,2-DICHLOROPROPANE	130000	65000	NC	65000	4 U	4 U	3 U	4 U	4 U	3 U
1,3-DICHLOROBENZENE	680000	110000	1100	1100	4 U	4 U	3 U	4 UJ	4 U	3 U
1,4-DICHLOROBENZENE	530000	360000	4000	4000	4 U	4 U	3 U	4 UJ	4 U	3 U
2-BUTANONE	190000000	34000000	NC	34000000	18 U	16 J	17 U	10 J	11 J	17 U
2-HEXANONE	NC	NC	NC	NC	18 U	22 U	17 U	22 U	20 U	17 U
4-METHYL-2-PENTANONE	27000000	4500000	NC	4500000	18 U	22 U	17 U	22 U	20 U	17 U
ACETONE	300000000	51000000	NC	51000000	110	130	32	200	200	17 U
BENZENE	86000	28000	510	510	4 U	4 U	3 U	4 U	4 U	3 U
BROMODICHLOROMETHANE	68000	37000	NC	37000	4 U	4 U	3 U	4 U	4 U	3 U
BROMOFORM	360000	230000	NC	230000	4 U	4 U	3 U	4 U	4 U	3 U
BROMOMETHANE	410000	78000	NC	78000	7 U	9 U	7 U	9 U	8 U	7 U
CARBON DISULFIDE	34000000	5700000	NC	5700000	4 U	4 U	3 U	4 U	4 U	3 U
CARBON TETRACHLORIDE	36000	18000	300	300	4 U	4 U	3 U	4 U	4 U	3 U
CHLOROBENZENE	6800000	1100000	1500	1500	4 U	4 U	3 U	4 U	4 U	3 U
CHLORODIBROMOMETHANE	52000	27000	NC	27000	4 U	4 U	3 U	4 U	4 U	3 U
CHLOROETHANE	3400000	570000	NC	570000	7 U	9 U	7 U	9 U	8 U	7 U
CHLOROFORM	140000	75000	NC	75000	4 U	4 U	3 U	4 U	4 U	3 U
CHLOROMETHANE	NC	NC	NC	NC	7 U	9 U	7 U	9 U	8 U	7 U
CIS-1,2-DICHLOROETHENE	3400000	570000	980	980	4 U	4 U	3 U	4 U	4 U	3 U
CIS-1,3-DICHLOROPROPENE	NC	NC	NC	NC	4 U	4 U	3 U	4 U	4 U	3 U
ETHYLBENZENE	420000	210000	810	810	4 U	2 J	3 U	4 U	4 U	3 U
M+P-XYLENES	NC	NC	NC	NC	7 U	9 U	7 U	9 U	8 U	7 U
METHYLENE CHLORIDE	630000	310000	NC	310000	4 U	4 U	3 U	4 U	4 U	3 U
O-XYLENE	NC	NC	NC	NC	4 U	4 U	3 U	4 U	4 U	3 U
STYRENE	58000000	11000000	NC	11000000	4 U	4 U	3 U	4 U	4 U	3 U
TETRACHLOROETHENE	8800	4400	430	430	4 U	4 U	3 U	4 U	4 U	3 U
TOLUENE	27000000	4500000	8100	8100	4 U	3 J	3 U	4 U	4 U	3 U
TOTAL XYLENES	52000000	11000000	26000	26000	11 U	13 U	10 U	13 U	12 U	10 U
TRANS-1,2-DICHLOROETHENE	6700000	1100000	3300	3300	4 U	4 U	3 U	4 U	4 U	3 U
TRANS-1,3-DICHLOROPROPENE	NC	NC	NC	NC	4 U	4 U	3 U	4 U	4 U	3 U

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SOIL SAMPLING ANALYTICAL RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID TOP DEPTH BOTTOM DEPTH SAMPLE DATE	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	02 TP-02-07 TP-2-07-0607 6 7 20081002	02 TP-02-08 TP-2-08-0304 3 4 20081002	02 TP-02-09 TP-2-09-0506 5 6 20081002	02 TP-02-10 TP-2-10-0405 4 5 20081002	02 TP-02-11 TP-2-11-0405 4 5 20081002	02 TP-02-11 TP-2-11-0708 7 8 20081002
TRICHLOROETHENE	360000	180000	1500	1500	4 U	4 U	3 U	4 U	4 U	3 U
VINYL CHLORIDE	6600	94	160	94	4 U	4 U	3 U	4 U	4 U	3 U
Semivolatile Organics (ug/kg)										
1,1-BIPHENYL	17000000	2800000	NC	2800000	390 U	420 U	400 U	420 U	400 U	350 U
2,2'-OXYBIS(1-CHLOROPROPANE)	NC	NC	NC	NC	390 UJ	420 U	400 U	420 U	400 UJ	350 UJ
2,4,5-TRICHLOROPHENOL	1600000	350000	NC	350000	970 U	1000 U	1000 U	1000 U	1000 U	870 U
2,4,6-TRICHLOROPHENOL	210000	44000	NC	44000	390 U	420 U	400 U	420 U	400 U	350 U
2,4-DICHLOROPHENOL	620000	130000	NC	130000	390 UJ	420 U	400 U	420 U	400 UJ	350 UJ
2,4-DIMETHYLPHENOL	4100000	890000	NC	890000	390 UJ	420 U	400 U	420 U	400 UJ	350 UJ
2,4-DINITROPHENOL	410000	89000	NC	89000	970 U	1000 U	1000 U	1000 U	1000 U	870 U
2,4-DINITROTOLUENE	9300	5800	NC	5800	390 U	420 U	400 U	420 U	400 U	350 U
2,6-DINITROTOLUENE	4200	2600	NC	2600	390 U	420 U	400 U	420 U	400 U	350 U
2-CHLORONAPHTHALENE	NC	NC	NC	NC	390 UJ	420 U	400 U	420 U	400 UJ	350 UJ
2-CHLOROPHENOL	1700000	280000	NC	280000	390 U	420 U	400 U	420 U	400 U	350 U
2-METHYLNAPHTHALENE	480000	160000	3600	3600	390 U	420 U	400 U	420 U	400 U	350 U
2-METHYLPHENOL	10000000	2200000	NC	2200000	390 UJ	420 U	400 U	420 U	400 UJ	350 UJ
2-NITROANILINE	NC	NC	NC	NC	970 U	1000 U	1000 U	1000 U	1000 U	870 U
2-NITROPHENOL	NC	NC	NC	NC	390 UJ	420 U	400 U	420 U	400 UJ	350 UJ
3&4-METHYLPHENOL	NC	NC	NC	NC	390 U	420 U	400 U	420 U	400 U	350 U
3,3'-DICHLOROBENZIDINE	6400	4000	NC	4000	390 U	420 U	400 U	420 U	400 U	350 U
3-NITROANILINE	NC	NC	NC	NC	970 U	1000 U	1000 U	1000 U	1000 U	870 U
4,6-DINITRO-2-METHYLPHENOL	NC	NC	NC	NC	970 U	1000 U	1000 U	1000 U	1000 U	870 U
4-BROMOPHENYL PHENYL ETHER	NC	NC	NC	NC	390 UJ	420 U	400 U	420 U	400 UJ	350 UJ
4-CHLORO-3-METHYLPHENOL	NC	NC	NC	NC	390 U	420 U	400 U	420 U	400 U	350 U
4-CHLOROANILINE	14000	9000	NC	9000	390 U	420 U	400 U	420 U	400 U	350 U
4-CHLOROPHENYL PHENYL ETHER	NC	NC	NC	NC	390 UJ	420 U	400 U	420 U	400 UJ	350 UJ
4-NITROANILINE	NC	NC	NC	NC	970 U	1000 U	1000 U	1000 U	1000 U	870 U
4-NITROPHENOL	NC	NC	NC	NC	970 U	1000 U	1000 U	1000 U	1000 U	870 U
ACENAPHTHENE	2000000	1600000	170000	170000	390 U	420 U	400 U	420 U	400 U	350 U
ACENAPHTHYLENE	2200000	1700000	68000	68000	390 U	420 U	400 U	420 U	400 U	350 U
ACETOPHENONE	NC	NC	NC	NC	390 U	420 U	400 U	420 U	400 U	350 U
ANTHRACENE	7800000	7200000	2400000	2400000	390 U	420 U	400 U	420 U	400 U	350 U
ATRAZINE	12000	7800	NC	7800	390 U	420 UJ	400 UJ	420 UJ	400 U	350 U
BENZALDEHYDE	NC	NC	NC	NC	390 UJ	420 UJ	400 UJ	230 J	230 J	350 UJ
BENZO(A)ANTHRACENE	3500	440	NC	440	24 U	7.1 J	24 U	16 J	34	21 U
BENZO(A)PYRENE	350	44	NC	44	24 U	9.4 J	24 U	23 J	41	21 U
BENZO(B)FLUORANTHENE	3500	440	NC	440	24 UJ	25 UJ	24 UJ	25 U	79 J	21 UJ
BENZO(G,H,I)PERYLENE	5500000	1200000	NC	1200000	390 U	420 U	400 U	420 U	400 U	350 U

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SOIL SAMPLING ANALYTICAL RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID TOP DEPTH BOTTOM DEPTH SAMPLE DATE	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	02 TP-02-07 TP-2-07-0607 6 7 20081002	02 TP-02-08 TP-2-08-0304 3 4 20081002	02 TP-02-09 TP-2-09-0506 5 6 20081002	02 TP-02-10 TP-2-10-0405 4 5 20081002	02 TP-02-11 TP-2-11-0405 4 5 20081002	02 TP-02-11 TP-2-11-0708 7 8 20081002
BENZO(K)FLUORANTHENE	35000	4400	NC	4400	390 U	420 UJ	400 UJ	420 UJ	400 U	350 U
BIS(2-CHLOROETHOXY)METHANE	NC	NC	NC	NC	390 UJ	420 U	400 U	420 U	400 UJ	350 UJ
BIS(2-CHLOROETHYL)ETHER	NC	NC	NC	NC	24 U	25 U	24 U	25 U	24 U	21 U
BIS(2-ETHYLHEXYL)PHTHALATE	210000	130000	NC	130000	390 U	420 U	400 U	420 U	400 U	350 U
BUTYL BENZYL PHTHALATE	1500000	950000	NC	950000	390 U	420 U	400 U	420 U	400 U	350 U
CAPROLACTAM	NC	NC	NC	NC	390 U	420 U	400 U	420 U	400 U	350 U
CARBAZOLE	NC	NC	NC	NC	390 U	420 U	400 U	420 U	400 U	350 U
CHRYSENE	350000	44000	NC	44000	390 UJ	420 U	400 U	420 U	400 UJ	350 UJ
DI-N-BUTYL PHTHALATE	21000000	4400000	NC	4400000	390 U	420 U	400 U	420 U	400 U	350 U
DI-N-OCTYL PHTHALATE	NC	NC	NC	NC	390 U	420 UJ	400 UJ	420 UJ	400 U	350 U
DIBENZO(A,H)ANTHRACENE	350	44	NC	44	24 UJ	25 UJ	24 UJ	25 UJ	8.6 J	21 UJ
DIBENZOFURAN	NC	NC	NC	NC	390 U	420 U	400 U	420 U	400 U	350 U
DIETHYL PHTHALATE	160000000	35000000	NC	35000000	390 U	420 U	400 U	420 U	400 U	350 U
DIMETHYL PHTHALATE	NC	NC	NC	NC	390 U	420 U	400 U	420 U	400 U	350 U
FLUORANTHENE	7300000	1700000	NC	1700000	390 UJ	420 U	400 U	420 U	400 UJ	350 UJ
FLUORENE	2700000	1400000	120000	120000	390 U	420 U	400 U	420 U	400 U	350 U
HEXACHLOROBENZENE	1800	1100	NC	1100	24 U	25 U	24 U	25 U	24 U	21 U
HEXACHLOROBUTADIENE	37000	23000	NC	23000	390 UJ	420 U	400 U	420 U	400 UJ	350 UJ
HEXACHLOROCYCLOPENTADIENE	NC	NC	NC	NC	390 U	420 U	400 U	420 U	400 U	350 U
HEXACHLOROETHANE	210000	44000	NC	44000	390 UJ	420 U	400 U	420 U	400 UJ	350 UJ
INDENO(1,2,3-CD)PYRENE	3500	440	NC	440	8.5 J	15 J	24 U	28	45	21 U
ISOPHORONE	NC	NC	NC	NC	390 U	420 UJ	400 UJ	420 UJ	400 U	350 U
N-NITROSO-DI-N-PROPYLAMINE	NC	NC	NC	NC	24 U	25 U	24 U	25 U	24 U	21 U
N-NITROSODIPHENYLAMINE	NC	NC	NC	NC	390 U	420 U	400 U	420 U	400 U	350 U
NAPHTHALENE	200000	330000	1700	1700	390 U	420 U	400 U	420 U	400 U	350 U
NITROBENZENE	NC	NC	NC	NC	390 U	420 U	400 U	420 U	400 U	350 U
PENTACHLOROPHENOL	15000	11000	NC	11000	36 UJ	38 UJ	37 UJ	38 U	37 UJ	32 UJ
PHENANTHRENE	3600000	1200000	97000	97000	390 U	420 U	400 U	420 U	400 U	350 U
PHENOL	62000000	13000000	NC	13000000	390 U	420 U	400 U	420 U	400 U	350 U
PYRENE	5500000	1200000	NC	1200000	390 U	420 U	400 U	420 U	400 U	350 U
Pesticides/PCBs (ug/kg)										
4,4'-DDD	12000	7500	NC	7500	3.9 U	1.1 J	21 J	2.8 J	2.7 J	3.5 U
4,4'-DDE	8500	5300	NC	5300	3.9 UJ	4.2 UJ	4.1 J	2 J	35 J	3.5 UJ
4,4'-DDT	12000	6400	NC	6400	3.9 U	1.4 J	2 J	3.7 J	150	3.5 UJ
ALDRIN	170	110	NC	110	2 U	2.1 U	2.1 UJ	2.1 U	2.1 U	1.8 U
ALPHA-BHC	460	290	NC	290	2 UJ	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ	1.8 UJ
ALPHA-CHLORDANE	NC	NC	NC	NC	2 U	2.1 U	2.1 UJ	2.1 U	1.9 J	1.8 U
AROCLOR-1016	NC	NC	NC	NC	20 U	21 U	21 U	21 U	21 U	18 U

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SOIL SAMPLING ANALYTICAL RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID TOP DEPTH BOTTOM DEPTH SAMPLE DATE	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	02 TP-02-07 TP-2-07-0607 6 7 20081002	02 TP-02-08 TP-2-08-0304 3 4 20081002	02 TP-02-09 TP-2-09-0506 5 6 20081002	02 TP-02-10 TP-2-10-0405 4 5 20081002	02 TP-02-11 TP-2-11-0405 4 5 20081002	02 TP-02-11 TP-2-11-0708 7 8 20081002
AROCLOR-1221	NC	NC	NC	NC	20 U	21 U	21 U	21 U	21 U	18 U
AROCLOR-1232	NC	NC	NC	NC	20 U	21 U	21 U	21 U	21 U	18 U
AROCLOR-1242	NC	NC	NC	NC	20 U	21 U	21 U	21 U	21 U	18 U
AROCLOR-1248	NC	NC	NC	NC	20 U	21 U	21 U	21 U	21 U	18 U
AROCLOR-1254	NC	NC	NC	NC	20 U	21 U	21 U	21 U	21 U	18 U
AROCLOR-1260	NC	NC	NC	NC	20 U	21 U	21 U	21 U	21 U	18 U
BETA-BHC	1600	1000	NC	1000	2 U	2.1 U	2.1 UJ	2.1 U	2.1 U	1.8 U
DELTA-BHC	NC	NC	NC	NC	2 U	2.1 U	2.1 UJ	2.1 UJ	2.1 U	1.8 UJ
DIELDRIN	180	110	NC	110	3.9 U	4.2 U	4 UJ	4.2 U	4 U	3.5 U
ENDOSULFAN I	NC	NC	NC	NC	2 U	2.1 U	2.1 UJ	2.1 U	2.1 U	1.8 U
ENDOSULFAN II	NC	NC	NC	NC	3.9 U	4.2 U	4 UJ	4.2 U	4 U	3.5 U
ENDOSULFAN SULFATE	NC	NC	NC	NC	3.9 U	4.2 U	4 UJ	4.2 UJ	4 U	3.5 UJ
ENDRIN	62000	13000	NC	13000	3.9 U	4.2 UJ	18 J	4.2 U	4 UJ	3.5 U
ENDRIN ALDEHYDE	NC	NC	NC	NC	3.9 U	4.2 U	4 UJ	4.2 U	0.46 J	3.5 U
ENDRIN KETONE	NC	NC	NC	NC	3.9 U	4.2 U	4 UJ	4.2 UJ	4 U	3.5 UJ
GAMMA-BHC (LINDANE)	1100	200	NC	200	2 U	2.1 U	2.1 UJ	2.1 U	2.1 U	1.8 U
GAMMA-CHLORDANE	NC	NC	NC	NC	2 U	2.1 U	2.1 UJ	2.1 U	1.8 J	1.8 U
HEPTACHLOR	640	400	NC	400	2 U	2.1 U	2.1 UJ	2.1 U	2.1 U	1.8 U
HEPTACHLOR EPOXIDE	320	200	NC	200	2 UJ	2.1 UJ	2.1 UJ	2.1 UJ	0.6 J	1.8 UJ
METHOXYCHLOR	1000000	220000	NC	220000	20 U	21 UJ	21 UJ	21 U	21 UJ	18 U
TOXAPHENE	NC	NC	NC	NC	39 U	42 U	40 UJ	42 U	40 U	35 U
Dioxins/Furans (ng/kg)										
1,2,3,4,6,7,8,9-OCDD	1.03E+05	5.67E+04	NC	5.67E+04		34			200	
1,2,3,4,6,7,8,9-OCDF	1.03E+05	5.67E+04	NC	5.67E+04		1.1 J			6.6	
1,2,3,4,6,7,8-HPCDD	3.10E+03	1.70E+03	NC	1.70E+03		2.9			28	
1,2,3,4,6,7,8-HPCDF	3.10E+03	1.70E+03	NC	1.70E+03		1.3 U			6.6	
1,2,3,4,7,8,9-HPCDF	3.10E+03	1.70E+03	NC	1.70E+03		0.11 J			0.37 J	
1,2,3,4,7,8-HXCDD	3.10E+02	1.70E+02	NC	1.70E+02		0.14 UJ			0.69 U	
1,2,3,4,7,8-HXCDF	3.10E+02	1.70E+02	NC	1.70E+02		0.18 UJ			0.74 UJ	
1,2,3,6,7,8-HXCDD	3.10E+02	1.70E+02	NC	1.70E+02		0.34 J			1.3 J	
1,2,3,6,7,8-HXCDF	3.10E+02	1.70E+02	NC	1.70E+02		0.37 U			1.7 UJ	
1,2,3,7,8,9-HXCDD	3.10E+02	1.70E+02	NC	1.70E+02		0.14 UJ			1.3 UJ	
1,2,3,7,8,9-HXCDF	3.10E+02	1.70E+02	NC	1.70E+02		0.12 UJ			0.31 UJ	
1,2,3,7,8-PECDD	3.10E+01	1.70E+01	NC	1.70E+01		0.17 J			0.55 J	
1,2,3,7,8-PECDF	1.03E+03	5.67E+02	NC	5.67E+02		0.21 UJ			0.61 UJ	
2,3,4,6,7,8-HXCDF	3.10E+02	1.70E+02	NC	1.70E+02		0.14 UJ			0.88 UJ	
2,3,4,7,8-PECDF	1.03E+02	5.67E+01	NC	5.67E+01		0.15 U			0.99 U	
2,3,7,8-TCDD	3.10E+01	1.70E+01	NC	1.70E+01		0.11 UJ			1	

TABLE D-1

SOIL SAMPLING ANALYTICAL RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID TOP DEPTH BOTTOM DEPTH SAMPLE DATE	Maine RAGs - Outdoor Commercial Worker[2]	Maine RAGs - Park User[2]	Maine RAGs - Soil to GW Screening Level[2]	Minimum Screening Criteria	02 TP-02-07 TP-2-07-0607 6 7 20081002	02 TP-02-08 TP-2-08-0304 3 4 20081002	02 TP-02-09 TP-2-09-0506 5 6 20081002	02 TP-02-10 TP-2-10-0405 4 5 20081002	02 TP-02-11 TP-2-11-0405 4 5 20081002	02 TP-02-11 TP-2-11-0708 7 8 20081002
2,3,7,8-TCDF	3.10E+02	1.70E+02	NC	1.70E+02		0.91 UJ			2.1 J	
TOTAL HPCDD	NC	NC	NC	NC		3.3			66	
TOTAL HPCDF	NC	NC	NC	NC		2.4 U			7.7	
TOTAL HXCDD	NC	NC	NC	NC		0.11 U			8.9	
TOTAL HXCDF	NC	NC	NC	NC		2.8			17	
TOTAL PECDD	NC	NC	NC	NC		0.14 U			0.2 U	
TOTAL PECDF	NC	NC	NC	NC		0.35 J			42	
TOTAL TCDD	NC	NC	NC	NC		1 U			2.7	
TOTAL TCDF	NC	NC	NC	NC		1.9 J			140	
Inorganics (mg/kg)										
ALUMINUM	340000	57000	NC	57000	11800	9120	18000	7070	7620	4720
ANTIMONY	140	23	NC	23	0.17 J	0.13 J	0.22 UJ	0.25 J	3.6 J	0.09 J
ARSENIC	0.42	0.23	NC	0.23	1.5	1.3	5.4	1.6	2.3	1.2
BARIUM	68000	11000	NC	11000	7.2	14.4	76.1	12.7	71.7	11.5
BERYLLIUM	680	110	NC	110	0.5	0.34 J	0.94	0.26 J	0.25 J	0.99
CADMIUM	19	3.6	NC	3.6	0.01 U	0.01 U	0.01 U	0.01 UJ	1.6 J	0.01 U
CALCIUM	NC	NC	NC	NC	394	294	592	218	659	363
CHROMIUM	NC	NC	NC	NC	8.2	6.7	25.9	5.3	13.8	6.9
COBALT	100	17	NC	17	1.7 J	1.4 J	10.6	1.2 J	2.7 J	3.3
COPPER	4800	790	NC	790	2.6	2.9	21	3.3	26.6	4.6
IRON	240000	40000	NC	40000	7800 J	7020 J	22400 J	6560 J	12300 J	6650 J
LEAD	560	280	NC	280	4.5 J	5.6 J	8.1 J	8.7 J	45.1 J	2.7 J
MAGNESIUM	NC	NC	NC	NC	749	588	5260	401	1310	1510
MANGANESE	8000	1400	NC	1400	55.1 J	82.6 J	437 J	110 J	113 J	75.5 J
MERCURY	100	17	NC	17	0.05	0.07	0.02 U	0.06	24.1	0.02 UJ
NICKEL	1000	170	NC	170	4	3.7 J	24.8	3.1 J	9.4	7.9
POTASSIUM	NC	NC	NC	NC	321	297	3320	191	681	789
SELENIUM	680	110	NC	110	0.53 UJ	0.47 UJ	0.35 U	0.58 UJ	0.58 UJ	0.27 U
SILVER	1700	280	NC	280	0.06 U	0.07 U	0.06 UJ	0.06 U	2.3 J	0.05 U
SODIUM	NC	NC	NC	NC	36.1 UJ	41.2 UJ	101 UJ	27.3 UJ	47.1 UJ	42.3 UJ
THALLIUM	27	4.5	NC	4.5	0.07 UJ	0.06 UJ	0.19 U	0.06 UJ	0.11 UJ	0.09 UJ
VANADIUM	2400	400	NC	400	15.2	13.7	35.5	11.2	17	10.4
ZINC	100000	17000	NC	17000	12.6 J	13.5 J	45.4 J	12.9 J	727 J	14.1 J
Miscellaneous Parameters (%)										
PERCENT MOISTURE	NC	NC	NC	NC		19.2			21.2	
PERCENT SOLIDS	NC	NC	NC	NC		80.8			78.8	

D-2 Groundwater Results

TABLE D-2

GROUNDWATER SAMPLING RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID SAMPLE DATE	**Maine MEGs**	**EPA MCL**	**Minimum Screening Criteria**	02 GW-02-301 GW-2-301-102108 20081021	02 GW-02-302 GW-2-302-102108 20081021	02 GW-02-303 GW-2-303-102108 20081021	02 GW-02-303 GW-2-303-102108-AVG 20081021
Volatile Organics (ug/L)							
1,1,1-TRICHLOROETHANE	10000	200	200	1 UJ	1 UJ	1 UJ	1 UJ
1,1,2,2-TETRACHLOROETHANE	2	NC	2	1 U	1 U	1 U	1 U
1,1,2-TRICHLOROETHANE	6	5	5	1 U	1 U	1 U	1 U
1,1-DICHLOROETHANE	60	NC	60	1 U	1 U	1 U	1 U
1,1-DICHLOROETHENE	40	7	7	1 U	1 U	1 U	1 U
1,2-DICHLOROBENZENE	200	600	200	1 U	1 U	1 U	1 U
1,2-DICHLOROETHANE	4	5	4	1 UJ	1 UJ	1 UJ	1 UJ
1,2-DICHLOROPROPANE	10	5	5	1 U	1 U	1 U	1 U
1,3-DICHLOROBENZENE	1	NC	1	1 U	1 U	1 U	1 U
1,4-DICHLOROBENZENE	70	75	70	1 U	1 U	1 U	1 U
2-BUTANONE	4000	NC	4000	5 U	5 U	5 U	5 U
2-HEXANONE	NC	NC	NC	5 U	5 U	5 U	5 U
4-METHYL-2-PENTANONE	500	NC	500	5 U	5 U	5 U	5 U
ACETONE	6000	NC	6000	5 U	5 U	5 J	5 U
BENZENE	4	5	4	1 U	1 U	1 U	1 U
BROMODICHLOROMETHANE	6	80	6	1 U	1 U	1 U	1 U
BROMOFORM	40	80	40	1 UJ	1 UJ	1 UJ	1 UJ
BROMOMETHANE	10	NC	10	2 UJ	2 UJ	2 UJ	2 UJ
CARBON DISULFIDE	600	NC	600	1 U	1 U	1 U	1 U
CARBON TETRACHLORIDE	5	5	5	1 UJ	1 UJ	1 UJ	1 UJ
CHLOROBENZENE	100	100	100	1 U	1 U	1 U	1 U
CHLORODIBROMOMETHANE	4	80	4	1 U	1 U	1 U	1 U
CHLOROETHANE	7	NC	7	2 U	2 U	2 U	2 U
CHLOROFORM	70	80	70	1 U	1 U	1 U	1 U
CHLOROMETHANE	20	NC	20	2 U	2 U	2 U	2 U
CIS-1,2-DICHLOROETHENE	70	70	70	1 U	1 U	1 U	1 U
CIS-1,3-DICHLOROPROPENE	NC	NC	NC	1 U	1 U	1 U	1 U
ETHYLBENZENE	30	700	30	1 U	1 U	1 U	1 U
M+P-XYLENES	NC	10000	10000	2 U	2 U	2 U	2 U
METHYLENE CHLORIDE	50	5	5	3 U	3 U	3 U	3 U
O-XYLENE	NC	10000	10000	1 U	1 U	1 U	1 U
STYRENE	100	100	100	1 U	1 U	1 U	1 U
TETRACHLOROETHENE	0.6	5	0.6	1 U	1 U	1 U	1 U
TOLUENE	600	1000	600	1 U	1 U	1 U	1 U
TOTAL XYLENES	1000	10000	1000	3 U	3 U	3 U	3 U
TRANS-1,2-DICHLOROETHENE	100	100	100	1 U	1 U	1 U	1 U
TRANS-1,3-DICHLOROPROPENE	NC	NC	NC	1 U	1 U	1 U	1 U
TRICHLOROETHENE	30	5	5	1 U	1 U	1 U	1 U
VINYL CHLORIDE	0.2	2	0.2	1 U	1 U	1 U	1 U
Semivolatile Organics (ug/L)			NC				

TABLE D-2

GROUNDWATER SAMPLING RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID SAMPLE DATE	**Maine MEGs**	**EPA MCL**	**Minimum Screening Criteria**	02 GW-02-301 GW-2-301-102108 20081021	02 GW-02-302 GW-2-302-102108 20081021	02 GW-02-303 GW-2-303-102108 20081021	02 GW-02-303 GW-2-303-102108-AVG 20081021
1,1-BIPHENYL	400	NC	400	11 U	10 U	11 U	9 U
2,2'-OXYBIS(1-CHLOROPROPANE)	300	NC	300	11 U	10 U	11 U	9 U
2,4,5-TRICHLOROPHENOL	700	NC	700	27 U	26 U	28 U	24 UJ
2,4,6-TRICHLOROPHENOL	7	NC	7	11 U	10 U	11 U	9 UJ
2,4-DICHLOROPHENOL	20	NC	20	11 U	10 U	11 U	9 UJ
2,4-DIMETHYLPHENOL	100	NC	100	11 U	10 U	11 U	9 UJ
2,4-DINITROPHENOL	10	NC	10	27 U	26 U	28 U	24 UJ
2,4-DINITROTOLUENE	1	NC	1	0.22 U	0.2 U	0.22 U	0.19 U
2,6-DINITROTOLUENE	0.5	NC	0.5	0.22 UJ	0.2 UJ	0.22 UJ	0.19 UJ
2-CHLORONAPHTHALENE	NC	NC	NC	11 U	10 U	11 U	9 U
2-CHLOROPHENOL	40	NC	40	11 U	10 U	11 U	9 UJ
2-METHYLNAPHTHALENE	30	NC	30	11 U	10 U	11 U	9 U
2-METHYLPHENOL	40	NC	40	11 U	10 U	11 U	9 UJ
2-NITROANILINE	NC	NC	NC	27 U	26 U	28 U	24 U
2-NITROPHENOL	NC	NC	NC	11 U	10 U	11 U	9 UJ
3&4-METHYLPHENOL	NC	NC	NC	1.1 U	1 U	1.1 U	0.94 U
3,3'-DICHLOROBENZIDINE	1	NC	1	11 U	10 U	11 U	9 U
3-NITROANILINE	NC	NC	NC	27 U	26 U	28 U	24 U
4,6-DINITRO-2-METHYLPHENOL	NC	NC	NC	27 U	26 U	28 U	24 UJ
4-BROMOPHENYL PHENYL ETHER	NC	NC	NC	11 U	10 U	11 U	9 U
4-CHLORO-3-METHYLPHENOL	NC	NC	NC	11 U	10 U	11 U	9 UJ
4-CHLOROANILINE	2	NC	2	11 U	10 U	11 U	9 U
4-CHLOROPHENYL PHENYL ETHER	NC	NC	NC	11 U	10 U	11 U	9 U
4-NITROANILINE	NC	NC	NC	27 U	26 U	28 U	24 U
4-NITROPHENOL	60	NC	60	27 U	26 U	28 U	24 UJ
ACENAPHTHENE	400	NC	400	11 U	10 U	11 U	9 U
ACENAPHTHYLENE	NC	NC	NC	11 U	10 U	11 U	9 U
ACETOPHENONE	NC	NC	NC	11 U	10 U	11 U	9 U
ANTHRACENE	2000	NC	2000	11 U	10 U	11 U	9 U
ATRAZINE	2	3	2	0.22 UJ	0.2 UJ	0.22 UJ	0.19 UJ
BENZALDEHYDE	NC	NC	NC	11 UJ	10 UJ	11 UJ	9 UJ
BENZO(A)ANTHRACENE	0.5	NC	0.5	11 U	10 U	11 U	9 U
BENZO(A)PYRENE	0.05	0.2	0.05	0.22 U	0.2 U	0.22 U	0.19 U
BENZO(B)FLUORANTHENE	0.5	NC	0.5	11 U	10 U	11 U	9 U
BENZO(G,H,I)PERYLENE	NC	NC	NC	11 U	10 U	11 U	9 U
BENZO(K)FLUORANTHENE	5	NC	5	11 UJ	10 UJ	11 UJ	9 UJ
BIS(2-CHLOROETHOXY)METHANE	NC	NC	NC	11 U	10 U	11 U	9 U
BIS(2-CHLOROETHYL)ETHER	0.3	NC	0.3	0.22 U	0.2 U	0.22 U	0.19 U
BIS(2-ETHYLHEXYL)PHTHALATE	30	6	6	1.1 UJ	1 UJ	1.1 UJ	0.94 UJ
BUTYL BENZYL PHTHALATE	200	NC	200	11 U	10 U	11 U	9 U
CAPROLACTAM	NC	NC	NC	11 U	10 U	11 U	9 U

TABLE D-2

GROUNDWATER SAMPLING RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID SAMPLE DATE	**Maine MEGs**	**EPA MCL**	**Minimum Screening Criteria**	02 GW-02-301 GW-2-301-102108 20081021	02 GW-02-302 GW-2-302-102108 20081021	02 GW-02-303 GW-2-303-102108 20081021	02 GW-02-303 GW-2-303-102108-AVG 20081021
CARBAZOLE	NC	NC	NC	11 U	10 U	11 U	9 U
CHRYSENE	50	NC	50	11 U	10 U	11 U	9 U
DI-N-BUTYL PHTHALATE	700	NC	700	11 U	10 U	11 U	9 U
DI-N-OCTYL PHTHALATE	NC	NC	NC	11 UJ	10 UJ	11 UJ	9 UJ
DIBENZO(A,H)ANTHRACENE	0.05	NC	0.05	11 U	10 U	11 U	9 U
DIBENZOFURAN	NC	NC	NC	11 U	10 U	11 U	9 U
DIETHYL PHTHALATE	6000	NC	6000	11 U	10 U	11 U	9 U
DIMETHYL PHTHALATE	NC	NC	NC	11 U	10 U	11 U	9 U
FLUORANTHENE	300	NC	300	11 U	10 U	11 U	9 U
FLUORENE	300	NC	300	11 U	10 U	11 U	9 U
HEXACHLOROBENZENE	0.2	1	0.2	0.22 UJ	0.2 UJ	0.22 UJ	0.19 UJ
HEXACHLOROBUTADIENE	4	NC	4	0.22 U	0.2 U	0.22 U	0.19 U
HEXACHLOROCYCLOPENTADIENE	40	50	40	11 U	10 U	11 U	9 U
HEXACHLOROETHANE	7	NC	7	0.22 U	0.2 U	0.22 U	0.19 U
INDENO(1,2,3-CD)PYRENE	0.5	NC	0.5	11 U	10 U	11 U	9 U
ISOPHORONE	400	NC	400	11 UJ	10 UJ	11 UJ	9 UJ
N-NITROSO-DI-N-PROPYLAMINE	NC	NC	NC	11 U	10 U	11 U	9 U
N-NITROSODIPHENYLAMINE	NC	NC	NC	11 U	10 U	11 U	9 U
NAPHTHALENE	10	NC	10	11 U	10 U	11 U	9 U
NITROBENZENE	1	NC	1	0.22 U	0.2 U	0.22 U	0.19 U
PENTACHLOROPHENOL	3	1	1	0.99 UJ	0.92 UJ	1 UJ	0.85 UJ
PHENANTHRENE	NC	NC	NC	11 U	10 U	11 U	9 U
PHENOL	2000	NC	2000	11 U	10 U	11 U	9 UJ
PYRENE	200	NC	200	11 U	10 U	11 U	9 U
Pesticides/PCBs (ug/L)			NC				
4,4'-DDD	1	NC	1	0.013 U	0.0097 U	0.011 UJ	0.011 U
4,4'-DDE	1	NC	1	0.013 U	0.0097 U	0.011 UJ	0.011 U
4,4'-DDT	1	NC	1	0.013 UJ	0.0097 UJ	0.011 UJ	0.011 UJ
ALDRIN	0.02	NC	0.02	0.0065 U	0.0048 U	0.0054 UJ	0.0056 U
ALPHA-BHC	0.1	NC	0.1	0.0065 U	0.0048 U	0.0054 UJ	0.0056 U
ALPHA-CHLORDANE	NC	2	2	0.0065 U	0.0048 U	0.0054 UJ	0.0056 U
AROCLOR-1016	NC	0.5	0.5	0.64 U	0.48 U	0.57 UJ	0.58 UJ
AROCLOR-1221	NC	0.5	0.5	0.64 U	0.48 U	0.57 UJ	0.58 UJ
AROCLOR-1232	NC	0.5	0.5	0.64 U	0.48 U	0.57 UJ	0.58 UJ
AROCLOR-1242	NC	0.5	0.5	0.64 U	0.48 U	0.57 UJ	0.58 UJ
AROCLOR-1248	NC	0.5	0.5	0.64 U	0.48 U	0.57 UJ	0.58 UJ
AROCLOR-1254	NC	0.5	0.5	0.64 U	0.48 U	0.57 UJ	0.58 UJ
AROCLOR-1260	NC	0.5	0.5	0.64 U	0.48 U	0.57 UJ	0.58 UJ
BETA-BHC	0.2	NC	0.2	0.0065 U	0.0048 U	0.0054 UJ	0.0056 U
DELTA-BHC	NC	NC	NC	0.0065 U	0.0048 U	0.0054 UJ	0.0056 U
DIELDRIN	0.02	NC	0.02	0.013 U	0.0097 U	0.011 UJ	0.011 U

TABLE D-2

GROUNDWATER SAMPLING RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID SAMPLE DATE	**Maine MEGs**	**EPA MCL**	**Minimum Screening Criteria**	02 GW-02-301 GW-2-301-102108 20081021	02 GW-02-302 GW-2-302-102108 20081021	02 GW-02-303 GW-2-303-102108 20081021	02 GW-02-303 GW-2-303-102108-AVG 20081021
ENDOSULFAN I	NC	NC	NC	0.0065 UJ	0.0048 UJ	0.0054 UJ	0.0056 UJ
ENDOSULFAN II	NC	NC	NC	0.013 U	0.0097 U	0.011 UJ	0.011 U
ENDOSULFAN SULFATE	NC	NC	NC	0.013 U	0.0097 U	0.011 UJ	0.011 U
ENDRIN	2	2	2	0.013 U	0.0097 U	0.011 UJ	0.011 U
ENDRIN ALDEHYDE	NC	NC	NC	0.013 U	0.0097 U	0.011 UJ	0.011 U
ENDRIN KETONE	NC	NC	NC	0.013 U	0.0097 U	0.011 UJ	0.011 U
GAMMA-BHC (LINDANE)	0.03	0.2	0.03	0.0065 U	0.0048 U	0.0054 UJ	0.0056 U
GAMMA-CHLORDANE	NC	2	2	0.0065 U	0.0048 U	0.0054 UJ	0.0056 U
HEPTACHLOR	0.07	0.4	0.07	0.0065 U	0.0048 U	0.0054 UJ	0.0056 U
HEPTACHLOR EPOXIDE	0.04	0.2	0.04	0.0065 U	0.0048 U	0.0054 UJ	0.0056 U
METHOXYCHLOR	40	40	40	0.065 U	0.048 U	0.054 UJ	0.056 U
TOXAPHENE	0.3	3	0.3	0.13 U	0.097 U	0.11 UJ	0.11 U
Inorganics (ug/L)			NC				
ALUMINUM	7000	NC	7000	26.5 J	36.7 J	191 J	181 J
ANTIMONY	3	6	3	0.1 U	0.1 U	0.1 U	0.1 U
ARSENIC	10	10	10	1.69 U	1.69 U	4.6 UJ	5 UJ
BARIUM	1000	2000	1000	3.4 J	10.8	51.3	50.7
BERYLLIUM	10	4	4	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ
CADMIUM	1	5	1	0.1 U	0.1 U	0.1 J	0.11 J
CALCIUM	NC	NC	NC	7310	14100	19300	18900
CHROMIUM	20	100	20	0.84 UJ	0.98 UJ	1.4 UJ	1.4 UJ
COBALT	10	NC	10	0.24 UJ	0.24 UJ	16.4 J	16 J
COPPER	500	1300	500	1.3 J	1.1 J	0.96 J	1.4 J
IRON	5000	NC	5000	9 U	23.6 J	12400	12300
LEAD	10	15	10	0.97 U	1.1 J	0.97 U	0.97 U
MAGNESIUM	NC	NC	NC	1380	3580	3130	3120
MANGANESE	500	NC	500	26.2	195	871	865
MERCURY	NC	2	2	0.03 U	0.03 U	0.03 U	0.03 U
NICKEL	20	NC	20	0.53 UJ	1.4 UJ	6 UJ	6 UJ
POTASSIUM	NC	NC	NC	998 J	1780	4550	4470
SELENIUM	40	50	40	0.96 U	0.96 U	0.96 U	0.96 U
SILVER	40	NC	40	0.38 UJ	0.29 U	0.29 U	0.56 UJ
SODIUM	20000	NC	20000	4450	15500	28800	28700
THALLIUM	NC	2	2	0.6 U	0.6 U	0.6 U	0.6 U
VANADIUM	200	NC	200	0.58 J	0.46 J	2.2 J	2 J
ZINC	2000	NC	2000	4.2 J	6 J	9.6 J	9.6 J

TABLE D-2

GROUNDWATER SAMPLING RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID SAMPLE DATE	**Maine MEGs**	**EPA MCL**	**Minimum Screening Criteria**	02 GW-02-303 GW-2-303-102108-D 20081021	02 GW-02-304 GW-2-304-102108 20081021	02 GW-02-305 GW-2-305-102008 20081020	02 GW-02-306 GW-2-306-102008 20081020	02 GW-02-307 GW-2-307-102008 20081020
Volatile Organics (ug/L)								
1,1,1-TRICHLOROETHANE	10000	200	200	1 UJ	1 UJ	1 U	1 U	1 U
1,1,2,2-TETRACHLOROETHANE	2	NC	2	1 U	1 U	1 U	1 U	1 U
1,1,2-TRICHLOROETHANE	6	5	5	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHANE	60	NC	60	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHENE	40	7	7	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROBENZENE	200	600	200	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROETHANE	4	5	4	1 UJ	1 UJ	1 U	1 U	1 U
1,2-DICHLOROPROPANE	10	5	5	1 U	1 U	1 U	1 U	1 U
1,3-DICHLOROBENZENE	1	NC	1	1 U	1 U	1 U	1 U	1 U
1,4-DICHLOROBENZENE	70	75	70	1 U	1 U	1 U	1 U	1 U
2-BUTANONE	4000	NC	4000	5 U	5 U	5 U	5 U	5 U
2-HEXANONE	NC	NC	NC	5 U	5 U	5 U	5 U	5 U
4-METHYL-2-PENTANONE	500	NC	500	5 U	5 U	5 U	5 U	5 U
ACETONE	6000	NC	6000	5 U	5 U	5 UJ	5 UJ	5 UJ
BENZENE	4	5	4	1 U	1 U	1 UJ	1 UJ	1 UJ
BROMODICHLOROMETHANE	6	80	6	1 U	1 U	1 U	1 U	1 U
BROMOFORM	40	80	40	1 UJ	1 UJ	1 U	1 U	1 U
BROMOMETHANE	10	NC	10	2 UJ	2 UJ	2 U	2 U	2 U
CARBON DISULFIDE	600	NC	600	1 U	1 U	1 U	1 U	1 U
CARBON TETRACHLORIDE	5	5	5	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
CHLOROBENZENE	100	100	100	1 U	1 U	1 U	1 U	1 U
CHLORODIBROMOMETHANE	4	80	4	1 U	1 U	1 U	1 U	1 U
CHLOROETHANE	7	NC	7	2 U	2 U	2 U	2 U	2 U
CHLOROFORM	70	80	70	1 U	1 U	1 U	1 U	1 U
CHLOROMETHANE	20	NC	20	2 U	2 U	2 U	2 U	2 U
CIS-1,2-DICHLOROETHENE	70	70	70	1 U	1 U	1 U	1 U	1 U
CIS-1,3-DICHLOROPROPENE	NC	NC	NC	1 U	1 U	1 U	1 U	1 U
ETHYLBENZENE	30	700	30	1 U	1 U	1 U	1 U	1 U
M+P-XYLENES	NC	10000	10000	2 U	2 U	2 U	2 U	2 U
METHYLENE CHLORIDE	50	5	5	3 U	3 U	3 U	3 U	3 U
O-XYLENE	NC	10000	10000	1 U	1 U	1 U	1 U	1 U
STYRENE	100	100	100	1 U	1 U	1 U	1 U	1 U
TETRACHLOROETHENE	0.6	5	0.6	1 U	1 U	1 UJ	1 UJ	1 UJ
TOLUENE	600	1000	600	1 U	1 U	1 U	1 U	1 U
TOTAL XYLENES	1000	10000	1000	3 U	3 U	3 U	3 U	3 U
TRANS-1,2-DICHLOROETHENE	100	100	100	1 U	1 U	1 U	1 U	1 U
TRANS-1,3-DICHLOROPROPENE	NC	NC	NC	1 U	1 U	1 U	1 U	1 U
TRICHLOROETHENE	30	5	5	1 U	1 U	1 U	1 U	1 U
VINYL CHLORIDE	0.2	2	0.2	1 U	1 U	1 U	1 U	1 U
Semivolatile Organics (ug/L)			NC					

TABLE D-2

GROUNDWATER SAMPLING RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID SAMPLE DATE	**Maine MEGs**	**EPA MCL**	**Minimum Screening Criteria**	02 GW-02-303 GW-2-303-102108-D 20081021	02 GW-02-304 GW-2-304-102108 20081021	02 GW-02-305 GW-2-305-102008 20081020	02 GW-02-306 GW-2-306-102008 20081020	02 GW-02-307 GW-2-307-102008 20081020
1,1-BIPHENYL	400	NC	400	9 U	11 U	12 U	13 U	10 U
2,2'-OXYBIS(1-CHLOROPROPANE)	300	NC	300	9 U	11 U	12 U	13 U	10 U
2,4,5-TRICHLOROPHENOL	700	NC	700	24 UJ	28 U	29 UR	32 U	25 U
2,4,6-TRICHLOROPHENOL	7	NC	7	9 UJ	11 U	12 UR	13 U	10 U
2,4-DICHLOROPHENOL	20	NC	20	9 UJ	11 U	12 UR	13 U	10 U
2,4-DIMETHYLPHENOL	100	NC	100	9 UJ	11 U	12 UR	13 U	10 UJ
2,4-DINITROPHENOL	10	NC	10	24 UJ	28 U	29 UR	32 U	25 U
2,4-DINITROTOLUENE	1	NC	1	0.19 U	0.23 U	0.24 U	0.25 U	0.2 U
2,6-DINITROTOLUENE	0.5	NC	0.5	0.19 UJ	0.23 UJ	0.24 UJ	0.25 UJ	0.2 UJ
2-CHLORONAPHTHALENE	NC	NC	NC	9 U	11 U	12 U	13 U	10 U
2-CHLOROPHENOL	40	NC	40	9 UJ	11 U	12 UR	13 U	10 U
2-METHYLNAPHTHALENE	30	NC	30	9 U	11 U	12 U	13 U	10 U
2-METHYLPHENOL	40	NC	40	9 UJ	11 U	12 UR	13 U	10 U
2-NITROANILINE	NC	NC	NC	24 U	28 U	29 U	32 U	25 U
2-NITROPHENOL	NC	NC	NC	9 UJ	11 U	12 UR	13 U	10 U
3&4-METHYLPHENOL	NC	NC	NC	0.94 U	1.1 U	1.2 UJ	1.3 U	1 UJ
3,3'-DICHLOROBENZIDINE	1	NC	1	9 U	11 U	12 U	13 U	10 U
3-NITROANILINE	NC	NC	NC	24 U	28 U	29 U	32 U	25 U
4,6-DINITRO-2-METHYLPHENOL	NC	NC	NC	24 UJ	28 U	29 UR	32 U	25 U
4-BROMOPHENYL PHENYL ETHER	NC	NC	NC	9 U	11 U	12 U	13 U	10 U
4-CHLORO-3-METHYLPHENOL	NC	NC	NC	9 UJ	11 U	12 UR	13 U	10 U
4-CHLOROANILINE	2	NC	2	9 U	11 U	12 U	13 U	10 U
4-CHLOROPHENYL PHENYL ETHER	NC	NC	NC	9 U	11 U	12 U	13 U	10 U
4-NITROANILINE	NC	NC	NC	24 U	28 U	29 U	32 U	25 U
4-NITROPHENOL	60	NC	60	24 UJ	28 U	29 UR	32 U	25 U
ACENAPHTHENE	400	NC	400	9 U	11 U	12 U	13 U	10 U
ACENAPHTHYLENE	NC	NC	NC	9 U	11 U	12 U	13 U	10 U
ACETOPHENONE	NC	NC	NC	9 U	11 U	12 U	13 U	10 U
ANTHRACENE	2000	NC	2000	9 U	11 U	12 U	13 U	10 U
ATRAZINE	2	3	2	0.19 UJ	0.23 UJ	0.24 UJ	0.25 UJ	0.2 UJ
BENZALDEHYDE	NC	NC	NC	9 UJ	11 UJ	12 UJ	13 UJ	10 UJ
BENZO(A)ANTHRACENE	0.5	NC	0.5	9 U	11 U	12 U	13 U	10 U
BENZO(A)PYRENE	0.05	0.2	0.05	0.19 U	0.23 U	0.24 U	0.25 U	0.2 U
BENZO(B)FLUORANTHENE	0.5	NC	0.5	9 U	11 U	12 U	13 U	10 U
BENZO(G,H,I)PERYLENE	NC	NC	NC	9 U	11 U	12 U	13 U	10 U
BENZO(K)FLUORANTHENE	5	NC	5	9 UJ	11 UJ	12 UJ	13 UJ	10 UJ
BIS(2-CHLOROETHOXY)METHANE	NC	NC	NC	9 U	11 U	12 U	13 U	10 U
BIS(2-CHLOROETHYL)ETHER	0.3	NC	0.3	0.19 U	0.23 U	0.24 U	0.25 U	0.2 U
BIS(2-ETHYLHEXYL)PHTHALATE	30	6	6	0.94 UJ	1.1 UJ	1.2 UJ	1.3 UJ	1 UJ
BUTYL BENZYL PHTHALATE	200	NC	200	9 U	11 U	12 U	13 U	10 U
CAPROLACTAM	NC	NC	NC	9 U	11 U	12 U	13 U	10 U

TABLE D-2

GROUNDWATER SAMPLING RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID SAMPLE DATE	**Maine MEGs**	**EPA MCL**	**Minimum Screening Criteria**	02 GW-02-303 GW-2-303-102108-D 20081021	02 GW-02-304 GW-2-304-102108 20081021	02 GW-02-305 GW-2-305-102008 20081020	02 GW-02-306 GW-2-306-102008 20081020	02 GW-02-307 GW-2-307-102008 20081020
CARBAZOLE	NC	NC	NC	9 U	11 U	12 U	13 U	10 U
CHRYSENE	50	NC	50	9 U	11 U	12 U	13 U	10 U
DI-N-BUTYL PHTHALATE	700	NC	700	9 U	11 U	12 U	13 U	10 U
DI-N-OCTYL PHTHALATE	NC	NC	NC	9 UJ	11 UJ	12 UJ	13 UJ	10 UJ
DIBENZO(A,H)ANTHRACENE	0.05	NC	0.05	9 U	11 U	12 U	13 U	10 U
DIBENZOFURAN	NC	NC	NC	9 U	11 U	12 U	13 U	10 U
DIETHYL PHTHALATE	6000	NC	6000	9 U	11 U	12 U	13 U	10 U
DIMETHYL PHTHALATE	NC	NC	NC	9 U	11 U	12 U	13 U	10 U
FLUORANTHENE	300	NC	300	9 U	11 U	12 U	13 U	10 U
FLUORENE	300	NC	300	9 U	11 U	12 U	13 U	10 U
HEXACHLOROBENZENE	0.2	1	0.2	0.19 UJ	0.23 UJ	0.24 UJ	0.25 UJ	0.2 UJ
HEXACHLOROBUTADIENE	4	NC	4	0.19 U	0.23 U	0.24 U	0.25 U	0.2 U
HEXACHLOROCYCLOPENTADIENE	40	50	40	9 U	11 U	12 U	13 U	10 U
HEXACHLOROETHANE	7	NC	7	0.19 U	0.23 U	0.24 U	0.25 U	0.2 U
INDENO(1,2,3-CD)PYRENE	0.5	NC	0.5	9 U	11 U	12 U	13 U	10 U
ISOPHORONE	400	NC	400	9 UJ	11 UJ	12 UJ	13 UJ	10 UJ
N-NITROSO-DI-N-PROPYLAMINE	NC	NC	NC	9 U	11 U	12 U	13 U	10 U
N-NITROSODIPHENYLAMINE	NC	NC	NC	9 U	11 U	12 U	13 U	10 U
NAPHTHALENE	10	NC	10	9 U	11 U	12 U	13 U	10 U
NITROBENZENE	1	NC	1	0.19 U	0.23 U	0.24 U	0.25 U	0.2 U
PENTACHLOROPHENOL	3	1	1	0.85 UJ	1 UJ	1 UJ	1.1 UJ	0.91 UJ
PHENANTHRENE	NC	NC	NC	9 U	11 U	12 U	13 U	10 U
PHENOL	2000	NC	2000	9 UJ	11 U	12 UR	13 U	10 U
PYRENE	200	NC	200	9 U	11 U	12 U	13 U	10 U
Pesticides/PCBs (ug/L)			NC					
4,4'-DDD	1	NC	1	0.011 U	0.011 UJ	0.011 UJ	0.0094 U	0.0095 U
4,4'-DDE	1	NC	1	0.011 U	0.011 UJ	0.011 UJ	0.0094 U	0.0095 U
4,4'-DDT	1	NC	1	0.011 UJ	0.011 UJ	0.011 UJ	0.0094 UJ	0.0095 UJ
ALDRIN	0.02	NC	0.02	0.0056 U	0.0057 UJ	0.0057 UJ	0.0047 U	0.0048 U
ALPHA-BHC	0.1	NC	0.1	0.0056 U	0.0057 UJ	0.0057 UJ	0.0047 U	0.0048 U
ALPHA-CHLORDANE	NC	2	2	0.0056 U	0.0057 UJ	0.0057 UJ	0.0047 U	0.0048 U
AROCLOR-1016	NC	0.5	0.5	0.58 UJ	0.58 U	0.56 UJ	0.61 UJ	0.49 U
AROCLOR-1221	NC	0.5	0.5	0.58 UJ	0.58 U	0.56 UJ	0.61 UJ	0.49 U
AROCLOR-1232	NC	0.5	0.5	0.58 UJ	0.58 U	0.56 UJ	0.61 UJ	0.49 U
AROCLOR-1242	NC	0.5	0.5	0.58 UJ	0.58 U	0.56 UJ	0.61 UJ	0.49 U
AROCLOR-1248	NC	0.5	0.5	0.58 UJ	0.58 U	0.56 UJ	0.61 UJ	0.49 U
AROCLOR-1254	NC	0.5	0.5	0.58 UJ	0.58 U	0.56 UJ	0.61 UJ	0.49 U
AROCLOR-1260	NC	0.5	0.5	0.58 UJ	0.58 U	0.56 UJ	0.61 UJ	0.49 U
BETA-BHC	0.2	NC	0.2	0.0056 U	0.0057 UJ	0.0057 UJ	0.0047 U	0.0048 U
DELTA-BHC	NC	NC	NC	0.0056 U	0.0057 UJ	0.0057 UJ	0.0047 U	0.0048 U
DIELDRIN	0.02	NC	0.02	0.011 U	0.011 UJ	0.011 UJ	0.0094 U	0.0095 U

TABLE D-2

GROUNDWATER SAMPLING RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID SAMPLE DATE	**Maine MEGs**	**EPA MCL**	**Minimum Screening Criteria**	02 GW-02-303 GW-2-303-102108-D 20081021	02 GW-02-304 GW-2-304-102108 20081021	02 GW-02-305 GW-2-305-102008 20081020	02 GW-02-306 GW-2-306-102008 20081020	02 GW-02-307 GW-2-307-102008 20081020
ENDOSULFAN I	NC	NC	NC	0.0056 UJ	0.0057 UJ	0.0057 UJ	0.0047 UJ	0.0048 UJ
ENDOSULFAN II	NC	NC	NC	0.011 U	0.011 UJ	0.011 UJ	0.0094 U	0.0095 UJ
ENDOSULFAN SULFATE	NC	NC	NC	0.011 U	0.011 UJ	0.011 UJ	0.0094 U	0.0095 U
ENDRIN	2	2	2	0.011 U	0.011 UJ	0.011 UJ	0.0094 U	0.0095 U
ENDRIN ALDEHYDE	NC	NC	NC	0.011 U	0.011 UJ	0.011 UJ	0.0094 U	0.0095 U
ENDRIN KETONE	NC	NC	NC	0.011 U	0.011 UJ	0.011 UJ	0.0094 U	0.0095 U
GAMMA-BHC (LINDANE)	0.03	0.2	0.03	0.0056 U	0.0057 UJ	0.0057 UJ	0.0047 U	0.0048 U
GAMMA-CHLORDANE	NC	2	2	0.0056 U	0.0057 UJ	0.0057 UJ	0.0047 U	0.0048 U
HEPTACHLOR	0.07	0.4	0.07	0.0056 U	0.0057 UJ	0.0057 UJ	0.0047 U	0.0048 U
HEPTACHLOR EPOXIDE	0.04	0.2	0.04	0.0056 U	0.0057 UJ	0.0057 UJ	0.0047 U	0.0048 U
METHOXYCHLOR	40	40	40	0.056 U	0.057 UJ	0.057 UJ	0.047 U	0.048 U
TOXAPHENE	0.3	3	0.3	0.11 U	0.11 UJ	0.11 UJ	0.094 U	0.095 U
Inorganics (ug/L)			NC					
ALUMINUM	7000	NC	7000	181 J	14.6 U	126 J	659	157 J
ANTIMONY	3	6	3	0.1 U	0.14 J	0.14 J	0.1 U	0.1 U
ARSENIC	10	10	10	5 UJ	1.69 U	9.8	1.69 U	1.69 U
BARIUM	1000	2000	1000	50.7	50.4	13.1	92.8	41.2
BERYLLIUM	10	4	4	0.05 UJ	0.05 UJ	0.05 UJ	0.37 J	0.05 UJ
CADMIUM	1	5	1	0.11 J	0.1 U	0.1 U	0.12 J	0.1 U
CALCIUM	NC	NC	NC	18900	46000	21300	11100	10900
CHROMIUM	20	100	20	1.4 UJ	1.2 UJ	1.5 UJ	1 UJ	0.71 UJ
COBALT	10	NC	10	16 J	0.24 UJ	24.6 J	1 J	0.25 J
COPPER	500	1300	500	1.4 J	1.8 J	4.1 J	0.75 UJ	0.85 J
IRON	5000	NC	5000	12300	207	41800	26.6 J	9 U
LEAD	10	15	10	0.97 U	0.97 U	1.7 J	0.97 U	1.1 J
MAGNESIUM	NC	NC	NC	3120	3820	5300	1340	1690
MANGANESE	500	NC	500	865	424	9690	495	447
MERCURY	NC	2	2	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
NICKEL	20	NC	20	6 UJ	2.3 UJ	4.1 UJ	4.4 UJ	3.1 UJ
POTASSIUM	NC	NC	NC	4470	5810	3560	3270	3220
SELENIUM	40	50	40	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U
SILVER	40	NC	40	0.56 UJ	0.29 U	1.5 UJ	0.29 U	0.29 U
SODIUM	20000	NC	20000	28700	20700	7390	16400	11900
THALLIUM	NC	2	2	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
VANADIUM	200	NC	200	2 J	0.59 J	0.38 U	0.38 U	0.38 U
ZINC	2000	NC	2000	9.6 J	12.8 J	7 J	6.8 J	11.3 J

TABLE D-2

GROUNDWATER SAMPLING RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID SAMPLE DATE	**Maine MEGs**	**EPA MCL**	**Minimum Screening Criteria**	02 GW-02-308 GW-2-308-102008 20081020	02 GW-02-309 GW-2-309-102208 20081022	02 GW-02-310 GW-2-310-102108 20081021
Volatile Organics (ug/L)						
1,1,1-TRICHLOROETHANE	10000	200	200	1 UJ	1 UJ	1 UJ
1,1,2,2-TETRACHLOROETHANE	2	NC	2	1 U	1 U	1 U
1,1,2-TRICHLOROETHANE	6	5	5	1 U	1 U	1 U
1,1-DICHLOROETHANE	60	NC	60	1 U	1 U	1 U
1,1-DICHLOROETHENE	40	7	7	1 U	1 U	1 U
1,2-DICHLOROBENZENE	200	600	200	1 U	1 U	1 U
1,2-DICHLOROETHANE	4	5	4	1 UJ	1 UJ	1 UJ
1,2-DICHLOROPROPANE	10	5	5	1 U	1 U	1 U
1,3-DICHLOROBENZENE	1	NC	1	1 U	1 U	1 U
1,4-DICHLOROBENZENE	70	75	70	1 U	1 U	1 U
2-BUTANONE	4000	NC	4000	5 U	5 U	5 U
2-HEXANONE	NC	NC	NC	5 U	5 U	5 U
4-METHYL-2-PENTANONE	500	NC	500	5 U	5 U	5 U
ACETONE	6000	NC	6000	5 U	5 U	**5 J**
BENZENE	4	5	4	1 U	1 U	**0.5 J**
BROMODICHLOROMETHANE	6	80	6	1 U	1 U	1 U
BROMOFORM	40	80	40	1 UJ	1 UJ	1 UJ
BROMOMETHANE	10	NC	10	2 UJ	2 UJ	2 UJ
CARBON DISULFIDE	600	NC	600	1 U	1 U	1 U
CARBON TETRACHLORIDE	5	5	5	1 UJ	1 UJ	1 UJ
CHLOROBENZENE	100	100	100	1 U	1 U	1 U
CHLORODIBROMOMETHANE	4	80	4	1 U	1 U	1 U
CHLOROETHANE	7	NC	7	2 U	2 U	2 U
CHLOROFORM	70	80	70	1 U	1 U	1 U
CHLOROMETHANE	20	NC	20	2 U	2 U	**0.3 J**
CIS-1,2-DICHLOROETHENE	70	70	70	1 U	1 U	1 U
CIS-1,3-DICHLOROPROPENE	NC	NC	NC	1 U	1 U	1 U
ETHYLBENZENE	30	700	30	1 U	1 U	1 U
M+P-XYLENES	NC	10000	10000	2 U	2 U	2 U
METHYLENE CHLORIDE	50	5	5	3 U	3 U	3 U
O-XYLENE	NC	10000	10000	1 U	1 U	1 U
STYRENE	100	100	100	1 U	1 U	1 U
TETRACHLOROETHENE	0.6	5	0.6	1 U	1 U	1 U
TOLUENE	600	1000	600	1 U	1 U	1 U
TOTAL XYLENES	1000	10000	1000	3 U	3 U	3 U
TRANS-1,2-DICHLOROETHENE	100	100	100	1 U	1 U	1 U
TRANS-1,3-DICHLOROPROPENE	NC	NC	NC	1 U	1 U	1 U
TRICHLOROETHENE	30	5	5	1 U	1 U	1 U
VINYL CHLORIDE	0.2	2	0.2	1 U	1 U	1 U
Semivolatile Organics (ug/L)			NC			

TABLE D-2

GROUNDWATER SAMPLING RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID SAMPLE DATE	**Maine MEGs**	**EPA MCL**	**Minimum Screening Criteria**	02 GW-02-308 GW-2-308-102008 20081020	02 GW-02-309 GW-2-309-102208 20081022	02 GW-02-310 GW-2-310-102108 20081021
1,1-BIPHENYL	400	NC	400	10 U	10 U	10 U
2,2'-OXYBIS(1-CHLOROPROPANE)	300	NC	300	10 U	10 U	10 U
2,4,5-TRICHLOROPHENOL	700	NC	700	25 U	25 U	24 U
2,4,6-TRICHLOROPHENOL	7	NC	7	10 U	10 U	10 U
2,4-DICHLOROPHENOL	20	NC	20	10 U	10 U	10 U
2,4-DIMETHYLPHENOL	100	NC	100	10 U	10 U	10 U
2,4-DINITROPHENOL	10	NC	10	25 U	25 U	24 U
2,4-DINITROTOLUENE	1	NC	1	0.2 U	0.2 U	0.19 U
2,6-DINITROTOLUENE	0.5	NC	0.5	0.2 UJ	0.2 UJ	0.19 UJ
2-CHLORONAPHTHALENE	NC	NC	NC	10 U	10 U	10 U
2-CHLOROPHENOL	40	NC	40	10 U	10 U	10 U
2-METHYLNAPHTHALENE	30	NC	30	10 U	10 U	10 U
2-METHYLPHENOL	40	NC	40	10 U	10 U	10 U
2-NITROANILINE	NC	NC	NC	25 U	25 U	24 U
2-NITROPHENOL	NC	NC	NC	10 U	10 U	10 U
3&4-METHYLPHENOL	NC	NC	NC	1 U	0.98 UJ	0.96 U
3,3'-DICHLOROBENZIDINE	1	NC	1	10 U	10 U	10 U
3-NITROANILINE	NC	NC	NC	25 U	25 U	24 U
4,6-DINITRO-2-METHYLPHENOL	NC	NC	NC	25 U	25 U	24 U
4-BROMOPHENYL PHENYL ETHER	NC	NC	NC	10 U	10 U	10 U
4-CHLORO-3-METHYLPHENOL	NC	NC	NC	10 U	10 U	10 U
4-CHLOROANILINE	2	NC	2	10 U	10 U	10 U
4-CHLOROPHENYL PHENYL ETHER	NC	NC	NC	10 U	10 U	10 U
4-NITROANILINE	NC	NC	NC	25 U	25 U	24 U
4-NITROPHENOL	60	NC	60	25 U	25 UJ	24 U
ACENAPHTHENE	400	NC	400	10 U	10 U	10 U
ACENAPHTHYLENE	NC	NC	NC	10 U	10 U	10 U
ACETOPHENONE	NC	NC	NC	10 U	10 U	10 U
ANTHRACENE	2000	NC	2000	10 U	10 U	10 U
ATRAZINE	2	3	2	0.2 UJ	0.2 UJ	0.19 UJ
BENZALDEHYDE	NC	NC	NC	10 UJ	10 UJ	10 UJ
BENZO(A)ANTHRACENE	0.5	NC	0.5	10 U	10 U	10 U
BENZO(A)PYRENE	0.05	0.2	0.05	0.2 U	0.2 U	0.19 U
BENZO(B)FLUORANTHENE	0.5	NC	0.5	10 U	10 U	10 U
BENZO(G,H,I)PERYLENE	NC	NC	NC	10 U	10 U	10 U
BENZO(K)FLUORANTHENE	5	NC	5	10 UJ	10 UJ	10 UJ
BIS(2-CHLOROETHOXY)METHANE	NC	NC	NC	10 U	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	0.3	NC	0.3	0.2 U	0.2 U	0.19 U
BIS(2-ETHYLHEXYL)PHTHALATE	30	6	6	1 UJ	0.99 UJ	0.96 UJ
BUTYL BENZYL PHTHALATE	200	NC	200	10 U	10 U	10 U
CAPROLACTAM	NC	NC	NC	10 U	10 U	10 U

TABLE D-2

GROUNDWATER SAMPLING RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID SAMPLE DATE	**Maine MEGs**	**EPA MCL**	**Minimum Screening Criteria**	02 GW-02-308 GW-2-308-102008 20081020	02 GW-02-309 GW-2-309-102208 20081022	02 GW-02-310 GW-2-310-102108 20081021
CARBAZOLE	NC	NC	NC	10 U	10 U	10 U
CHRYSENE	50	NC	50	10 U	10 U	10 U
DI-N-BUTYL PHTHALATE	700	NC	700	10 U	10 U	10 U
DI-N-OCTYL PHTHALATE	NC	NC	NC	10 UJ	10 U	10 UJ
DIBENZO(A,H)ANTHRACENE	0.05	NC	0.05	10 U	10 U	10 U
DIBENZOFURAN	NC	NC	NC	10 U	10 U	10 U
DIETHYL PHTHALATE	6000	NC	6000	10 U	10 U	10 U
DIMETHYL PHTHALATE	NC	NC	NC	10 U	10 U	10 U
FLUORANTHENE	300	NC	300	10 U	10 U	10 U
FLUORENE	300	NC	300	10 U	10 U	10 U
HEXACHLOROBENZENE	0.2	1	0.2	0.2 UJ	0.2 UJ	0.19 UJ
HEXACHLOROBUTADIENE	4	NC	4	0.2 U	0.2 U	0.19 U
HEXACHLOROCYCLOPENTADIENE	40	50	40	10 U	10 U	10 U
HEXACHLOROETHANE	7	NC	7	0.2 U	0.2 U	0.19 U
INDENO(1,2,3-CD)PYRENE	0.5	NC	0.5	10 U	10 U	10 U
ISOPHORONE	400	NC	400	10 UJ	10 UJ	10 UJ
N-NITROSO-DI-N-PROPYLAMINE	NC	NC	NC	10 U	10 U	10 U
N-NITROSODIPHENYLAMINE	NC	NC	NC	10 U	10 U	10 U
NAPHTHALENE	10	NC	10	10 U	10 U	10 U
NITROBENZENE	1	NC	1	0.2 U	0.2 U	0.19 U
PENTACHLOROPHENOL	3	1	1	0.91 UJ	25 U	0.86 UJ
PHENANTHRENE	NC	NC	NC	10 U	10 U	10 U
PHENOL	2000	NC	2000	10 U	10 U	10 U
PYRENE	200	NC	200	10 U	10 U	10 U
Pesticides/PCBs (ug/L)			NC			
4,4'-DDD	1	NC	1	0.0015 J	0.01 U	0.01 U
4,4'-DDE	1	NC	1	0.01 U	0.01 U	0.01 U
4,4'-DDT	1	NC	1	0.01 UJ	0.01 UJ	0.01 U
ALDRIN	0.02	NC	0.02	0.0052 U	0.0051 U	0.005 U
ALPHA-BHC	0.1	NC	0.1	0.0052 U	0.0051 U	0.005 U
ALPHA-CHLORDANE	NC	2	2	0.0052 U	0.0051 U	0.005 U
AROCLOR-1016	NC	0.5	0.5	0.51 U	0.48 U	0.5 UJ
AROCLOR-1221	NC	0.5	0.5	0.51 U	0.48 U	0.5 UJ
AROCLOR-1232	NC	0.5	0.5	0.51 U	0.48 U	0.5 UJ
AROCLOR-1242	NC	0.5	0.5	0.51 U	0.48 U	0.5 UJ
AROCLOR-1248	NC	0.5	0.5	0.51 U	0.48 U	0.5 UJ
AROCLOR-1254	NC	0.5	0.5	0.51 U	0.48 U	0.5 UJ
AROCLOR-1260	NC	0.5	0.5	0.51 U	0.48 UJ	0.5 UJ
BETA-BHC	0.2	NC	0.2	0.0052 U	0.0051 U	0.005 UJ
DELTA-BHC	NC	NC	NC	0.0052 U	0.0051 U	0.005 U
DIELDRIN	0.02	NC	0.02	0.01 U	0.01 U	0.01 U

TABLE D-2

GROUNDWATER SAMPLING RESULTS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

SITE LOCATION SAMPLE ID SAMPLE DATE	**Maine MEGs**	**EPA MCL**	**Minimum Screening Criteria**	02 GW-02-308 GW-2-308-102008 20081020	02 GW-02-309 GW-2-309-102208 20081022	02 GW-02-310 GW-2-310-102108 20081021
ENDOSULFAN I	NC	NC	NC	0.0052 UJ	0.0051 U	0.005 U
ENDOSULFAN II	NC	NC	NC	0.01 U	0.01 U	0.01 U
ENDOSULFAN SULFATE	NC	NC	NC	0.01 U	0.01 U	0.01 U
ENDRIN	2	2	2	0.01 U	0.01 U	0.01 U
ENDRIN ALDEHYDE	NC	NC	NC	0.01 U	0.01 U	0.01 U
ENDRIN KETONE	NC	NC	NC	0.01 U	0.01 U	0.01 U
GAMMA-BHC (LINDANE)	0.03	0.2	0.03	0.0052 U	0.0051 U	0.005 U
GAMMA-CHLORDANE	NC	2	2	0.0052 U	0.0051 U	0.005 U
HEPTACHLOR	0.07	0.4	0.07	0.0052 U	0.0051 UJ	0.005 U
HEPTACHLOR EPOXIDE	0.04	0.2	0.04	0.0052 U	0.0051 U	0.005 U
METHOXYCHLOR	40	40	40	0.052 U	0.051 U	0.05 U
TOXAPHENE	0.3	3	0.3	0.1 U	0.1 U	0.1 U
Inorganics (ug/L)			NC			
ALUMINUM	7000	NC	7000	575	316	291 J
ANTIMONY	3	6	3	0.1 U	0.1 U	0.1 U
ARSENIC	10	10	10	1.8 UJ	3 UJ	3.1 UJ
BARIUM	1000	2000	1000	64.6	4.3 J	28.8
BERYLLIUM	10	4	4	0.05 J	0.05 UJ	0.05 UJ
CADMIUM	1	5	1	0.1 U	0.1 U	0.1 U
CALCIUM	NC	NC	NC	4990	8410	6950
CHROMIUM	20	100	20	1.4 UJ	0.7 UJ	6 J
COBALT	10	NC	10	0.68 J	0.32 J	2.8 J
COPPER	500	1300	500	1.2 J	0.75 UJ	0.75 UJ
IRON	5000	NC	5000	1050	940	90200
LEAD	10	15	10	0.97 U	0.97 U	0.97 U
MAGNESIUM	NC	NC	NC	445	5320	2950
MANGANESE	500	NC	500	439	288	2270
MERCURY	NC	2	2	0.03 U	0.03 U	0.03 U
NICKEL	20	NC	20	4.1 UJ	0.68 UJ	11.8 UJ
POTASSIUM	NC	NC	NC	3560	2570	7120
SELENIUM	40	50	40	0.96 U	0.96 U	0.96 U
SILVER	40	NC	40	0.29 U	0.67 UJ	0.46 UJ
SODIUM	20000	NC	20000	13300	20800	13600
THALLIUM	NC	2	2	0.6 U	0.6 U	0.6 U
VANADIUM	200	NC	200	0.54 J	0.74 J	5.2 J
ZINC	2000	NC	2000	7.3 J	3.4 J	69.5

D-3 Data Validation Memorandum

INTERNAL CORRESPONDENCE

C-NAVY-11-08-2953W

Date: November 17, 2008

c: File G00958-4.10 (w/enc.-original)
M. Messmer (w/o enc.)

To: Chuck Race (w/o enc.)

From: Jennifer Cardinal (no copy)

Subject: Tier II Inorganic Data Validation, SDG CTO432-1
Katahdin Analytical Services, Inc.
CTO 432, Site 02, Former Orion Street Landfill– South, NAS Brunswick, Brunswick, ME

TAL Metals:

21/Soils/	SB-2-303-1214	SB-2-305-0507	SB-2-306-1620
	SB-2-307-0507	SB-2-308-0003	TP-2-01-0006
	TP-2-01-0203	TP-2-02-0006	TP-2-02-0102
	TP-2-04-0304	TP-2-05-0102	TP-2-05-0708
	TP-2-06-0102	TP-2-07-0304	TP-2-07-0607
	TP-2-08-0304	TP-2-09-0506	TP-2-10-0405
	TP-2-11-0405	TP-2-11-0708	TP-2-DUP01
	(Field Duplicate Pair: TP-2-02-0102/ TP-2-DUP01)		
1/Rinsate Blank/	SB-2-RB01-100708		

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the TAL metals analytical data from soil samples collected at the Site 02, Former Orion Street Landfill– South at NAS Brunswick, Brunswick, Maine from October 1-7, 2008. The metals analysis was performed according to USEPA SW-846 Methods 6010B, 7471A (mercury), and 6020 (arsenic and thallium). The Tier II data validation was performed according to the Region I, EPA-NE Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, modified February 1989. Sample collection and analysis was performed according to the requirements of the Final Work Plan for Investigation Activities at the Former Orion Street Landfill- South (Site 2), NAS Brunswick, Maine, dated June 2007.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The metals data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • ICP-MS Tune
* • ICP-MS Internal Standard Performance
* • Calibration Verification
• Laboratory Blank Analyses
• ICP Interference Check Sample Results
• Matrix Spike/Matrix Spike Duplicate
* • Laboratory Duplicate Results
* • Laboratory Control Sample Results

- Field Duplicate Precision
- ICP Serial Dilution Results
- * Reporting Limits

* All quality control criteria were met for this parameter.

Laboratory Blank Analyses

The rinsate blank was not used to establish blank action levels for the soil samples.

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the soil samples:

Analyte	Maximum Conc. (µg/L)	Action Level (mg/kg)	Affected Samples
Mercury	0.03	0.025	SB-2-308-0003, TP-2-06-0102, TP-2-11-0708
Antimony	-2.08	1.04	All samples except TP-2-01-0006, TP-2-02-0006, TP-2-02-0102, TP-2-07-0304, TP-2-11-0405, TP-2-DUP01
Beryllium	0.39	0.195	TP-2-05-0708
Cadmium	0.22	0.11	SB-2-305-0507, TP-2-02-0102, TP-2-05-0708, TP-2-10-0405, TP-2-DUP01
Selenium	3.89	1.95	SB-2-304-1214, TP-2-02-0102, TP-2-04-0304, TP-2-05-0102, TP-2-05-0708, TP-2-07-0607, TP-2-08-0304, TP-2-10-0405, TP-2-11-0405
Silver	0.70	0.35	TP-2-02-0102, TP-2-DUP01
Sodium	173.8	86.9	SB-2-305-0507, SB-2-307-0507, SB-2-308-0003, TP-2-01-0203, TP-2-05-0102, TP-2-05-0708, TP-2-06-0102, TP-2-07-0304, TP-2-07-0607, TP-2-08-0304, TP-2-10-0405, TP-2-11-0405, TP-2-11-0708
Thallium	0.24	0.6	All samples

The positive mercury, beryllium, cadmium, selenium, silver, sodium, and thallium results below the blank action level were changed to non-detected values (U) at elevated reporting limits due to laboratory blank contamination. The positive antimony results below the blank action level and the non-detected antimony results are estimated (J, UJ) due to negative instrument drift as evidenced by the negative blank results.

The action levels in the table above are based on an assumption of 100 percent solids, 1 g (ICP metals) or 0.6 g (mercury) of sample analyzed, and a dilution factor of 5 (thallium) or 1 (other metals). The action level for each sample is different, based on the actual percent solids, amount of soil sample analyzed, and the dilution factor.

Although mercury, beryllium, cadmium, selenium, silver, and thallium contamination was found in the laboratory blank, the project sensitivity goals are not impacted since the project action limits are not exceeded by the sample specific elevated reporting limits. The non-detected results in the affected samples are usable as elevated reporting limits.
Although sodium contamination was found in the laboratory blank, the project sensitivity goals are not impacted since the there are no regulatory limits established for sodium for the soil samples. The non-detected results in the affected samples are usable as elevated reporting limits.

A negative result for antimony was found in the laboratory blank; therefore, the project accuracy goals may be impacted. The positive and non-detected antimony results below the blank action level in the affected samples are usable as estimated values and estimated reporting limits which may be biased low.

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the rinsate blank sample:

Analyte	Maximum Conc. (µg/L)	Action Level (µg/L)	Affected Sample
Copper	-2.17	10.85	SB-2-RB01-100708
Magnesium	26.64	133.2	
Sodium	173.8	869	
Arsenic	3.234	16.17	

The positive magnesium, sodium, and arsenic results below the blank action level were changed to non-detected values (U) at elevated reporting limits due to laboratory blank contamination. The positive copper result below the blank action level is estimated (J) due to negative instrument drift as evidenced by the negative blank results.

Although magnesium, sodium, and arsenic contamination was found in the laboratory blank, the project sensitivity goals are not impacted since the there are no regulatory limits established for the rinsate blank sample. The non-detected results in the affected samples are usable as elevated reporting limits.

Although a negative result for copper was found in the laboratory blank, the project accuracy goals are not impacted since the there are no regulatory limits established for the rinsate blank sample. The positive copper result in the affected sample is usable as an estimated value which may be biased low.

ICP Interference Check Sample Results

The following results were qualified in the affected samples due to ICP interference attributed to the high concentration of iron in the samples:

Analyte	Action		Bias	Affected Samples
	(+)	ND		
Antimony	J		High	TP-2-01-0006, TP-2-02-0006, TP-2-02-0102, TP-2-07-0304,

Analyte	Action		Bias	Affected Samples
	(+)	ND		
				TP-2-11-0405
	UJ*			SB-2-306-1620, TP-2-09-0506
Cadmium	J		High	TP-2-07-0304, TP-2-11-0405
	UJ*			TP-2-02-0102
Lead	J		High	SB-2-306-1620
Potassium	J		High	TP-2-02-0102
Selenium	J		High	SB-2-303-1214, TP-2-02-0102, TP-2-11-0405
Silver	J	UJ	Low	SB-2-303-1214, SB-2-306-1620, TP-2-02-0006, TP-2-02-0102, TP-2-07-0304, TP-2-09-0506, TP-2-11-0405
Sodium	UJ*		High	SB-2-303-1214, SB-2-306-1620, TP-2-01-0006, TP-2-02-0006, TP-2-02-0102, TP-2-07-0304, TP-2-09-0506, TP-2-11-0405

The positive results for antimony, cadmium, lead, potassium, and selenium in the affected samples are qualified as estimated (J) due to positive ICP interference attributed to iron. These results may be biased high.

The positive and non-detected silver results are qualified as estimated (J, UJ) in the affected samples due to negative ICP interference attributed to iron. These results may be biased low.

Professional judgment was used to change the positive antimony, cadmium, and sodium results to estimated, non-detected values (UJ) in the affected samples, rather than reject them as provided in the data validation guidelines, because the reported concentrations may be due entirely (≥80%) to positive iron ICP interference. The results may be false positive.

There were positive ICP interferences attributed to the high concentration of iron that resulted in estimating the results for antimony, cadmium, lead, and selenium in the samples listed above; therefore, the project accuracy goals may be slightly impacted. The positive results for antimony, cadmium, lead, and selenium in the affected samples are usable as estimated values which may be biased high.

Although there were positive ICP interferences attributed to the high concentration of iron that resulted in estimating the results for potassium, the project accuracy goals are not impacted since there are no regulatory limits established for potassium for the soil samples. The positive potassium results in the affected samples are usable as estimated values which may be biased high.

There were negative ICP interferences attributed to the high concentration of iron that resulted in estimating the results for silver in the samples listed above; therefore, the project accuracy goals may be slightly impacted. The positive and non-detected silver results in the affected samples are usable as estimated values and estimated reporting limits which may be biased low.

Although there were positive ICP interferences attributed to the high concentration of iron that resulted in raising the reporting limit for antimony and cadmium in the samples listed above, the project sensitivity goals are not impacted. The positive results for antimony and cadmium which had estimated interference greater than 80% may be entirely due to iron interference. However, the elevated reporting limits for these antimony and cadmium results do not exceed the project action limits. The antimony and cadmium results in the affected samples are usable as estimated, non-detected values which may be false positive.

Although there were positive ICP interferences attributed to the high concentration of iron that resulted in raising the reporting limit for sodium in the samples listed above, the project sensitivity goals are not impacted. The positive results for sodium which had estimated interference greater than 80% may be entirely due to iron interference. However, there are no regulatory limits established for sodium for the soil samples. The sodium results in the affected samples are usable as estimated, non-detected values which may be false positive.

Matrix Spike/Matrix Spike Duplicate

The results of the matrix spike and/or matrix spike duplicate (MS/MSD) analyses of sample TP-2-04-0304 were below the 75% recovery criterion for zinc. The positive zinc results are estimated (J) in all soil samples due to low MS and MSD recoveries.

The percent recovery criteria were not met for zinc; therefore, the project accuracy goals may be slightly impacted. The positive zinc results are usable as estimated values which may be biased low.

Field Duplicate Precision

The following table summarizes the analyte that recovered outside of the 50% RPD QC limit in the analysis of the field duplicate pair TP-2-02-0102/TP-2-DUP01:

Analyte	RPD	Action	
		(+)	NDs
Iron	99	J	
Lead	80	J	
Manganese	86	J	

The positive iron, lead, and manganese results are estimated (J) in all soil samples due to field duplicate imprecision.

The results of the field duplicate analysis exceeded the QC limits for iron, lead, and manganese; therefore, the project precision goals may be impacted. The positive iron, lead, and manganese results in all soil samples are usable as estimated values for which the bias is indeterminate.

ICP Serial Dilution Results

The percent difference for sodium was above the 15 percent QC criterion for analyte concentrations greater than 50x the method detection limit (MDL) before dilution, in the ICP serial dilution analysis of sample TP-2-04-0304. The positive results for sodium were qualified as estimated (J) in all soil samples. Since the initial sample result for this metal was greater than the diluted sample result, the results may be biased high.

Although the ICP serial dilution percent difference criteria were not met for sodium, the accuracy project goals are not impacted since there are no regulatory limits established for sodium for the soil samples. The positive sodium results in the affected samples are usable as estimated values which may be biased high.

Reporting Limits

The laboratory reported non-detected results down to the method detection limit (MDL). All non-detected values met the project action limits (PAL).

Reporting limits were raised for some metals due to blank contamination and ICP interference. As discussed above in the Laboratory Blank Analyses and ICP Interference Check Sample Results sections, the project sensitivity goals are not affected.

The positive results below than the laboratory's quantitation limit (QL) and above the MDL are estimated (J) due to uncertainty below the QL.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, sensitivity, and completeness; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data. Please refer to the specific sections in the above validation report for further details.

The project goals with respect to accuracy were met for the metals data set with the following exceptions. Antimony was qualified as estimated in select samples due to negative instrument drift. The affected results may be biased low. Antimony, cadmium, lead, selenium, and silver were qualified as estimated in select samples due to ICP interference due to high iron concentration. Zinc was qualified as estimated in the soil samples due to low matrix spike/matrix spike duplicate recoveries. The affected results may be biased low. Sodium was qualified as estimated in the soil samples due to an ICP serial dilution result exceedance. The affected results may be biased high. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated reporting limits which may have a minor impact on data usability. Additionally, copper was qualified as estimated in the rinsate blank sample due to negative instrument drift. Potassium was qualified as estimated in select samples due to ICP interference due to high iron concentration. Although specific method criteria were not met in these instances, data usability is not impacted and the affected positive and non-detected results are usable as estimated values and estimated reporting limits.

The project goals with respect to precision were met for the metals data set with the following exception. Iron, lead, and manganese were qualified as estimated in the soil samples due to field duplicate imprecision. Although specific method criteria were not met in these instances, the affected positive results are usable as estimated values which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the metals data set. Data usability is not impacted with regards to sensitivity.

The project goals with respect to completeness were met for the metals data set. Data usability is not impacted with regards to completeness.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

INTERNAL CORRESPONDENCE

C-NAVY-11-08-2960W

Date: November 25, 2008

c: File G00958-4.10 (w/enc.-original)
M. Messmer (w/o enc.)

To: Chuck Race (w/o enc.)

From: Jennifer Cardinal (no copy)

Subject: Tier II Organic Data Validation, SDG CTO432-1
Katahdin Analytical Services, Inc.
CTO 432, Site 02, Former Orion Street Landfill– South, NAS Brunswick, Brunswick, ME

VOC/SVOC/Pesticides/PCB:

21/Soils/	SB-2-303-1214	SB-2-305-0507	SB-2-306-1620
	SB-2-307-0507	SB-2-308-0003	TP-2-01-0006
	TP-2-01-0203	TP-2-02-0006	TP-2-02-0102
	TP-2-04-0304	TP-2-05-0102	TP-2-05-0708
	TP-2-06-0102	TP-2-07-0304	TP-2-07-0607
	TP-2-08-0304	TP-2-09-0506	TP-2-10-0405
	TP-2-11-0405	TP-2-11-0708	TP-2-DUP01

(Field Duplicate Pair: TP-2-02-0102/ TP-2-DUP01)

1/Rinsate Blank/ SB-2-RB01-100708

VOC:
2/Trip blanks/ SB-2-TB02-100608 TP-2-TB01-100108

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the volatile (VOC), semivolatile organic compounds (SVOCs), pesticide, and polychlorinated biphenyls (PCB) analytical data for the samples in this SDG. The samples were collected at the Site 02, Former Orion Street Landfill– South at NAS Brunswick, Brunswick, Maine from October 1-7, 2008. Sample collection and analysis was performed according to the requirements of the Final Work Plan for Investigation Activities at the Former Orion Street Landfill- South (Site 2), NAS Brunswick, Maine, dated June 2007.

The VOC and SVOC analyses were performed according to USEPA SW-846 Methods 8260B and 8270C, respectively. Selected semivolatile compounds were analyzed by Method 8270C in the selective ion monitoring (SIM) mode to achieve lower reporting limits. The pesticides and PCB analyses were performed according to USEPA SW-846 Methods 8081 and 8082, respectively.

The VOC and SVOC data validation was performed in accordance with the Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996. The pesticides and PCB validation was performed in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Organic Analyses, Part III, February 2004. The statistically-derived and method specific quality control limits were applied to assess the data.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The data were evaluated based on the following parameters:

- Data Completeness
- * Preservation and Technical Holding Times
- * GC/MS Instrument Performance Check (Tuning)
- * Pesticide Degradation
- Initial and Continuing Calibrations
- Blanks
- Surrogate Compounds
- Internal Standards
- Matrix Spike/Matrix Spike Duplicate
- Laboratory Control Sample/Laboratory Control Sample Duplicate
- Field Duplicates
- Analyte Identification
- * Percent Solids
- Reporting Limits

* All criteria were met for this parameter.

<u>Data Completeness</u>

Volatiles

The initial calibration verification summary recovery reports from a second source for both initial calibrations were missing from the data package. On November 6, 2008 the laboratory submitted the forms.

Semivolatiles

The semivolatiles section of the data package was missing a surrogate summary form. No resubmittals were requested because the missing form can be found in the Sample Data Summary Package on page A0000143.

Pesticides

The 4,4'-DDT for pesticide sample TP-2-01-0006 was estimated (J) in the Form I. Since this result is above the adjusted PQL and the RPD between the two column results is below the 40% QC limit, this result should not be estimated. On November 12, 2008 the laboratory resubmitted the Form I without the J flag.

Two Form Is were provided for pesticide sample TP-2-11-0405 in the Sample Data Summary Package which had different results for endosulfan sulfate. On November 11, 2008 the laboratory confirmed that

the correct results are reported on page A0000236. Also, the pesticide section of the data package contains only the correct results.

Initial and Continuing Calibrations

Semivolatiles

The following table summarizes the semivolatile compounds that failed to meet the initial calibration verification recovery criteria of 75-125%:

Compound	%R	Action		Affected Samples
		(+)	NDs	
Benzaldehyde	33.7, 17.68		UJ	All samples
Atrazine	66.69		UJ	SB-2-307-0507, SB-2-308-0003, SB-2-306-1620, SB-2-303-1214, SB-2-305-0507, TP-2-05-0102(RE), TP-2-06-0102(RE), TP-2-08-0304(RE), TP-2-09-0506(RE), TP-2-10-0405(RE)
Isophorone	72.64		UJ	
Benzo(k)fluoranthene	69.56	J	UJ	

Although the initial calibration verification recoveries for benzaldehyde, atrazine, isophorone, and benzo(k)fluoranthene were below the QC limit, the project accuracy goals are not impacted since the recoveries are within the safety margin of error allocated for these compounds as indicated by the large difference between the project action limits and the project quantitation limits. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits which may be biased low.

The following table summarizes the semivolatile compound that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
3,3'-Dichlorobenzidiene	-31.50		UJ	TP-2-01-0006, TP-2-01-0203, TP-2-DUP01, TP-2-04-0304, TP-2-07-0304
Benzaldehyde	74.01	J	UJ	SB-2-RB01-100708, TP-2-07-0607(RA), TP-2-11-0708, TP-2-05-0708(RA), TP-2-02-0006(RA), TP-2-11-0405, TP-2-02-0102(RA),
Di-n-octylphthalate	33.84		UJ	TP-2-05-0102(RE), TP-2-06-0102(RE), TP-2-08-0304(RE), TP-2-09-0506(RE), TP-10-0405(RE)

Although the %D were outside of the QC limits for 3,3'-dichlorobenzidine and benzaldehyde, the project accuracy goals are not impacted since the instrument calibration variability is below safety margin of greater than 100% allocated for the compounds and since there are no regulatory limits established the rinsate blank sample. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

Although the %D was outside of the QC limits for di-n-octylphthalate, the project accuracy goals are not impacted since there are no regulatory limits established for the di-n-octylphthalate for the soil samples and there are no regulatory limits established for the surface water sample and the rinsate blank sample. The non-detected results in the affected sample are usable as estimated quantitation limits.

Semivolatiles- SIM

The following table summarizes the semivolatile SIM compound that failed to meet the initial calibration verification recovery criteria of 75-125%:

Compound	%R	Action		Affected Samples
		(+)	NDs	
Dibenzo(a,h)anthracene	67.91	J	UJ	All samples

The initial calibration verification recovery for dibenzo(a,h)anthracene was below the QC limit; therefore, the project accuracy goals may be impacted. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits which may be biased low.

The following table summarizes the semivolatile SIM compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Pentachlorophenol	47.37, 36.27, 47.81		UJ	All samples
Benzo(b)fluoranthene	35.63, 27.22	J	UJ	SB-2-RB01-100708, TP-2-07-0607, TP-2-09-0506, TP-2-11-0708, TP-2-11-0405, TP-2-08-0304(RE)
Dibenzo(a,h)anthracene	39.07, 46.26	J	UJ	
N-nitroso-di-n-propylamine	-25.13		UJ	SB-2-307-0507, SB-2-308-0003, SB-2-306-1620, SB-2-303-1214, SB-2-305-0507

Although the %D were outside of the QC limits for pentachlorophenol, benzo(b)fluoranthene, and n-nitroso-di-n-propylamine, the project accuracy goals are not impacted since the instrument calibration variability is below safety margin of greater than 50% allocated for the compounds and since there are no regulatory limits established the surface water sample and the rinsate blank sample. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

The %D was outside of the QC limits for dibenzo(a,h)anthracene; therefore, the project accuracy goals may be slightly impacted. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

Pesticides

The following table summarizes the pesticide compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D Column 1	%D Column 2	Action		Affected Samples
			(+)	NDs	
Delta-BHC	26.00, 49.00	27.20, 39.80		UJ	TP-2-01-0203, TP-2-02-0006, TP-2-02-0102, TP-2-DUP01, TP-2-05-0102, TP-2-05-0708, TP-2-06-0102, TP-2-10-0405(RA), TP-2-11-0708(RA)
4,4'-DDT	25.80	-	J	UJ	TP-2-10-0405(RA), TP-2-11-0708(RA)
Endosulfan sulfate	42.60	33.00		UJ	
Endrin ketone	27.80	26.60		UJ	
Methoxychlor	50.40, 44.40	35.20, 36.20	J	UJ	TP-2-09-0506(RERA), SB-2-307-0507(RA), SB-2-308-0003(RA), SB-2-306-1620(RA), SB-2-303-1214(RA), SB-2-305-0507(RA), TP-2-08-0304, TP-2-11-0405(RA)
Endrin	31.20	-	J	UJ	

-Criterion met

Although the %D was outside of the QC limits for delta-BHC, 4,4'-DDT, endosulfan sulfate, endrin ketone, methoxychlor, and endrin, the project accuracy goals were not impacted since the instrument calibration variability is below safety margin of greater than 100% allocated for the compounds. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

Blanks

Pesticides

The following table summarizes the level of blank contamination detected in the laboratory blank associated with the samples.

Compound	Type of Blank	Maximum Conc. (mg/Kg)	Action Level (mg/Kg)	Affected Samples
Methoxychlor	Method	8.0	40	TP-2-11-0405(RA)

Blank actions were applied to sample TP-2-11-0405(RA) due to methoxychlor method blank contamination. The 5x rule applies for this pesticide compound. The positive result for methoxychlor in the affected sample was changed to non-detected value at the project quantitation limit.

Although methoxychlor contamination was found in the laboratory method blank, the project sensitivity goals are not impacted since the non-detected value does not exceed the project action limit for methoxychlor. The result in the affected samples is usable as a non-detected value.

Surrogate Compounds

Volatiles

The following samples had surrogate spike recoveries outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
TP-2-04-0304	p-Bromofluorobenzene	34	53-122	J	UJ

The surrogate p-bromofluorobenzene recovered below the QC limits in sample TP-2-04-0304. All positive results are estimated (J) and all non-detected results are estimated (UJ) in the affected sample due to low surrogate recoveries.

The surrogate recovery QC criteria were not met p-bromofluorobenzene; therefore, the project accuracy goals may be impacted. The positive and non-detected results in sample TP-2-04-0304 are usable as estimated values and estimated quantitation limits which may be biased low.

Semivolatiles

The following samples had surrogate spike recoveries outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
TP-2-02-0102(RA)	Phenol-d5	27	53-98	J	UJ
	2-Fluorophenol	17	43-99		
	2,4,6-Tribromophenol	3	44-111		
TP-2-DUP01	Phenol-d5	30	53-98	J	UJ
	2-Fluorophenol	18	43-99		
	2,4,6-Tribromophenol	2	44-111		
TP-2-04-0304	Phenol-d5	35	53-98	J	UJ
	2-Fluorophenol	23	43-99		
	2,4,6-Tribromophenol	4	44-111		

The surrogates phenol-d5, 2-fluorophenol, and 2,4,6-tribromophenol recovered below the QC limits in the samples listed above. All positive phenolic compound results are estimated (J) and all non-detected phenolic compound results are estimated (UJ) in the affected samples due to low surrogate recoveries.

The surrogate recovery QC criteria were not met phenol-d5, 2-fluorophenol, and 2,4,6-tribromophenol; therefore, the project accuracy goals may be impacted. The positive and non-detected phenolic compound results in samples TP-2-02-0102(RA), TP-2-DUP01, and TP-2-04-0304 are usable as estimated values and estimated quantitation limits which may be biased low.

Semivolatiles- SIM

The following samples had surrogate spike recoveries outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
TP-2-04-0304	Fluorene-d10	48	53-136		UJ

TP-2-02-0102		35			UJ
TP-2-DUP01		42			UJ

The surrogate fluorene-d10 recovered below the QC limits in the samples listed above. The target compound associated with fluorene-d10 is hexachlorobenzene. All non-detected hexachlorobenzene results are estimated (UJ) in the affected samples due to low surrogate recoveries.

The surrogate recovery QC criteria were not met fluorene-d10; therefore, the project accuracy goals may be impacted. The non-detected hexachlorobenzene results in samples TP-2-04-0304, TP-2-02-0102, and TP-2-DUP01 are usable as estimated quantitation limits which may be biased low.

Internal Standards

Volatiles

The following table summarizes the volatile internal standards that failed to meet the acceptance criteria:

Internal Standard	IS Area	Acceptable Range	Action		Affected Samples
			(+)	NDs	
1,4-Difluorobenzene	305672	333792-1335166	J	UJ	TP-2-04-0304
Chlorobenzene-d5	150980	294248-1176990	J	UJ	
1,4-Dichlorobenzene-d4	48382	188723-754890	J	UJ	
	170540	178698-714792		UJ	TP-2-01-0006(RA)
	167409	178698-714792		UJ	TP-2-10-0405(RA)
	179141	185262-741046		UJ	TP-2-05-0708(RA2)

The internal standard areas of 1,4-difluorobenzene, chlorobenzene-d5 and 1,4-dichlorobenzene-d4 failed to meet the acceptable range for the samples listed above. All positive and non-detected results for the associated compounds are estimated (J, UJ) in the affected samples due to poor internal standard performance.

The target compounds associated with 1,4-difluorobenzene are 1,2-dichloroethane, carbon tetrachloride, benzene, 1,2-dichloropropane, trichloroethene, bromodichloromethane, cis-1,3-dichloropropene, 4-methyl-2-pentanone, toluene, trans-1,3-dichloropropene, 1,1,2-trichloroethane. The target compounds associated with chlorobenzene-d5 are tetrachloroethene, dibromochloromethane, chlorobenzene, ethylbenzene, total xylenes, bromoform, styrene, and 2-hexanone. The target compounds associated with 1,4-dichlorobenzene-d4 are 1,1,2,2-tetrachloroethane, 1,2-dichlorobenzene, 1,3-dichlorobenzene, and 1,4-dichlorobenzene.

The QC criteria were not met for the internal standard areas of 1,4-difluorobenzene, chlorobenzene-d5 and 1,4-dichlorobenzene-d4 for the above samples; therefore, the project accuracy goals may be impacted. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

Matrix Spike/Matrix Spike Duplicate

Volatiles

The matrix spike/matrix spike duplicate (MS/MSD) results for sample TP-2-04-0304 recovered the majority of the volatile compounds below the compound-specific recovery limits and above the relative percent difference 30% QC limit. All positive results are estimated (J) and all non-detected results are estimated (UJ) in sample TP-2-04-0304 due to low MS/MSD recoveries and MS/MSD imprecision.

The matrix spike/matrix spike duplicate recoveries for the majority of the volatile compounds did not meet the QC limits; therefore, the project accuracy goals may be slightly impacted. The positive and non-detected results in sample TP-2-04-0304 are usable as estimated values and estimated quantitation limits which may be biased low.

The matrix spike/matrix spike duplicate relative percent differences for the majority of the volatile compounds did not meet the QC limits; therefore, the project precision goals may be slightly impacted. The positive and non-detected results in sample TP-2-04-0304 are usable as estimated values and estimated quantitation limits for which the bias is indeterminate.

Semivolatiles

The matrix spike/matrix spike duplicate results for sample TP-2-04-0304 recovered 0% 3,3'-dichlorobenzidine and 4-chloroaniline. The non-detected 3,3'-dichlorobenzidine and 4-chloroaniline results are qualified as rejected (R) in sample TP-2-04-0304 due to no MS/MSD recovery. These results should not be used for project decisions and the data completeness goals may be impacted.

In addition, the matrix spike/matrix spike duplicate (MS/MSD) results for sample TP-2-04-0304 recovered the majority of the semivolatile compounds below the compound-specific recovery. All positive results are estimated (J) and all non-detected results are estimated (UJ) in sample TP-2-04-0304 due to low MS/MSD recoveries.

The matrix spike/matrix spike duplicate recoveries for the majority of the semivolatile compounds did not meet the QC limits; therefore, the project accuracy goals may be slightly impacted. The positive and non-detected results in sample TP-2-04-0304 are usable as estimated values and estimated quantitation limits which may be biased low.

Semivolatiles- SIM

The following table summarizes the results of the matrix spike duplicate (MSD) analysis of sample TP-2-04-0304 that were outside of the QC limits:

Analyte	% Rec.	% Rec. QC Limit	RPD (QC Limit: ±50%)	Action	
				(+)	NDs
Benzo(a)anthracene	0	37-153	68	J	
Benzo(a)pyrene	26	47-109	93	J	

Benzo(b)fluoranthene	9	37-147	58	J	

The percent recovery criteria were not met for benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene; therefore, the project accuracy goals may be slightly impacted. The positive benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene results in sample TP-2-04-0304 are usable as estimated values which may be biased low.

The RPD criterion were not met for benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene; therefore, the project precision goals may be slightly impacted. The positive benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene results in sample TP-2-04-0304 are usable as estimated values for which the bias is indeterminate.

Pesticides

The matrix spike/matrix spike duplicate (MS/MSD) results for sample TP-2-04-0304 recovered the majority of the pesticide compounds below the compound-specific recovery limits. All positive and non-detected results are estimated (J, UJ) in sample TP-2-04-0304 due to low MS/MSD recoveries.

The matrix spike/matrix spike duplicate recoveries for the majority of the pesticide compounds did not meet the QC limits; therefore, the project accuracy goals may be slightly impacted. The positive and non-detected results in sample TP-2-04-0304 are usable as estimated values and estimated quantitation limits which may be biased low.

<u>Laboratory Control Sample/Laboratory Control Sample Duplicates</u>

Volatiles

The following table summarizes the volatile compounds that failed to meet the LCS recovery limits:

Compound	% Rec.	QC Limits	Action		Affected Samples
			(+)	NDs	
cis-1,3-Dichloropropene	82	87-118		UJ	SB-2-RB01-100708
trans-1,3-Dichloropropene	86	90-137		UJ	
1,1-Dichloroethene	88	89-132		UJ	TP-2-TB01-100108, TP-2-01-0203, TP-2-02-0006, TP-2-DUP01, TP-2-04-0304, TP-2-06-0102, TP-2-07-0304, TP-2-07-0607, TP-2-08-0304, TP-2-09-0506

Although the laboratory control sample recovery criteria were not met for cis-1,3-dichloropropene and trans-1,3-dichloropropene, the project accuracy goals are not impacted since there are no regulatory limits established for the rinsate blank sample. The non-detected results in the affected sample are usable as estimated quantitation limits which may be biased low.

The laboratory control sample recovery criteria were not met due to a low LCS recovery for 1,1-dichloroethene; therefore, the project accuracy goals may be slightly impacted. The non-detected results in the affected samples are usable as estimated quantitation limits which may be biased low.

Semivolatiles

The following table summarizes the semivolatile compounds that failed to meet the LCS recovery limits:

Compound	% Rec.	QC Limits	Action		Affected Samples
			(+)	NDs	
2,2'-Oxybis(1-chloropropane)	60	61-98		UJ	TP-2-01-0006, TP-2-01-0203, TP-2-DUP01, TP-2-04-0304, TP-2-07-0304, TP-2-07-0607(RA), TP-2-11-0708, TP-2-05-0708(RA), TP-2-02-0006(RA), TP-2-11-0405
2-Methylphenol	56	60-99		UJ	
Hexachloroethane	57	59-90		UJ	
2-Nitrophenol	58	61-100		UJ	
2,4-Dimethylphenol	48	52-99		UJ	
Bis(2-chloroethoxy)methane	60	63-99		UJ	
2,4-Dichlorophenol	61	63-102		UJ	
Hexachlorobutadiene	56	59-90		UJ	
2-Chloronaphthalene	59	68-102		UJ	
4-Chlorophenyl-phenylether	65	67-110		UJ	
4-Bromophenyl-phenylether	57	67-119		UJ	
Fluoranthene	65	70-115	J	UJ	
Chrysene	64	66-107	J	UJ	
Benzaldehyde	93	10-77	J		SB-2-RB01-100708

The laboratory control sample recovery criteria were not met for the compounds listed above; therefore, the project accuracy goals may be slightly impacted. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits which may be biased low.

Although the laboratory control sample recovery criteria were not met for benzaldehyde, the project accuracy goals are not impacted since there are no regulatory limits established for the rinsate blank sample. The positive benzaldehyde result in the rinsate blank sample is usable as an estimated value which may be biased high.

Semivolatiles- SIM

The following table summarizes the semivolatile- SIM compound that failed to meet the LCS recovery limits and/or the LCS relative percent difference QC limits:

Compound	% Rec.	QC Limits	Action		Affected Samples
			(+)	NDs	
Benzo(a)pyrene	37	47-109		UJ	SB-2-307-0507, SB-2-308-0003, SB-2-306-1620, SB-2-303-1214, SB-2-305-0507

The laboratory control sample recovery criteria were not met for benzo(a)pyrene; therefore, the project accuracy goals may be slightly impacted. The non-detected results in the affected samples are usable as estimated quantitation limits which may be biased low.

Pesticides

The following table summarizes the pesticide compounds that failed to meet the LCS recovery limits and/or the LCS relative percent difference QC limits:

Compound	% Rec.	%Rec. QC Limits	RPD (QC Limit: ±50)	Action		Affected Samples
				(+)	NDs	
Alpha-BHC	53, 54	60-125	-		UJ	TP-2-01-0203, TP-2-02-0006, TP-2-02-0102, TP-2-DUP01, TP-2-05-0102, TP-2-05-0108, TP-2-06-0102, TP-2-01-0006(DL), TP-2-05-0102(DL), TP-2-10-0405(RA), TP-2-11-0708(RA), SB-2-307-0507(RA), SB-2-308-0003(RA), SB-2-306-1620(RA), SB-2-303-1214(RA), SB-2-305-0507(RA)
Heptachlor epoxide	64, 59	65-130	-	J	UJ	
4,4'-DDE	68, 58	70-125	67	J	UJ	
Gamma-BHC	58	60-125	-		UJ	SB-2-307-0507(RA), SB-2-308-0003(RA), SB-2-306-1620(RA), SB-2-303-1214(RA), SB-2-305-0507(RA)
Beta-BHC	58	60-125	-		UJ	
Delta-BHC	51	55-130	-		UJ	
Gamma-chlordane	61	65-125	-		UJ	
Alpha-chlordane	59	65-120	-		UJ	
Dieldrin	58	65-125	-		UJ	
Endrin ketone	62	65-135	-		UJ	

-Criterion met

The laboratory control sample recovery criteria were not met for alpha-BHC, heptachlor epoxide, 4,4-DDE, gamma-BHC, beta-BHC, delta-BHC, gamma-chlordane, alpha-chlordane, dieldrin, and endrin ketone; therefore, the project accuracy goals may be slightly impacted. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits which may be biased low.

The laboratory control sample RPD criterion was not met for 4,4'-DDE; therefore the project precision goals may be slightly impacted. The positive and non-detected 4,4'-DDE results in the affected samples are usable as estimated value and estimated quantitation limits for which the bias is indeterminate.

In addition, the LCS/LCSD results affecting sample TP-2-09-0506(RERA) recovered the majority of the pesticide compounds below the compound-specific recovery limits and above the RPD QC limits. All positive and non-detected results are estimated (J, UJ) in sample TP-2-09-0506(RERA) due to low LCS/LCSD recoveries and LCS/LCSD imprecision.

The LCS/LCSD recoveries for the majority of the pesticide compounds did not meet the QC limits; therefore, the project accuracy goals may be slightly impacted. The positive and non-detected pesticide results in sample TP-2-09-0506(RERA) are usable as estimated values and estimated quantitation limits which may be biased low.

The LCS/LCSD RPDs for the majority of the pesticide compounds did not meet the QC limit; therefore, the project precision goals may be slightly impacted. The positive and non-detected pesticide results in sample TP-2-09-0506(RERA) are usable as estimated values and estimated quantitation limits for which the bias is indeterminate.

Field Duplicates

Semivolatiles- SIM

The field duplicate pair TP-2-02-0102/TP-2-DUP01 exceeded the relative percent difference QC criterion of 50% for the following compounds:

Analyte	RPD	Action	
		(+)	NDs
Benzo(a)anthracene	91	J	
Benzo(a)pyrene	72	J	

The field duplicate relative percent difference for the above compounds exceeded the QC criterion; therefore, the project precision goals may be slightly impacted. The positive results in samples TP-2-02-0102 and TP-2-DUP01 are usable as estimated values for which the bias is indeterminate.

Pesticides

The alpha-chlordane and gamma-chlordane results of the field duplicate pair TP-2-02-0102/TP-2-DUP01 did not meet QC criteria since one result was non-detect and the other result was greater than two times the quantitation limit. The positive results are estimated (J) and the non-detected results are estimated (UJ) due to field duplicate imprecision.

The analysis of the field duplicate pair TP-2-02-0102/TP-2-DUP01 did not meet QC criteria for alpha-chlordane and gamma-chlordane; therefore, the project precision goals may be impacted. The positive and non-detected alpha-chlordane and gamma-chlordane results in samples TP-2-02-0102 and TP-2-DUP01 are usable as estimated values and estimated quantitation limits for which the bias is indeterminate.

Analyte Identification/Quantitation

Pesticides

The %RPD between the results of analytical columns 1 and 2 exceeded the 40% RPD QC criterion for the compounds in the following samples:

Sample	Analyte	%RPD	Action (+)
TP-2-DUP01	4,4'-DDE	62.2	J
TP-2-04-0304	4,4'-DDD	65.0	J
TP-2-05-0102	4,4'-DDD	45.8	J
TP-2-06-0102	4,4'-DDE	40.6	J
TP-2-11-0405(RA)	4,4'-DDD	70.8	J
	Endrin aldehyde	50.2	J

The analyte quantitation relative percent differences exceeded the QC limits, therefore the project accuracy goals may be affected due to analytical interferences detected in the dual column analysis. The positive results for the affected compounds in the affected samples are usable as estimated values.

Reporting Limits

Volatiles

All project quantitation limits and project action limits were met for the soil samples.

Semivolatiles

All project quantitation limits and project action limits were met for the soil samples.

Semivolatiles- SIM

All project quantitation limits and project action limits were met for the soil samples with the following exception. The project action limits were not achievable for benzo(a)pyrene and dibenzo(a,h)anthracene.

Pesticides

Although reporting limits for select pesticide compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits.
Although blank action was taken on sample TP-2-11-0405(RA) due to methoxychlor contamination, the project sensitivity goals are not impacted as discussed in the Blanks section above.

PCBs

All project quantitation limits and project action limits were met for the soil samples.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, sensitivity and completeness; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data. Please refer to the specific sections in the above validation report for further details.

Volatiles

The project goals with respect to accuracy were met for the volatiles data set with the following exceptions. Sample TP-2-04-0304 was qualified as estimated due to low surrogate recoveries; the affected results may be biased low. Select compounds in samples TP-2-04-0304, TP-2-01-0006(RA), TP-2-10-0405(RA), and TP-2-05-0708(RA2) were qualified as estimated due to poor internal standard performance. Sample TP-2-04-0304 was qualified as estimated due to low MS/MSD recoveries; the affected results maybe biased low. 1,1-Dichloroethene was qualified as estimated in select samples due to a low LCS recovery; the affected results may be biased low. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability. Additionally, cis-1,3-dichloropropene and trans-1,3-dichloropropene were qualified as estimated in the rinsate blank sample due to low LCS recoveries. Although specific method criteria were not met in this instance, data usability is not impacted and the affected positive and non-detected results are usable as estimated values and estimated quantitation limits.

The project goals with respect to precision were met for the volatiles data set with the following exception. Sample TP-2-04-0304 was qualified as estimated due to MS/MSD imprecision. Although specific method criteria were not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the volatiles data set. Data usability was not impacted with regards to sensitivity.

The project goals with respect to completeness were met for the volatiles data set. Data usability was not impacted with regards to completeness.

Semivolatiles

The project goals with respect to accuracy were met for the semivolatiles data set with the following exceptions. The phenolic compounds in samples TP-2-02-0102(RA), TP-2-DUP01, and TP-2-04-0304 were qualified as estimated due to low surrogate recoveries; the affected results may be biased low. Sample TP-2-04-0304 was qualified as estimated due to low MS/MSD recoveries; the affected results maybe biased low. Several semivolatile compounds were qualified as estimated in select samples due to low LCS recoveries; the affected results may be biased low. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability. Additionally, 3,3'-dichlorobenzidine, benzaldehyde, and di-n-octylphthalate were qualified as estimated in select samples due to instrument calibration variability. Benzaldehyde, atrazine, isophorone, and

benzo(k)fluoranthene were qualified as estimated in select samples due to low initial calibration verification recoveries. Benzaldehyde was qualified as estimated in the rinsate blank sample due to a high LCS recovery. Although specific method criteria were not met in these instances, data usability is not impacted and the affected positive and non-detected results are usable as estimated values and estimated quantitation limits.

The project goals with respect to precision were met for the semivolatiles data set. Data usability was not impacted with regards to precision.

The project goals with respect to sensitivity were met for the semivolatiles data set. Data usability was not impacted with regards to sensitivity.

The project goals with respect to completeness were met for the semivolatiles data set with the following exception. The 3.3'-dichlorobenzidine and 4-chloroaniline results in sample TP-2-04-0304 were rejected due to 0% MS/MSD recovery. These results are not usable for project decisions and the data completeness goals may be impacted.

Semivolatiles- SIM

The project goals with respect to accuracy were met for the semivolatiles- SIM data set with the following exceptions. Dibenzo(a,h)anthracene was qualified as estimated in select samples due to low initial calibration verification recoveries; the affected results may be biased low. Dibenzo(a,h)anthracene was qualified as estimated in select samples due to instrument calibration variability. Samples TP-2-04-0304, TP-2-02-0102, TP-2-DUP01, and TP-2-02-0102(DL) were qualified as estimated due to low surrogate recoveries; the affected results may be biased low. Benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene were qualified as estimated in sample TP-2-04-0304 due to low MS/MSD recoveries; the affected results may be biased low. Benzo(a)pyrene was qualified as estimated in select samples due to a low LCS recovery; the affected results may be biased low. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability. Additionally, n-nitroso-di-n-propylamine, pentachlorophenol, and benzo(b)fluoranthene were qualified as estimated in select samples due to instrument calibration variability. Although specific method criteria were not met in this instance, data usability is not impacted and the affected positive and non-detected results are usable as estimated values and estimated quantitation limits.

The project goals with respect to precision were met for the semivolatiles- SIM data set with the following exceptions. Benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene were qualified as estimated in sample TP-2-04-0304 due to MS/MSD imprecision. Benzo(a)anthracene and benzo(a)pyrene were qualified as estimated in samples TP-2-02-0102 and TP-2-DUP01 due to field duplicate imprecision. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the semivolatiles- SIM data set with the following exception. The project action limits were not achievable for benzo(a)pyrene and dibenzo(a,h)anthracene. Data usability may be impacted.

The project goals with respect to completeness were met for the semivolatiles- SIM data set. Data usability was not impacted with regards to completeness.

Pesticides

The project goals with respect to accuracy were met for the pesticides data set with the following exceptions. Sample TP-2-04-0304 was qualified as estimated due to low MS/MSD recoveries; the affected results may be biased low. Alpha-BHC, heptachlor epoxide, 4,4-DDE, gamma-BHC, beta-BHC, delta-BHC, gamma-chlordane, alpha-chlordane, dieldrin, and endrin ketone were qualified as estimated in select samples due to low LCS recoveries; the affected results may be biased low. Sample TP-2-09-0506(RERA) was qualified as estimated due to low LCS recoveries; the affected results may be biased low. Select pesticide compounds in several samples were qualified as estimated due to analytical interferences detected in the dual column analysis. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability. Additionally, delta-BHC, 4,4'-DDT, endosulfan sulfate, endrin ketone, methoxychlor, and endrin were qualified as estimated in select samples due to instrument calibration variability. Although specific method criteria were not met in this instance, data usability is not impacted and the affected positive and non-detected results are usable as estimated values and estimated quantitation limits.

The project goals with respect to precision were met for the pesticides data set with the following exceptions. 4,4'-DDE was qualified as estimated in select samples due to LCS imprecision. Sample TP-2-09-0506(RERA) was qualified as estimated due to LCS imprecision. Alpha-chlordane and gamma-chlordane were qualified as estimated in samples TP-2-02-0102 and TP-2-DUP01 due to field duplicate imprecision. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the pesticides data set. Data usability was not impacted with regards to sensitivity.

The project goals with respect to completeness were met for the pesticides data set. Data usability was not impacted with regards to completeness.

PCBs

The project goals with respect to accuracy, precision, sensitivity, and completeness were met for the PCBs data set. Data usability was not impacted with regards to accuracy, precision, sensitivity, and completeness.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

INTERNAL CORRESPONDENCE

C-NAVY-11-08-2952W

Date: November 17, 2008

c: File G00958-4.10 (w/enc.-original)
M. Messmer (w/o enc.)

To: Chuck Race (w/o enc.)

From: Jennifer Cardinal (no copy)

Subject: Tier II Inorganic Data Validation, SDG CTO432-2
Katahdin Analytical Services, Inc.
CTO 432, Site 02, Former Orion Street Landfill– South, NAS Brunswick, Brunswick, ME

TAL Metals:

7/Soils/	SB-2-301-0406	SB-2-302-0002	SB-2-304-1620
	SB-2-309-0002	SB-2-310-0406	SB-2-DUP02
	SB-2-DUP03		
	(Field Duplicate Pairs: SB-2-309-0002/SB-2-DUP02, SB-2-310-0406/ SB-2-DUP03)		
1/Source Water Blank/	SB-2-SWB01		
1/Rinsate Blank/	SB-2-RB02-100808		

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the TAL metals analytical data from the samples collected at the Site 02, Former Orion Street Landfill– South at NAS Brunswick, Brunswick, Maine from October 8-9, 2008. The metals analysis was performed according to USEPA SW-846 Methods 6010B, 7470A/7471A (mercury), and 6020 (arsenic and thallium). The Tier II data validation was performed according to the Region I, EPA-NE Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, modified February 1989. Sample collection and analysis was performed according to the requirements of the Final Work Plan for Investigation Activities at the Former Orion Street Landfill- South (Site 2), NAS Brunswick, Maine, dated June 2007.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The metals data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • ICP-MS Tune
* • ICP-MS Internal Standard Performance
  • Calibration Verification
  • Laboratory Blank Analyses
  • ICP Interference Check Sample Results
  • Matrix Spike/Matrix Spike Duplicate
  • Laboratory Duplicate Results
* • Laboratory Control Sample Results

- Field Duplicate Precision
- ICP Serial Dilution Results
- * Reporting Limits

* All quality control criteria were met for this parameter.

Calibration Verification

The following table summarizes the analyte that recovered outside of the 70-130% QC limits in the reporting limit check standard:

Analyte	%R	2xTrue Value (TV) (µg/L)	Action		Affected Samples
			(+)<2xTV	NDs	
Antimony	64.0	8.0		UJ	SB-2-SWB01, SB-2-RB02-100808
Sodium	132.0	1000	J		SB-2-RB02-100808

Although antimony recovered below the QC limit in the reporting limit check standard, the project accuracy goals are not impacted since there are no regulatory limits established for the source water blank sample and the rinsate blank sample. The non-detected antimony results in the affected samples are usable as estimated quantitation limits which may be biased low.

Although sodium recovered above the QC limit in the reporting limit check standard, the project accuracy goals are not impacted since there are no regulatory limits established for the source water blank sample and the rinsate blank sample. The positive sodium results in the affected samples are usable as estimated values which may be biased high.

Laboratory Blank Analyses

The source water blank and rinsate blank were not used to establish blank action levels for the soil samples.

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the soil samples:

Analyte	Maximum Conc. (µg/L)	Action Level (mg/kg)	Affected Samples
Antimony	1.90	0.95	SB-2-302-0002
Cadmium	0.31	0.16	SB-2-301-0406, SB-2-304-1620, SB-2-310-0406, SB-2-DUP02, SB-2-DUP03
Selenium	2.41	1.21	SB-2-301-0406, SB-2-302-0002, SB-2-310-0406, SB-2-DUP02, SB-2-DUP03
Silver	0.72	0.36	SB-2-301-0406, SB-2-304-1620, SB-2-310-0406, SB-2-DUP03
Thallium	0.24	0.60	All samples

The positive antimony, cadmium, selenium, silver, and thallium results below the blank action level were changed to non-detected values (U) at elevated reporting limits due to laboratory blank contamination.

The action levels in the table above are based on an assumption of 100 percent solids, 1 g of sample analyzed, and a dilution factor of 5 (thallium) or 1 (other metals). The action level for each sample is different, based on the actual percent solids, amount of soil sample analyzed, and the dilution factor.

Although antimony, cadmium, selenium, silver, and thallium contamination was found in the laboratory blank, the project sensitivity goals are not impacted since the project action limits are not exceeded by the sample-specific elevated reporting limits. The non-detected antimony, cadmium, selenium, silver, and thallium results in the affected samples are usable as elevated reporting limits.

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the source water blank sample and rinsate blank sample:

Analyte	Maximum Conc. (µg/L)	Action Level (µg/L)	Affected Sample
Aluminum	34.14	170.7	SB-2-SWB01
Barium	1.35	6.76	SB-2-SWB01, SB-2-RB02-100808
Chromium	1.43	7.15	SB-2-SWB01
Copper	-2.17	10.85	SB-2-RB02-100808
Iron	13.48	67.4	SB-2-SWB01, SB-2-RB02-100808
Nickel	0.73	3.65	SB-2-SWB01
Selenium	2.41	12.1	SB-2-SWB01, SB-2-RB02-100808
Vanadium	0.71	3.55	SB-2-SWB01

The positive aluminum, barium, chromium, iron, nickel, selenium, and vanadium results below the blank action level were changed to non-detected values (U) at elevated reporting limits due to laboratory blank contamination. The positive copper result below the blank action level is estimated (J) due to negative instrument drift as evidenced by the negative blank results.

Although aluminum, barium, chromium, iron, nickel, selenium, and vanadium contamination was found in the laboratory blank, the project sensitivity goals are not impacted since the there are no regulatory limits established for the source water blank sample and the rinsate blank sample. The non-detected results in the affected samples are usable as elevated reporting limits.

Although a negative result for copper was found in the laboratory blank, the project accuracy goals are not impacted since the there are no regulatory limits established for the rinsate blank sample. The positive copper result in the affected sample is usable as an estimated value which may be biased low.

ICP Interference Check Sample Results

The following results were qualified in the affected samples due to ICP interference attributed to the high concentration of iron in the samples:

Analyte	Action		Bias	Affected Samples
	(+)	ND		
Antimony	UJ*		High	SB-2-302-0002
Cadmium	J		High	SB-2-302-0002
	UJ*			SB-2-309-0002, SB-2-DUP02
Selenium	J		High	SB-2-DUP02
	UJ*			SB-2-302-0002
Silver	J	UJ	Low	SB-2-302-0002, SB-2-309-0002, SB-2-DUP02
Sodium	J		High	SB-2-302-0002, SB-2-309-0002, SB-2-DUP02

The positive results for cadmium, selenium, and sodium in the affected samples are qualified as estimated (J) due to positive ICP interference attributed to iron. These results may be biased high.

The positive and non-detected silver results are qualified as estimated (J, UJ) in the affected samples due to negative ICP interference attributed to iron. These results may be biased low.

Professional judgment was used to change the positive antimony, cadmium, and selenium results to estimated, non-detected values (UJ) in the affected samples, rather than reject them as provided in the data validation guidelines, because the reported concentrations may be due entirely (≥80%) to positive iron ICP interference. The results may be false positive.

There were positive ICP interferences attributed to the high concentration of iron that resulted in estimating the positive results for cadmium and selenium in the samples listed above; therefore, the project accuracy goals may be slightly impacted. The positive results for cadmium and selenium in the affected samples are usable as estimated values which may be biased high.

Although there were positive ICP interferences attributed to the high concentration of iron that resulted in estimating the positive results for sodium, the project accuracy goals are not impacted since there are no regulatory limits established for sodium for the soil samples. The positive sodium results in the affected samples are usable as estimated values which may be biased high.

There were negative ICP interferences attributed to the high concentration of iron that resulted in estimating the results for silver in the samples listed above; therefore, the project accuracy goals may be slightly impacted. The positive and non-detected silver results in the affected samples are usable as estimated values and estimated reporting limits which may be biased low.

Although there were positive ICP interferences attributed to the high concentration of iron that resulted in raising the reporting limits for cadmium and selenium in the samples listed above, the project sensitivity goals are not impacted. The positive results for cadmium and selenium which had estimated interference greater than 80% may be entirely due to iron interference. However, the elevated reporting limits for these cadmium and selenium results do not exceed the project action limits. The cadmium and selenium results in the affected samples are usable as estimated, non-detected values which may be false positive.

Matrix Spike/Matrix Spike Duplicate

The following table summarizes the metals in the matrix spike/matrix spike duplicate (MS/MSD) analysis of soil sample SB-2-302-0002 which were outside of the 75-125% recovery criteria:

Compound	%Recovery	Action

		(+)	NDs
Antimony	52.7	J	UJ
Chromium	60.1	J	
Copper	277	J	
Manganese	174	J	
Zinc	141	J	

The recoveries for antimony, chromium, copper, manganese, and zinc were outside of the MS/MSD QC criteria; therefore, the project accuracy goals may be impacted. The positive antimony and chromium results and the non-detected antimony results in all soil samples are usable as estimated values and estimated reporting limits which may be biased low. The positive copper, manganese, and zinc results in all soil samples are usable as estimated values which may be biased high.

Laboratory Duplicate Results

The results of the laboratory duplicate analysis of sample SB-2-302-0002 were above the 35% RPD criterion for arsenic, calcium, and chromium. The positive arsenic, calcium, and chromium results are estimated (J) in all soil samples due to laboratory duplicate imprecision.

The relative percent difference criterion was not met for arsenic and chromium in the laboratory duplicate analysis; therefore, the project precision goals may be slightly impacted. The positive arsenic and chromium results in the soil samples are usable as estimated values for which the bias is indeterminate.
Although the relative percent difference criterion was not met for calcium in the laboratory duplicate analysis, the project precision goals are not impacted since there are no regulatory limits established for calcium for the soil samples. The positive calcium results in the soil samples are usable as estimated values for which the bias is indeterminate.

Field Duplicate Precision

The following table summarizes the analyte that recovered outside of the 50% RPD QC limit in the analysis of the field duplicate pair SB-2-309-0002/SB-2-DUP02:

Analyte	RPD	Action	
		(+)	NDs
Mercury	76	J	

The positive mercury results are estimated (J) in the soil samples (except SB-2-304-1620) due to field duplicate imprecision.

The results of the field duplicate analysis exceeded the QC limits for mercury; therefore, the project precision goals may be impacted. The positive mercury results in the affected soil samples are usable as estimated values for which the bias is indeterminate.

ICP Serial Dilution Results

The percent difference for potassium was above the 15 percent QC criterion for analyte concentrations greater than 50x the method detection limit (MDL) before dilution, in the ICP serial dilution analysis of sample SB-2-SWB01. The positive result for potassium was qualified as estimated (J) in sample SB-2-

SWB01. Since the initial sample result for this metal was less than the diluted sample result, the results may be biased low.

Although the ICP serial dilution percent difference criteria were not met for potassium, the accuracy project goals are not impacted since there are no regulatory limits established for the source water blank sample. The positive potassium result in the affected sample is usable as an estimated value which may be biased low.

Reporting Limits

The positive results below than the laboratory's quantitation limit (QL) and above the MDL are estimated (J) due to uncertainty below the QL.

The laboratory reported non-detected results down to the method detection limit (MDL). All non-detected values met the soil project action limits (PAL).

Reporting limits were raised for some metals due to blank contamination and ICP interference. As discussed above in the Laboratory Blank Analyses and ICP Interference Check Sample Results sections, the project sensitivity goals are not affected.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, sensitivity, and completeness; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data. Please refer to the specific sections in the above validation report for further details.

The project goals with respect to accuracy were met for the metals data set with the following exceptions. Cadmium, selenium, and silver were qualified as estimated in select samples due to ICP interference due to high iron concentration. Antimony, chromium, copper, manganese, and zinc were qualified as estimated in the soil samples due to poor matrix spike/matrix spike duplicate recoveries. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated reporting limits which may have a minor impact on data usability. Additionally, antimony and sodium were qualified as estimated due to uncertainty near the quantitation limit. Copper was qualified as estimated in the rinsate blank sample due to negative instrument drift. Sodium was qualified as estimated in select samples due to ICP interference due to high iron concentration. Potassium was qualified as estimated in sample SB-2-SWB01 due to an ICP serial dilution result exceedance. Although specific method criteria were not met in these instances, data usability is not impacted and the affected positive results are usable as estimated values.

The project goals with respect to precision were met for the metals data set with the following exception. Arsenic and chromium were qualified as estimated in the soil samples due to laboratory duplicate imprecision. Mercury was qualified as estimated in the soil samples due to field duplicate imprecision. Although specific method criteria were not met in these instances, the affected positive results are usable as estimated values which may have a minor impact on data usability. Additionally, calcium was qualified as estimated in the soil samples due to laboratory duplicate imprecision. Although specific method criteria were not met in these instances, data usability is not impacted and the affected positive results are usable as estimated values.
The project goals with respect to sensitivity were met for the metals data set. Data usability is not impacted with regards to sensitivity.

The project goals with respect to completeness were met for the metals data set. Data usability is not impacted with regards to completeness.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

INTERNAL CORRESPONDENCE

C-NAVY-11-08-2951W

Date: November 14, 2008

c: File G00958-4.10 (w/enc.-original)
M. Messmer (w/o enc.)

To: Chuck Race (w/o enc.)

From: Jennifer Cardinal (no copy)

Subject: Tier II Organic Data Validation, SDG CTO432-2
Katahdin Analytical Services, Inc.
CTO 432, Site 02, Former Orion Street Landfill– South, NAS Brunswick, Brunswick, ME

VOC/SVOC/Pesticides/PCB:

7/Soils/	SB-2-301-0406	SB-2-302-0002	SB-2-304-1620
	SB-2-309-0002	SB-2-310-0406	SB-2-DUP02
	SB-2-DUP03		

(Field Duplicate Pairs: SB-2-309-0002/SB-2-DUP02, SB-2-310-0406/ SB-2-DUP03)

1/Source Water Blank/ SB-2-SWB01

1/Rinsate Blank/ SB-2-RB02-100808

VOC:
1/Trip blank/ SB-2-TB03-100808

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the volatile (VOC), semivolatile organic compounds (SVOCs), pesticide, and polychlorinated biphenyls (PCB) analytical data for the samples in this SDG. The samples were collected at the Site 02, Former Orion Street Landfill– South at NAS Brunswick, Brunswick, Maine from October 8-9, 2008. Sample collection and analysis was performed according to the requirements of the Final Work Plan for Investigation Activities at the Former Orion Street Landfill- South (Site 2), NAS Brunswick, Maine, dated June 2007.

The VOC and SVOC analyses were performed according to USEPA SW-846 Methods 8260B and 8270C, respectively. Selected SVOCs were analyzed by Method 8270C in the selective ion monitoring (SIM) mode to achieve lower quantitation limits which meet the project action limits. The pesticides and PCB analyses were performed according to USEPA SW-846 Methods 8081 and 8082, respectively.

The VOC and SVOC data validation was performed in accordance with the Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996. The pesticides and PCB validation was performed in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Organic Analyses, Part III, February 2004.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.
The data were evaluated based on the following parameters:

- Data Completeness
- * Preservation and Technical Holding Times
- * GC/MS Instrument Performance Check (Tuning)
- * Pesticide Degradation
- Initial and Continuing Calibrations
- * Blanks
- Surrogate Compounds
- * Internal Standards
- Matrix Spike/Matrix Spike Duplicate
- Laboratory Control Sample/Laboratory Control Sample Duplicate
- Field Duplicates
- Analyte Identification
- * Percent Solids
- Reporting Limits

* All criteria were met for this parameter.

Data Completeness

Pesticides

The original volatiles data package did not include the Form 10 for the sample SB-2-309-0002(DL). On October 5, 2008, the laboratory submitted the appropriate pages.

Pesticides and PCBs

During the concentrating step of the extraction process, the concentrator tube for the method blank WG56709-1 broke resulting in loss of its extract. Since the method blank could not be analyzed, a Form 4 could not be generated for the first extraction. The samples associated with this method blank are SB-2-RB02-100808 and SB-2-SWB01. The samples were re-analyzed and the results were similar to the original results. Consequently, the original results are reported since they were performed within holding time.

Initial and Continuing Calibrations

Volatiles

The following table summarizes the volatile compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action	Affected Samples

		(+)	NDs	
Tetrachloroethene	-32.72, -27.10		UJ	SB-2-DUP02, SB-2-304-1620, SB-2-310-0406, SB-2-DUP03, SB-2-301-0406
Chloromethane	-27.44		UJ	SB-2-301-0406
Bromomethane	35.07		UJ	SB-2-RB02-100808, SB-2-SWB01
Carbon tetrachloride	28.24		UJ	

Although the %D were outside of the QC limits for tetrachloroethene and chloromethane; the project accuracy goals were not impacted since the instrument calibration variability is below safety margin of greater than 1000% allocated for the compounds. The non-detected results in the affected samples are usable as estimated quantitation limits.

Although the %D were outside of the QC limits for bromomethane and carbon tetrachloride, the project accuracy goals are not impacted since there are no regulatory limits established for the source water blank sample or the rinsate blank sample. The non-detected results in the affected sample are usable as estimated quantitation limits.

Semivolatiles

The following table summarizes the semivolatile compounds that failed to meet the initial calibration verification recovery criteria of 75-125%:

Compound	%R	Action		Affected Samples
		(+)	NDs	
Benzaldehyde	17.68		UJ	All samples
Atrazine	66.69		UJ	
Isophorone	72.64		UJ	
Benzo(k)fluoranthene	69.56	J	UJ	

Although initial calibration verification recoveries for benzaldehyde, atrazine, isophorone, and benzo(k)fluoranthene were below the QC limit, the calibration variability safety margin is greater than 100% for these compounds. Additionally, there are no regulatory limits established for the source water blank sample or the rinsate blank sample. Consequently, the project accuracy goals are not impacted. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits which may be biased low.

The following table summarizes the semivolatile compound that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
Di-n-octylphthalate	37.22		UJ	All samples

Although the %D was outside of the QC limits for di-n-octylphthalate, the project accuracy goals are not impacted since there are no regulatory limits established for the di-n-octylphthalate for the soil samples

and there are no regulatory limits established for the source water blank sample and the rinsate blank sample. The non-detected results in the affected sample are usable as estimated quantitation limits.

Semivolatiles- SIM

The following table summarizes the semivolatile SIM compound that failed to meet the initial calibration verification recovery criteria of 75-125%:

Compound	%R	Action		Affected Samples
		(+)	NDs	
Dibenzo(a,h)anthracene	67.91	J	UJ	All samples

The initial calibration verification recovery for dibenzo(a,h)anthracene was below the QC limit; therefore, the project accuracy goals may be impacted. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits which may be biased low.

The following table summarizes the semivolatile SIM compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	Action		Affected Samples
		(+)	NDs	
N-nitroso-di-n-propylamine	-25.13		UJ	SB-2-RB02-100808, SB-2-SWB01, SB-2-301-0406, SB-2-302-0002
Pentachlorophenol	36.27, 47.81	J	UJ	All samples
Benzo(b)fluoranthene	27.22	J	UJ	SB-2-309-0002, SB-2-DUP02, SB-2-304-1620, SB-2-310-0406, SB-2-DUP02, SB-2-302-0002(DL)
Dibenzo(a,h)anthracene	46.26	J	UJ	SB-2-309-0002, SB-2-DUP02, SB-2-304-1620, SB-2-310-0406, SB-2-DUP02

Although the %D were outside of the QC limits for n-nitroso-di-n-propylamine, pentachlorophenol, and benzo(b)fluoranthene, the project accuracy goals are not impacted since the instrument calibration variability is below safety margin of greater than 50% allocated for the compounds in the soil samples and since there are no regulatory limits established the source water blank sample and the rinsate blank sample. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

The %D was outside of the QC limits for dibenzo(a,h)anthracene; therefore, the project accuracy goals may be slightly impacted. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

Pesticides

The following table summarizes the pesticide compounds that failed to meet the continuing calibration (CC) criterion of %D <25:

Compound	%D	%D	Action	Affected Samples

	Column 1	Column 2	(+)	NDs	
Endrin ketone	35.40, 70.80	27.00, 57.60		UJ	All soil samples
Endosulfan sulfate	48.80	39.20		UJ	
4,4'-DDT	-47.00	-44.60	J		SB-2-302-0002(DL), SB-2-309-0002(DL)
Methoxychlor	26.80	28.00		UJ	SB-2-RB02-100808, SB-2-SWB01

Although the %D method criterion was outside of the QC limits for endrin ketone, endosulfan sulfate, and 4,4'-DDT, the project accuracy goals were not impacted since the instrument calibration variability is below safety margin of greater than 100% allocated for the compounds in the soil samples. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

Although the %D method criterion was outside of the QC limits for methoxychlor, the project accuracy goals were not impacted since there are no regulatory limits established for the source water blank sample or the rinsate blank sample. The non-detected methoxychlor results in the affected samples are usable as estimated quantitation limits.

Surrogate Compounds

PCBs

The following samples had surrogate spike recoveries outside of the recovery limits:

Sample	DCB %Rec. (QC Limits: 44-135)		Action	
	Column 1	Column 2	(+)	NDs
SB-2-RB02-100808	36	35		UJ
SB-2-SWB01	35	32		UJ

Although surrogate recovery QC criteria were not met for decachlorobiphenyl (DCB), the project accuracy goals are impacted since there are no regulatory limits established for the source water blank sample or the rinsate blank sample. The non-detected PCB results in sample SB-2-RB02-100808 and SB-2-SWB01 are usable as estimated quantitation limits which may be biased low.

Matrix Spike/Matrix Spike Duplicate

Volatiles

The matrix spike/matrix spike duplicate (MS/MSD) results for sample SB-2-302-0002 recovered the majority of the volatile compounds below the compound-specific recovery limits and above the relative percent difference 30% QC limit. All positive results are estimated (J) and all non-detected results are estimated (UJ) in sample SB-2-302-0002 due to low MS/MSD recoveries and MS/MSD imprecision.

The matrix spike/matrix spike duplicate recoveries for the majority of the volatile compounds did not meet the QC limits; therefore, the project accuracy goals may be slightly impacted. The positive and

non-detected results in sample SB-2-302-0002 are usable as estimated values and estimated quantitation limits which may be biased low.

The matrix spike/matrix spike duplicate relative percent differences for the majority of the volatile compounds did not meet the QC limits; therefore, the project precision goals may be slightly impacted. The positive and non-detected results in sample SB-2-302-0002 are usable as estimated values and estimated quantitation limits for which the bias is indeterminate.

Semivolatiles

The matrix spike/matrix spike duplicate results for sample SB-2-302-0002 recovered 0% 3,3'-dichlorobenzidine. The non-detected 3,3'-dichlorobenzidine result is qualified as rejected (R) in sample SB-2-302-0002 due to no MS/MSD recovery. This result should not be used for project decisions and the data completeness goals may be impacted.

Semivolatiles- SIM

The following table summarizes the results of the matrix spike and/or matrix spike duplicate (MS/MSD) analysis of sample SB-2-302-0002 that were outside of the QC limits:

Analyte	% Rec. (QC Limit: 24-130%)	RPD (QC Limit: ±50%)	Action	
			(+)	NDs
Dibenzo(a,h)anthracene	210, 8	68	J	

The percent recovery criteria were not met for dibenzo(a,h)anthracene; therefore, the project accuracy goals may be slightly impacted. The positive result in sample SB-2-302-0002 is usable as an estimated value.

The RPD criterion was not met for dibenzo(a,h)anthracene; therefore, the project precision goals may be slightly impacted. The positive dibenzo(a,h)anthracene result in sample SB-2-302-0002 is usable as an estimated value for which the bias is indeterminate.

Pesticides

The matrix spike/matrix spike duplicate (MS/MSD) results for sample SB-2-302-0002 recovered the majority of the pesticide compounds below the compound-specific recovery limits. All positive and non-detected results are estimated (J, UJ) in sample SB-2-302-0002 due to low MS/MSD recoveries.

The matrix spike/matrix spike duplicate recoveries for the majority of the pesticide compounds did not meet the QC limits; therefore, the project accuracy goals may be slightly impacted. The positive and non-detected results in sample SB-2-302-0002 are usable as estimated values and estimated quantitation limits which may be biased low.

PCBs

The following table summarizes the results of the matrix spike and/or matrix spike duplicate (MS/MSD) analysis of sample SB-2-302-0002 that were outside of the QC limits:

Analyte	% Rec. (QC Limit: 30-130%)	Action	
		(+)	NDs
Aroclor-1260	52		UJ

The percent recovery criteria were not met for Aroclor-1260; therefore, the project accuracy goals may be slightly impacted. The non-detected result in sample SB-2-302-0002 is usable as an estimated quantitation limit which may be biased low.

<u>Laboratory Control Sample/Laboratory Control Sample Duplicates</u>

Volatiles

The following table summarizes the volatile compound that failed to meet the LCS recovery limits:

Compound	% Rec.	QC Limits	Action		Affected Samples
			(+)	NDs	
Bromodichloromethane	117	89-113	J		SB-2-SWB01

Although laboratory control sample recovery criteria were not met due to a high LCS recovery for bromodichloromethane, the project accuracy goals are not impacted since there are no regulatory limits established for the source water blank sample. The positive result in the affected sample is usable as an estimated value which may be biased high.

Semivolatiles- SIM

The following table summarizes the semivolatile SIM compound that failed to meet the LCS recovery limits:

Compound	% Rec.	QC Limits	Action		Affected Samples
			(+)	NDs	
Benzo(a)pyrene	37	47-109	J	UJ	All soil samples

The laboratory control sample recovery criteria were not met due to a low LCS recovery for benzo(a)pyrene; therefore, the project accuracy goals may be slightly impacted. The positive results in the affected samples are usable as estimated values and estimated quantitation limits which may be biased low.

PCBs

The following table summarizes the Aroclors that failed to meet the LCS recovery limits and/or the LCS relative percent difference QC limits:

Compound	% Rec.	%Rec. QC Limits	RPD	RPD QC Limits	Action		Affected Samples
					(+)	NDs	
Aroclor-1016	36	40-140	-	-		UJ	All samples
Aroclor-1260	38	60-130	57	50		UJ	

-Criterion met

The laboratory control sample recovery criteria were not met due to low LCS recoveries for Aroclor-1016 and Aroclor-1260; therefore, the project accuracy goals may be slightly impacted for the soil samples. The non-detected results in the affected samples are usable as estimated quantitation limits which may be biased low.

Although laboratory control sample recovery criteria were not met due to low LCS recoveries for Aroclor-1016 and Aroclor-1260, the project accuracy goals are not impacted for the source water blank sample and the rinsate blank sample since there are no regulatory limits established for these samples. The non-detected results in the affected samples are usable as estimated quantitation limits which may be biased low.

The laboratory control sample relative percent difference criterion was not met for Aroclor-1260; therefore, the project precision goals may be impacted for the soil samples. The non-detected results in the affected samples are usable as estimated quantitation limits for which the bias is indeterminate.

Although the laboratory control sample relative percent difference criterion was not met for Aroclor-1260; therefore, the project precision goals are not impacted for the source water blank sample and the rinsate blank sample since there are no regulatory limits established for these samples. The non-detected results in the affected samples are usable as estimated quantitation limits for which the bias is indeterminate.

Field Duplicates

Volatiles

The acetone results of the field duplicate pair SB-2-309-0002/SB-2-DUP02 did not meet QC criteria since one result was non-detect and the other result was greater than two times the quantitation limit. The positive result is estimated (J) and the non-detected result is estimated (UJ) due to field duplicate imprecision.

The analysis of the field duplicate pair SB-2-309-0002/SB-2-DUP02 did not meet QC criteria for acetone; therefore, the project precision goals may be impacted. The positive and non-detected acetone results in samples SB-2-309-0002 and SB-2-DUP02 are usable as estimated values and estimated quantitation limits for which the bias is indeterminate.

Analyte Identification/Quantitation

Pesticides

The %RPD between the results of analytical columns 1 and 2 exceeded the 40% QC criterion for 4,4'-DDE in sample SB-2-301-0406 and for gamma-chlordane in sample SB-2-302-0002. The positive results are estimated (J) in the affected samples due to instrument variability.

The analyte quantitation relative percent differences were not within QC limits, therefore the project accuracy goals may be affected due to analytical interferences detected in the dual column analysis. The positive results in the affected samples are usable as estimated values.

Reporting Limits

Volatiles

All project quantitation limits and project action limits were met for the soil samples.

Semivolatiles

All project quantitation limits and project action limits were met for the soil samples.

Semivolatiles- SIM

All project quantitation limits and project action limits were met for the soil samples with the following exception. The project action limits were not achievable for benzo(a)pyrene and dibenzo(a,h)anthracene.

Pesticides

Although reporting limits for select pesticide compounds did not meet project quantitation limits due to percent moisture of the soil samples, all reporting limits met project action limits.

PCBs

All project quantitation limits and project action limits were met for the soil samples.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, sensitivity and completeness; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data. Please refer to the specific sections in the above validation report for further details.

Volatiles

The project goals with respect to accuracy were met for the volatiles data set with the following exception. Sample SB-2-302-0002 was qualified as estimated due to low MS/MSD recoveries. The

affected results maybe biased low. Although specific method criteria were not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability. Additionally, tetrachloroethene, chloromethane, bromomethane, and carbon tetrachloride were qualified as estimated in select samples due to instrument calibration variability. Bromodichloromethane was qualified as estimated in sample SB-2-SWB01 due to a high LCS recovery. Although specific method criteria were not met in these instances, data usability is not impacted and the affected positive and non-detected results are usable as estimated values and estimated quantitation limits.

The project goals with respect to precision were met for the volatiles data set with the following exceptions. Sample SB-2-302-0002 was qualified as estimated due to MS/MSD imprecision. Acetone was qualified as estimated in samples SB-2-309-0002 and SB-2-DUP02 due to field duplicate imprecision. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to sensitivity and completeness were met for the volatiles data set. Data usability was not impacted with regards to sensitivity and completeness.

Semivolatiles

The project goals with respect to accuracy were met for the semivolatiles data set. Benzaldehyde, atrazine, isophorone, and benzo(k)fluoranthene were qualified as estimated in select samples due to low initial calibration verification recoveries. Di-n-octylphthalate was qualified as estimated in select samples due to instrument calibration variability. Although specific method criteria were not met in these instances, data usability is not impacted and the affected positive and non-detected results are usable as estimated values and estimated quantitation limits.

The project goals with respect to precision and sensitivity were met for the semivolatiles data set. Data usability was not impacted with regards to precision and sensitivity.
The project goals with respect to completeness were met for the semivolatiles data set with the following exception. The 3.3'-dichlorobenzidine result in sample SB-2-302-0002 was rejected due to 0% MS/MSD recovery. This result is not usable for project decisions and the data completeness goals may be impacted.

Semivolatiles- SIM

The project goals with respect to accuracy were met for the semivolatiles- SIM data set with the following exceptions. Dibenzo(a,h)anthracene was qualified as estimated in select samples due to low initial calibration verification recoveries. The affected results may be biased low. Dibenzo(a,h)anthracene was qualified as estimated in select samples due to instrument calibration variability. Dibenzo(a,h)anthracene was qualified as estimated in sample SB-2-302-0002 due to poor MS/MSD recoveries. Benzo(a)pyrene was qualified as estimated in all soil samples due to a low LCS recovery. The affected results may be biased low. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability. Additionally, n-nitroso-di-n-propylamine, pentachlorophenol, and benzo(b)fluoranthene were qualified as estimated in select samples due to instrument calibration variability. Although specific method criteria were not met in these

instances, data usability is not impacted and the affected positive and non-detected results are usable as estimated values and estimated quantitation limits.

The project goals with respect to precision were met for the semivolatiles- SIM data set with the following exception. Dibenzo(a,h)anthracene was qualified as estimated in sample SB-2-302-0002 due to MS/MSD imprecision. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the semivolatiles- SIM data set with the following exception. The project action limits were not achievable for benzo(a)pyrene and dibenzo(a,h)anthracene. Data usability may be impacted.

The project goals with respect to completeness were met for the semivolatiles- SIM data set. Data usability was not impacted with regards to completeness.

Pesticides

The project goals with respect to accuracy were met for the pesticides data set with the following exceptions. Sample SB-2-302-0002 was qualified as estimated due to low MS/MSD recoveries. The affected results may be biased low. 4,4'-DDE in sample SB-2-301-0406 and for gamma-chlordane in sample SB-2-302-0002 were qualified as estimated due to analytical interferences detected in the dual column analysis. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability. Additionally, endrin ketone, endosulfan sulfate, 4,4'-DDT, and methoxychlor were qualified as estimated in select samples due to instrument calibration variability. Although specific method criteria were not met in these instances, data usability is not impacted and the affected positive and non-detected results are usable as estimated values and estimated quantitation limits.

The project goals with respect to precision, sensitivity, and completeness were met for the pesticides data set. Data usability was not impacted with regards to precision, sensitivity, and completeness.

PCBs

The project goals with respect to accuracy were met for the PCBs data set with the following exceptions. Aroclor-1260 was qualified as estimated in sample SB-2-302-0002 due to a low MS/MSD recovery. The affected result may be biased low. Aroclor-1016 and Aroclor-1260 were qualified as estimated in all soil samples due to low LCS recoveries. The affected results may be biased low. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability. Additionally, Aroclor-1016 and Aroclor-1260 were qualified as estimated in samples SB-2-RB02-100808 and SB-2-SWB01 due to low LCS recoveries. Also, samples SB-2-RB02-100808 and SB-2-SWB01 were qualified as estimated due to low surrogate recoveries. Although specific method criteria were not met in these instances, data usability is not impacted and the affected non-detected results are usable as estimated quantitation limits.

The project goals with respect to precision were met for the PCBs data set with the following exception. Aroclor-1260 was qualified as estimated in all soil samples due to LCS/LCSD imprecision. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability. Additionally, Aroclor-1260 was qualified as estimated in samples SB-2-RB02-100808 and SB-2-SWB01 due to LCS/LCSD imprecision. Although specific method criteria were not met in this instance, data usability is not impacted and the affected non-detected results are usable as estimated quantitation limits.

The project goals with respect to sensitivity and completeness were met for the PCBs data set. Data usability was not impacted with regards to sensitivity and completeness.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

INTERNAL CORRESPONDENCE

C-NAVY-11-08-2961W

Date: November 26, 2008

c: File G00958-4.10 (w/enc.-original)
M. Messmer (w/o enc.)

To: Chuck Race (w/o enc.)

From: Jennifer Cardinal (no copy)

Subject: Tier II Inorganic Data Validation, SDG CTO432-3
Katahdin Analytical Services, Inc.
CTO 432, Site 02, Former Orion Street Landfill– South, NAS Brunswick, Brunswick, ME

TAL Metals:

11/Groundwaters/	GW2-301-102108	GW2-302-102108	GW2-303-102108
	GW2-304-102108	GW2-305-102008	GW2-306-102008
	GW2-307-102008	GW2-308-102008	GW-2-309-102208
	GW2-310-102108	GW2-DUP01-102108	
	(Field Duplicate Pair: GW2-303-102108/ GW2-DUP01-102108)		
1/Rinsate Blank/	GW-2-RB01-102208		

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the TAL metals analytical data from groundwater samples collected at the Site 02, Former Orion Street Landfill– South at NAS Brunswick, Brunswick, Maine from October 20-22, 2008. The metals analysis was performed according to USEPA SW-846 Methods 6010B, 7471A (mercury), and 6020 (antimony, beryllium, cadmium, and thallium). The Tier II data validation was performed according to the Region I, EPA-NE Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, modified February 1989. Sample collection and analysis was performed according to the requirements of the Final Work Plan for Investigation Activities at the Former Orion Street Landfill- South (Site 2), NAS Brunswick, Maine, dated June 2007.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The metals data were evaluated based on the following parameters:

- Data Completeness
- * Holding Times
- * ICP-MS Tune
- * ICP-MS Internal Standard Performance
- Calibration Verification
- Laboratory Blank Analyses
- * ICP Interference Check Sample Results
- * Matrix Spike/Matrix Spike Duplicate
- * Laboratory Duplicate Results
- * Laboratory Control Sample Results
- * Field Duplicate Precision

* • ICP Serial Dilution Results
• Reporting Limits

* All quality control criteria were met for this parameter.

Data Completeness

On November 26, 2008 the laboratory resubmitted all Form 1s and Form 10s to correct the method detection limit and project quantitation limit values for all metals analyzed by ICP-MS (Method 6020) since the values were incorrect in the original data package.

Calibration Verification

The following table summarizes the analyte that recovered above the 130% QC limit in the reporting limit check standard:

Analyte	%R	2xTrue Value (TV) (µg/L)	Action		Affected Samples
			(+)<2xTV	NDs	
Sodium	148.1	2000	J		GW-2-RB01-102208

Although sodium recovered above the QC limit in the reporting limit check standard, the project accuracy goals are not impacted since there are no regulatory limits established for the rinsate blank sample. The positive sodium result in the affected sample is usable as an estimated value which may be biased high.

Laboratory Blank Analyses

The rinsate blank was not used to establish blank action levels for the groundwater samples.

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the groundwater samples:

Analyte	Maximum Conc. (µg/L)	Action Level (µg/L)	Affected Samples
Arsenic	1.76	8.8	GW2-303-102108, GW2-308-102008, GW-2-309-102208, GW2-310-102108, GW2-DUP01-102108
Beryllium	-0.120	0.6	All samples
Chromium	0.86	4.3	All samples except GW2-310-102108 and GW-2-RB01-102208
Cobalt	-2.71	13.5	All samples except GW2-303-102108, GW2-305-102008, GW2-DUP01-102108
Copper	-2.82	14.1	All samples
Nickel	3.50	17.5	All samples except GW-2-RB01-102208
Silver	0.76	3.8	GW2-301-102108, GW2-305-102008, GW-2-309-102208, GW2-310-102108, GW2-DUP01-102108
Sodium	357	1783	GW-2-RB01-102208

The positive arsenic, chromium, nickel, silver, and sodium results below the blank action level are changed to non-detected values (U) at elevated reporting limits due to laboratory blank contamination. The positive and non-detected beryllium, cobalt, and copper results below the blank action level are estimated (J, UJ) due to negative instrument drift as evidenced by the negative blank results.

Although arsenic, chromium, nickel, silver, and sodium contamination was found in the laboratory blank, the project sensitivity goals are not impacted since the project action limits are not exceeded by the sample specific elevated reporting limits. The non-detected results in the affected samples are usable as elevated reporting limits.

Negative results for beryllium and copper were found in the laboratory blank; therefore, the project accuracy goals may be impacted. The positive and non-detected beryllium and copper results below the blank action levels in the affected samples are usable as estimated values and estimated reporting limits which may be biased low.

Although a negative result for cobalt was found in the laboratory blank, the project accuracy goals are not impacted since there are no regulatory limits established for cobalt in the groundwater samples. The positive and non-detected cobalt results below the blank action levels in the affected samples are usable as estimated values and estimated reporting limits which may be biased low.

Reporting Limits

The laboratory reported non-detected results down to the method detection limit (MDL). All project required quantitation limits were met. All project action limits were achievable, except for thallium, as highlighted in the Final Work Plan for Investigation Activities at the Former Orion Street Landfill- South (Site 2), NAS Brunswick, Maine, dated June 2007. Data usability may be impacted for thallium.

Reporting limits were raised for some metals due to blank contamination. As discussed above in the Laboratory Blank Analyses section, the project sensitivity goals are not impacted.

The positive results below than the laboratory's quantitation limit (QL) and above the MDL are estimated (J) due to uncertainty below the QL.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, sensitivity, and completeness; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data. Please refer to the specific sections in the above validation report for further details.

The project goals with respect to accuracy were met for the metals data set with the following exception. Beryllium and copper were qualified as estimated in select samples due to negative instrument drift; the affected results may be biased low. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated reporting limits which may have a minor impact on data usability. Additionally, sodium was qualified as estimated in the rinsate blank sample due to uncertainty near the quantitation limit. Cobalt was qualified as estimated in select samples due to negative instrument drift. Although specific method criteria were not met in these instances, data usability is not impacted and the affected positive and non-detected results are usable as estimated values and estimated reporting limits.

The project goals with respect to sensitivity were met for the metals data set with the following exception. The project action limit was not achievable for thallium. Data usability may be impacted.

The project goals with respect to precision and completeness were met for the metals data set. Data usability is not impacted with regards to precision and completeness.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

INTERNAL CORRESPONDENCE

C-NAVY-12-08-2967W

Date: December 2, 2008

c: File G00958-4.10 (w/enc.-original)
M. Messmer (w/o enc.)

To: Chuck Race (w/o enc.)

From: Jennifer Cardinal (no copy)

Subject: Tier II Organic Data Validation, SDG CTO432-3
Katahdin Analytical Services, Inc.
CTO 432, Site 02, Former Orion Street Landfill– South, NAS Brunswick, Brunswick, ME

VOC/SVOC/Pesticides/PCB:

11/Groundwaters/	GW2-301-102108	GW2-302-102108	GW2-303-102108
	GW2-304-102108	GW2-305-102008	GW2-306-102008
	GW2-307-102008	GW2-308-102008	GW-2-309-102208
	GW2-310-102108	GW2-DUP01-102108	

(Field Duplicate Pair: GW2-303-102108/ GW2-DUP01-102108)

1/Rinsate Blank/ GW-2-RB01-102208

VOC:
2/Trip blanks/ GW-2-TB01-102008 GW-2-TB01-102208

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the volatile (VOC), semivolatile organic compounds (SVOCs), pesticide, and polychlorinated biphenyls (PCB) analytical data for the samples in this SDG. The samples were collected at the Site 02, Former Orion Street Landfill– South at NAS Brunswick, Brunswick, Maine from October 20-22, 2008. Sample collection and analysis was performed according to the requirements of the Final Work Plan for Investigation Activities at the Former Orion Street Landfill- South (Site 2), NAS Brunswick, Maine, dated June 2007.

The VOC and SVOC analyses were performed according to USEPA SW-846 Methods 8260B and 8270C, respectively. Selected semivolatile compounds were analyzed by Method 8270C in the selective ion monitoring (SIM) mode to achieve lower quantitation limits. The pesticides and PCB analyses were performed according to USEPA SW-846 Methods 8081 and 8082, respectively.

The VOC and SVOC data validation was performed in accordance with the Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996. The pesticides and PCB validation was performed in accordance with the Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Organic Analyses, Part III, February 2004.

The sample results, validation qualifiers (VQL), and qualifier codes (QLCD) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The data were evaluated based on the following parameters:

- Data Completeness
- Preservation and Technical Holding Times
- * GC/MS Instrument Performance Check (Tuning)
- * Pesticide Degradation
- Initial and Continuing Calibrations
- Blanks
- Surrogate Compounds
- * Internal Standards
- Matrix Spike/Matrix Spike Duplicate
- Laboratory Control Sample/Laboratory Control Sample Duplicate
- * Field Duplicates
- Analyte Identification
- Reporting Limits

* All criteria were met for this parameter.

Data Completeness

Pesticides

On November 26, 2008, the laboratory resubmitted all Form 1s for all samples (except GW2-307-102008) since the non-detected results were reported incorrectly in the original data package.

On December 1, 2008, the laboratory resubmitted the Form I for sample GW2-307-102008 since it was missing from the November 26, 2008 resubmittal.

Preservation and Technical Holding Times

Semivolatiles- SIM

Samples GW-2-309-102208(RE) and GW-2-RB01-102208(RE) were both re-extracted two days beyond the 14-day technical holding time criterion. The non-detected 3+4-methylphenol results from these samples are estimated (UJ) due the exceeded holding time criterion. (These results are reported from the re-extraction since they would be rejected in the original samples due to LCS actions.)

The method required holding time criterion was not met for these samples; therefore, the project accuracy goals may be slightly impacted for the affected compound. The non-detected 3+4-methylphenol results in the affected samples are usable as estimated quantitation limits which may be biased low.

Initial and Continuing Calibrations

Volatiles

The following table summarizes the volatile compounds that failed to meet the continuing calibration (CC) criterion of %D or %Drift <25:

Compound	%D or %Drift	Action		Affected Samples
		(+)	NDs	
Acetone	56.53	J	UJ	GW-2-TB01-102008, GW2-307-102008, GW2-305-102008, GW2-306-102008
Tetrachloroethene	26.17		UJ	
Carbon tetrachloride	26.17, 42.77		UJ	All samples
Bromomethane	35.60		UJ	GW-2-TB01-102208, GW-2-RB01-102008, GW2-308-102008, GW2-303-102108, GW2-302-102108, GW2-301-102108, GW2-310-102108, GW2-304-102108, GW2-DUP01-102108, GW-2-309-102208
1,1,1-Trichloroethane	30.84		UJ	
1,2-Dichloroethane	27.26		UJ	
Bromoform	25.22		UJ	

Although the %D were outside of the QC limits for acetone, tetrachloroethene, carbon tetrachloride, bromomethane, 1,1,1-trichloroethane, 1,2-dichloroethane, and bromoform; the project accuracy goals were not impacted since the instrument calibration variability is below safety margin of greater than 100% allocated for these compounds. The positive and non-detected results in the affected samples are usable as estimated values and estimated quantitation limits.

Semivolatiles

The following table summarizes the semivolatile compounds that failed to meet the initial calibration verification recovery criteria of 75-125%:

Compound	%R	Action		Affected Samples
		(+)	NDs	
Benzaldehyde	17.68		UJ	All samples
Isophorone	72.64		UJ	
Benzo(k)fluoranthene	69.56		UJ	

Although the initial calibration verification recovery for isophorone were below the QC limit, the project accuracy goals are not impacted since the calibration variability safety margin is greater than 100% for isophorone. The non-detected results in the affected samples are usable as estimated quantitation limits which may be biased low.

Although the initial calibration verification recoveries for benzaldehyde and benzo(k)fluoranthene was below the QC limit, the project accuracy goals are not impacted since there are no regulatory limits established for benzaldehyde and benzo(k)fluoranthene for the groundwater samples. The non-detected results in the affected samples are usable as estimated quantitation limits which may be biased low.

The following table summarizes the semivolatile compounds that failed to meet the continuing calibration (CC) criterion of %D or %Drift <25:

Compound	%D or %Drift	Action		Affected Samples
		(+)	NDs	
4-Nitrophenol	-30.08		UJ	GW-2-309-102208, GW-2-RB01-102208
Di-n-octylphthalate	49.10		UJ	All samples except GW-2-309-102208, GW-2-RB01-102208

Although the %D was outside of the QC limits for 4-nitrophenol, the project accuracy goals are not impacted since instrument calibration variability is within the allocated safety margin for this compound. The non-detected results in the affected samples are usable as estimated quantitation limits.

Although the %D was outside of the QC limits for di-n-octylphthalate, the project accuracy goals are not impacted since there are no regulatory limits established for the di-n-octylphthalate for the groundwater samples. The non-detected results in the affected samples are usable as estimated quantitation limits.

Semivolatiles- SIM

The following table summarizes the semivolatile-SIM compounds that failed to meet the initial calibration verification recovery criteria of 75-125%:

Compound	%R	Action		Affected Samples
		(+)	NDs	
2,6-Dinitrotoluene	65.68		UJ	All samples
Atrazine	73.37		UJ	
Bis(2-ethylhexyl)phthalate	72.35		UJ	
Hexachlorobenzene	71.12		UJ	

Although the initial calibration verification recoveries for 2,6-dinitrotoluene, atrazine, and bis(2-ethylhexyl)phthalate were below the QC limit, the project accuracy goals are not impacted since the recoveries are within the safety margin of error allocated for these compounds as indicated by the large difference between the project action limits and the project quantitation limits. The non-detected results in the affected samples are usable as estimated quantitation limits which may be biased low.

The initial calibration verification recovery for hexachlorobenzene was below the QC limit; therefore, the project accuracy goals may be slightly impacted. The non-detected results in the affected samples are usable as estimated quantitation limits which may be biased low.

The following table summarizes the semivolatile-SIM compounds that failed to meet the initial calibration (IC) or the continuing calibration (CC) criterion of %D or %Drift <25 or RRF <0.05:

Compound	RRF	%D or %Drift	Action		Affected Samples
			(+)	NDs	
2.6-Dinitrotoluene	-	-26.91, -27.62		UJ	GW2-305-102008, GW2-306-102008, GW2-308-102008, GW2-303-102108, GW2-302-102108, GW2-301-102108, GW2-310-102108, GW2-304-102108, GW2-DUP01-102108
Atrazine	-	-29.43		UJ	
Bis(2-ethylhexyl)phthalate	-	-41.34		UJ	
Pentachlorophenol	0.0399, 0.0321	31.83		UJ	All samples except GW-2-RB01-102208, GW-2-309-102208

-Criterion met

Although the %D were outside of the QC limits for 2,6-dinitrotoluene, atrazine, bis(2-ethylhexyl)phthalate, the project accuracy goals are not impacted since the instrument calibration variability is below safety margin of greater than 100% allocated for these compounds in the groundwater samples. The non-detected results in the affected samples are usable as estimated quantitation limits.

The %D and RRF were outside of the QC limits for pentachlorophenol; therefore, the project accuracy goals may be impacted. The non-detected results in the affected samples are usable as estimated quantitation limits.

Blanks

Volatiles

The following table summarizes the level of blank contamination detected in the laboratory blank associated with the samples.

Compound	Type of Blank	Maximum Conc. (µg/L)	Action Level (µg/L)	Affected Samples
Methylene chloride	Trip	1	10	GW2-303-102108

Blank actions were applied to sample GW2-303-102108 due to methylene chloride trip blank contamination. The 10x rule applies for this compound. The positive result for methylene chloride in the affected sample was changed to non-detected value at the project quantitation limit.

Although methylene chloride contamination was found in the trip blank, the project sensitivity goals are not impacted since the non-detected value does not exceed the project action limit for methylene chloride. The result in the affected samples is usable as a non-detected value.

Pesticides

The following table summarizes the level of blank contamination detected in the laboratory blank associated with the samples.

Compound	Type of Blank	Maximum Conc. (µg/L)	Action Level (µg/L)	Affected Samples
Heptachlor	Method	0.0018	0.009	GW-2-309-102208, GW2-DUP01-102108
4,4'-DDE	Method	0.0016	0.008	GW2-310-102108, GW2-DUP01-102108
4,4'-DDT	Method	0.0097	0.0485	All samples except GW2-303-102108

Blank actions were applied to the listed samples due to heptachlor, 4,4'-DDE, and 4,4'-DDT method blank contamination. The 5x rule applies for these pesticide compounds. The positive results below the blank action levels for heptachlor, 4,4'-DDE, and 4,4'-DDT were changed to non-detected values at the quantitation limit.

Although heptachlor and 4,4'-DDT contamination was found in the laboratory method blanks, the project sensitivity goals are not impacted since the non-detected values do not exceed the project action limits for heptachlor and 4,4'-DDT. The results in the affected samples are usable as non-detected values.

Although 4,4'-DDE contamination was found in the laboratory method blanks, the project sensitivity goals are not impacted since there are no regulatory limits established for 4,4'-DDE for the groundwater samples. The results in the affected samples are usable as non-detected values.

Surrogate Compounds

Semivolatiles

The following samples had surrogate spike recoveries outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
GW2-305-102008	Phenol-d5	0	10-42		UR
	2-Fluorophenol	0	12-62		
	2,4,6-Tribromophenol	2	32-109		
GW2-DUP01-102108	Phenol-d5	8	10-42		UJ
	2,4,6-Tribromophenol	20	32-109		

The surrogates phenol-d5, 2-fluorophenol, and 2,4,6-tribromophenol recovered below the QC limits in the samples listed above. All non-detected phenolic compound results reported by the SVOC Full Scan are rejected (UR) in sample GW2-305-102008 due to very low surrogate recoveries. All non-detected phenolic compound results reported by the SVOC Full Scan are estimated (UJ) in sample GW2-DUP01-102108 due to low surrogate recoveries.

The surrogate recovery QC criteria were not met for phenol-d5, 2-fluorophenol, and 2,4,6-tribromophenol; therefore, the project accuracy goals may be impacted. The non-detected phenolic compound results in sample GW2-DUP01-102108 are usable as estimated quantitation limits which may be biased low.

The non-detected phenolic compound results are rejected in sample GW2-305-102008 and are not usable for project decisions. The data completeness goals may be impacted.

Semivolatiles- SIM

The following samples had surrogate spike recoveries outside of the recovery limits:

Sample	Surrogate	% Recovery	QC Limits	Action	
				(+)	NDs
GW2-305-102008	2,4-Dibromophenol	3	30-150		UJ

The surrogate 2,4-dibromphenol recovered below the QC limits in sample GW2-305-102008. The non-detected phenolic compound results reported by the SVOC SIM are estimated (UJ) in sample GW2-305-102008 due to a low surrogate recovery.

The surrogate recovery QC criteria were not met for 2,4-dibromophenol; therefore, the project accuracy goals may be impacted. The non-detected phenolic compound results in sample GW2-305-102008 are usable as estimated quantitation limits which may be biased low.

Pesticides

The following samples had surrogate spike recoveries outside of the recovery limits:

Sample	TCX %Rec. (QC Limits: 48-112)		Action	
	Column 1	Column 2	(+)	NDs
GW2-305-102008	43	36	J	UJ
GW2-303-102108	45	43		UJ
GW2-304-102108	38	38	J	UJ

The surrogate recovery QC criteria were not met for tetrachloro-m-xylene (TCX); therefore, the project accuracy goals may be impacted. The positive and non-detected pesticide results in the samples listed above are usable as estimated values and estimated quantitation limits which may be biased low.

PCBs

The following samples had surrogate spike recoveries outside of the recovery limits:

Sample	DCB %Rec. (QC Limits: 44-135)		Action	
	Column 1	Column 2	(+)	NDs
GW2-305-102008	18	18		UJ
GW2-306-102008	39	37		UJ
GW2-303-102108	33	32		UJ
GW2-310-102108	36	34		UJ
GW2-DUP01-102108	38	36		UJ

The surrogate recovery QC criteria were not met for decachlorobiphenyl (DCB); therefore, the project accuracy goals may be impacted. The non-detected PCB results in the samples listed above are usable as estimated quantitation limits which may be biased low.

<u>Matrix Spike/Matrix Spike Duplicate</u>

Semivolatiles

The following table summarizes the results of the matrix spike and/or matrix spike duplicate (MS/MSD) analysis of sample GW2-307-102008 that were outside of the QC limits:

Analyte	% Rec. (QC Limit: 51-93%)	Action	
		(+)	NDs
2,4-Dimethylphenol	34, 38		UJ

Although the percent recovery criteria were not met for 2,4-dimethylphenol, the project accuracy goals are not impacted since there are no regulatory limits established for 2,4-dimethylphenol for the groundwater samples. The non-detected 2,4-dimethylphenol result in sample GW2-307-102008 is usable as an estimated quantitation limit which may be biased low.

Semivolatiles- SIM

The following table summarizes the results of the matrix spike and/or matrix spike duplicate (MS/MSD) analysis of sample GW2-307-102008 that were outside of the QC limits:

Analyte	% Rec. (QC Limit: 30-150%)	Action	
		(+)	NDs
3+4-Methylphenol	26, 23		UJ

The percent recovery criteria were not met for 3+4-methylphenol; therefore, the project accuracy goals may be impacted. The non-detected 3+4-methylphenol result in sample GW2-307-102008 is usable as an estimated quantitation limit which may be biased low.

Pesticides

The following table summarizes the results of the matrix spike and/or matrix spike duplicate (MS/MSD) analysis of sample GW2-307-102008 that were outside of the QC limits:

Analyte	%Rec.	QC Limits	Action	
			(+)	NDs
Endosulfan I	50, 51	56-118		UJ
Endosulfan II	61	64-118		UJ

The percent recovery criteria were not met for endosulfan I and endosulfan II; therefore, the project accuracy goals may be slightly impacted. The non-detected endosulfan I and endosulfan II results in sample GW2-307-102008 are usable as estimated quantitation limits which may be biased low.

<u>Laboratory Control Sample/Laboratory Control Sample Duplicates</u>

Volatiles

The following table summarizes the volatile compound that failed to meet the LCS recovery limits:

Compound	% Rec.	QC Limits	Action		Affected Samples
			(+)	NDs	
Benzene	86	88-115		UJ	GW-2-TB01-102008, GW2-307-102008. GW2-305-102008, GW2-306-102008

The laboratory control sample recovery criteria were not met for benzene; therefore, the project accuracy goals may be impacted. The non-detected benzene results in the affected samples are usable as estimated quantitation limits which may be biased low.

Semivolatiles

The following table summarizes the semivolatile compound that failed to meet the LCS relative percent difference (RPD) limit:

Compound	RPD	QC Limit	Action		Affected Samples
			(+)	NDs	
Benzaldehyde	60	30		UJ	GW-2-RB01-102208, GW-2-309-102208

Although the laboratory control sample recovery criteria were not met for benzaldehyde, the project accuracy goals are not impacted since there are no regulatory limits established for benzaldehyde. The non-detected results in the affected samples are usable as estimated quantitation limits for which the bias is indeterminate.

Pesticides

The following table summarizes the pesticide compounds that failed to meet the LCS recovery limits:

Compound	%Rec.	QC Limits	Action		Affected Samples
			(+)	NDs	
Endosulfan I	54	56-118		UJ	All samples except GW-2-RB01-102208, GW-2-309-102208
4,4'-DDT	131	68-127	J		All samples

The laboratory control sample recovery criteria were not met for endosulfan I and 4,4'-DDT; therefore, the project accuracy goals may be slightly impacted. The non-detected endosulfan I results in the affected samples are usable as estimated quantitation limits which may be biased low. The positive 4,4'-DDT results in the affected samples are usable as estimated values which may be biased high.

PCBs

The following table summarizes the Aroclors that failed to meet the LCS recovery limits:

Compound	% Rec.	%Rec. QC Limits	Action		Affected Samples
			(+)	NDs	
Aroclor-1260	71, 74	75-125		UJ	GW-2-RB01-102208, GW-2-309-102208

The laboratory control sample recovery criteria were not met due to low LCS recoveries for Aroclor-Aroclor-1260; therefore, the project accuracy goals may be slightly impacted. The non-detected results in the affected samples are usable as estimated quantitation limits which may be biased low.

Analyte Identification/Quantitation

Pesticides

The %RPD between the results of analytical columns 1 and 2 exceeded the 40% RPD QC criterion for the compound in the following samples:

Sample	Analyte	%RPD	Action
			(+)
GW2-306-102008	4,4'-DDT	66.3	J
GW2-308-102008	4,4'-DDD	56.5	J
	4,4'-DDT	92.9	J
GW2-302-102108	4,4'-DDT	66.7	J
GW2-301-102108	4,4'-DDT	76.1	J
GW2-304-102108	4,4'-DDT	109.1	UJ* at 0.011
GW2-DUP01-102108	4,4'-DDT	45.7	J
GW-2-309-102208	Heptachlor	61.1	J
	4,4'-DDT	66.2	J

*Professional judgment was used to qualify the result as estimated, non-detected (UJ) at the sample-specific quantitation limit.

The analyte quantitation relative percent differences exceeded the QC limits, therefore the project accuracy goals may be affected due to analytical interferences detected in the dual column analysis. The positive results in the affected samples are usable as estimated values.

Although the analyte quantitation relative percent differences exceeded 100% for 4,4'-DDT in sample GW2-304-102108, the project sensitivity goals are not impacted since the non-detected value does not exceed the project action limit. The non-detected result is usable as an estimated quantitation limit.

Reporting Limits

Volatiles

All project quantitation limits were met. The project action limits for 1,1-dichloroethene and vinyl chloride were not achievable as highlighted in Table A-2 of the Final Work Plan for Investigation Activities at the Former Orion Street Landfill- South (Site 2), NAS Brunswick, Maine, dated June 2007.

Blank actions were taken on methylene chloride in sample GW2-303-102108 due to method blank contamination. As described above in the Blanks section, the project sensitivity goals are not impacted.

Semivolatiles/Semivolatiles- SIM

All project quantitation limits were met. The project action limit for benzo(a)pyrene (reported by the SIM mode) was not achievable as highlighted in the Final Work Plan for Investigation Activities at the Former Orion Street Landfill- South (Site 2), NAS Brunswick, Maine, dated June 2007.

Select semivolatile compounds were analyzed by the Full Scan mode and the SIM mode. All results from the SIM mode are reported except for pentachlorophenol in samples GW-2-309-102208 and GW-2-RB01-102208. The SIM mode results are reported in the data summary table "PAH". (Pentachlorophenol is reported by the Full Scan mode for samples GW-2-309-102208 and GW-2-RB01-102208 since the LCS performance for pentachlorophenol in the SIM mode would have resulted in rejection of these results.) Since the pentachlorophenol results are reported by the Full Scan mode for samples GW-2-309-102208 and GW-2-RB01-102208, the project action limits for pentachlorophenol were not achieved for these samples.

3+4-Methylphenol is reported for the re-extracted samples GW-2-RB01-102208(RE) and GW-2-309-102208(RE) rather than in the original analysis since the results would have been rejected due to no recovery in the LCS for those samples. (The re-extracted sample results are estimated due to holding time exceedances as described above.)

Pesticides

All project quantitation limits and project action limits were met.

Blank actions were taken on heptachlor, 4,4'-DDE, and 4,4'-DDT in select samples due to method blank contamination. As described above in the Blanks section, the project sensitivity goals are not impacted.

The detection limit was elevated for the 4,4'-DDT result in sample GW2-304-102108 due to analytical interferences detected in the dual column analysis. As described above in the Analyte Identification/Quantitation section, the project sensitivity goals are not impacted.

PCBs

The project quantitation limits and project action limits were not met by the laboratory quantitation limits for all Aroclors for select samples. Data usability may be impacted.

<u>Data Usability Assessment</u>

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, sensitivity and completeness; and to determine and

define the impact of the exceeded quality control indicators on the technical usability of the data. Please refer to the specific sections in the above validation report for further details.

Volatiles

The project goals with respect to accuracy were met for the volatiles data set with the following exception. Benzene was qualified as estimated in select samples due to low LCS/LCSD recoveries; the affected results maybe biased low. Although specific method criteria were not met in this instance, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability. Additionally, acetone, tetrachloroethene, carbon tetrachloride, bromomethane, 1,1,1-trichloroethane, 1,2-dichloroethane, and bromoform were qualified as estimated in select samples due to instrument calibration variability. Although specific method criteria were not met in this instance, data usability is not impacted and the affected positive and non-detected results are usable as estimated values and estimated quantitation limits.

The project goals with respect to sensitivity were met for the volatiles data set with the following exception. The project action limits were not achievable for 1,1-dichloroethene and vinyl chloride. Data usability may be impacted.

The project goals with respect to precision and completeness were met for the volatiles data set. Data usability was not impacted with regards to precision and completeness.

Semivolatiles

The project goals with respect to accuracy were met for the semivolatiles data set with the following exception. The phenolic compound results reported by the SVOC Full Scan analysis in sample GW2-DUP01-102108 are qualified as estimated due to low surrogate recoveries; the affected results may be biased low. Although specific method criteria were not met in this instance, the affected non-detected results are usable as estimated quantitation limits which may have a minor impact on data usability. Additionally, benzaldehyde, isophorone, and benzo(k)fluoranthene were qualified as estimated in select samples due to low initial calibration verification recoveries. Di-n-octylphthalate and 4-nitrophenol were qualified as estimated in select samples due to instrument calibration variability. 2,4-Dimethylphenol was qualified as estimated in sample GW2-307-102008 due to low MS/MSD recoveries. Although specific method criteria were not met in these instances, data usability is not impacted and the affected positive and non-detected results are usable as estimated values and estimated quantitation limits.

The project goals with respect to precision were met for the semivolatiles data set. Benzaldehyde was qualified as estimated in select samples due to LCS/LCSD imprecision. Although specific method criteria were not met in this instance, data usability is not impacted and the affected non-detected results are usable as estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the semivolatiles data set with the following exception. The project action limits were not achievable for pentachlorophenol in samples GW-2-309-102208 and GW-2-RB01-102208 since it was reported by the Full Scan mode rather than the SIM mode due to poor LCS performance. Data usability may be impacted.

The project goals with respect to completeness were met for the semivolatiles data set with the following exception. The phenolic compound results in sample GW2-305-102008 were rejected due to very low

surrogate recoveries. These results are not usable for project decisions and the data completeness goals may be impacted.

Semivolatiles- SIM

The project goals with respect to accuracy were met for the semivolatiles-SIM data set with the following exceptions. The 3+4-methylphenol results in samples GW-2-309-102208(RE) and GW-2-RB01-102208(RE) were qualified as estimated due to holding time exceedances; the affected results may be biased low. Hexachlorobenzene was qualified as estimated in all samples due to low initial calibration verification recoveries; the affected results may be biased low. Pentachlorophenol was qualified as estimated in select samples due to instrument calibration variability and low relative response factors. The phenolic compound results reported by the SVOC SIM analysis were qualified as estimated in sample GW2-305-102008 due to low surrogate recoveries; the affected results may be biased low. 3+4-Methylphenol was qualified as estimated in sample GW2-307-102008 due to low MS/MSD recoveries. The affected result may be biased low. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability. Additionally, 2,6-dinitrotoluene, atrazine, and bis(2-ethylhexyl)phthalate were qualified as estimated in select samples due to instrument calibration variability. 2,6-Dinitrotoluene, atrazine, and bis(2-ethylhexyl)phthalate were qualified as estimated in select samples due to low initial calibration verification recoveries. Although specific method criteria were not met in these instances, data usability is not impacted and the affected positive and non-detected results are usable as estimated values and estimated quantitation limits.

The project goals with respect to sensitivity were met for the semivolatiles-SIM data set with the following exception. The project action limits were not achievable for benzo(a)pyrene. Data usability may be impacted.

The project goals with respect to precision and completeness were met for the semivolatiles-SIM data set. Data usability was not impacted with regards to precision and completeness.

Pesticides

The project goals with respect to accuracy were met for the pesticides data set with the following exceptions. The pesticides results in samples GW2-305-102008, GW2-303-102108, and GW2-304-102108 were qualified as estimated due to low surrogate recoveries; the affected results may be biased low. Endosulfan I and endosulfan II were qualified as estimated in sample GW2-307-102008 due to low MS/MSD recoveries; the affected results may be biased low. Endosulfan I was qualified as estimated in select samples due to a low LCS recovery; the affected results may be biased low. 4,4'-DDT was qualified as estimated in select samples due to a high LCS recovery; the affected results may be biased high. Select pesticides in select samples were qualified as estimated due to analytical interferences detected in the dual column analysis. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.
The project goals with respect to sensitivity were met for the pesticides data set with the following exception. The project action limits were not achievable for aldrin, dieldrin, and heptachlor epoxide. Data usability may be impacted.

The project goals with respect to precision and completeness were met for the pesticides data set. Data usability was not impacted with regards to precision and completeness.

PCBs

The project goals with respect to accuracy were met for the PCBs data set with the following exceptions. The PCB results in sample GW2-305-102008, GW2-306-102008, GW2-303-102108, GW2-310-102108, and GW2-DUP01-102108 were qualified as estimated due to low surrogate recoveries; the affected results may be biased low. Aroclor-1260 was qualified as estimated in sample GW2-307-102008 due to a low MS/MSD recovery; the affected result may be biased low. Aroclor-1260 was qualified as estimated in select samples due to low LCS recoveries; the affected results may be biased low. Although specific method criteria were not met in these instances, the affected positive and non-detected results are usable as estimated values and estimated quantitation limits which may have a minor impact on data usability.

The project goals with respect to sensitivity were met for the PCBs data set with the following exception. The project action limits were not achievable for all Aroclors for select samples. Data usability may be impacted.

The project goals with respect to precision and completeness were met for the PCBs data set. Data usability was not impacted with regards to precision and completeness.

Tables: Data Validation Qualifiers and Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

INTERNAL CORRESPONDENCE

C-NAVY-12-08-2951W

Date: December 29, 2008

c: File G00958-4.10 (w/enc.-original)
M. Messmer (w/o enc.)

To: Chuck Race (w/o enc.)

From: Paula DiMattei (no copy)

Subject: Tier II Organic Data Validation, SDG ARF 57273
APPL, Inc.
CTO 432, Site 02, Former Orion Street Landfill– South, NAS Brunswick, Brunswick, ME

PCDD/PCDF:

7/Soils/	TP-2-02-0102	TP-2-04-0304	TP-2-05-0708
	TP-2-07-0304	TP-2-08-0304	TP-2-11-0405
	TP-2-DUP01		
	(Field Duplicates: TP-2-02-0102 and TP-2-DUP01)		
1/Rinsate blank	TP-2-RB01-100708		

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the polychlorinated dibenzo-p-dioxins/polychlorinated dibenzofurans (PCDD/PCDF) analytical data for the samples in this data package. The soil samples were collected at the Site 02, Former Orion Street Landfill– South at NAS Brunswick, Brunswick, Maine on October 1-2, 2008. Sample collection and analysis was performed according to the requirements of the Final Work Plan for Investigation Activities at the Former Orion Street Landfill- South (Site 2), NAS Brunswick, Maine, dated June 2007.

The PCDD/PCDF data validation was performed in accordance with the National Functional Guidelines for Chlorinated Dibenzo-p-Dioxins and Chlorinated Dibenzofurans Data Review, September 2005.

The sample results, validation qualifiers (Val Qual), and qualifier codes (Qual Code) are presented in the enclosed data summary tables. A list of the qualifier codes, which provide the reasons for the validation qualifiers, is enclosed.

The data were evaluated based on the following parameters:

- Data Completeness
- * Preservation and Technical Holding Times
- * Window Defining Mixture Performance
- * Initial and Continuing Calibrations
- Blanks
- NA Matrix Spike/Matrix Spike Duplicate
- Laboratory Duplicate
- Laboratory Control Spike recoveries
- Labeled Compound Recoveries
- Field Duplicates
- Target Compound Identification

NA	•	Compound Quantitation
	•	Reported Limits
*	•	Data Usability

* All criteria were met for this parameter.

Data Completeness

The laboratory was contacted and responses were received regarding the following issues:

- Clarification whether sample dilutions were performed.
- Clarification concerning confirmation of 2378-TCDF results.
- Clarification of reported results for numerous samples.
- Clarification of reporting of the EDL for the nondetected total homologue results

Blanks

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the aqueous rinsate blank sample:

Compound	Maximum Concentration (pg/L)
1,2,3,4,6,7,8-HpCDD	1.8
1,2,3,4,6,7,8-HpCDF	2.3
1,2,3,4,7,8,9-HpCDF	3.5
1,2,3,4,7,8-HxCDD	1.7
1,2,3,4,7,8-HxCDF	1.2
1,2,3,6,7,8-HxCDD	2.1
1,2,3,7,8,9-HxCDF	1.7
1,2,3,7,8,9-HxCDF	1.5
1,2,3,7,8-PeCDF	1.7
2,3,4,6,7,8-HxCDF	2.2
2,3,4,7,8-PeCDF	1.7
2,3,7,8-TCDF	1.1
Total HpCDF	2.3
Total HxCDF	2.2
OCDD	12

Blank actions were applied to the affected rinsate blank sample (TP-2-RB01-100708) due to method blank contamination. The positive results in this sample affected by method blank contamination were qualified as not detected at the reported concentration (U). In cases where the reported result was identified as an estimated maximum potential concentration (EMPC), the “J” qualifier indicative of the uncertainty in the qualitative identification of this result was retained for an overall qualification of “UJ”.

The following table summarizes the level of blank contamination detected in the laboratory blanks associated with the soil samples:

Compound	Maximum Concentration (ng/Kg)	Affected samples
1,2,3,4,6,7,8-HpCDF	0.054	TP-2-05-0708, TP-2-08-0304,
1,2,3,4,6,7,8-HpCDD	0.38	TP-2-05-0708, TP-2-05-0708,
1,2,3,4,7,8-HxCDF	0.12	TP-2-02-0102, TP-2-04-0304, TP-2-05-0708, TP-2-08-0304, TP-2-11-0405, TP-2-DUP01
1,2,3,4,7,8-HxCDD	0.18	TP-2-02-0102, TP-2-05-0708, TP-2-08-0304, TP-2-11-0405, TP-2-DUP01
1,2,3,6,7,8-HxCDF	0.14	TP-2-02-0102, TP-2-04-0304, TP-2-05-0708, TP-2-08-0304, TP-2-11-0405, TP-2-DUP01
1,2,3,7,8,9-HxCDF	0.062	TP-2-02-0102, TP-2-05-0708, TP-2-07-0304, TP-2-08-0304, TP-2-11-0405, TP-2-DUP01
1,2,3,7,8,9-HxCDD	0.17	TP-2-05-0708, TP-2-08-0304, TP-2-11-0405,
1,2,3,7,8-PeCDF	0.19	TP-2-02-0102, TP-2-04-0304, TP-2-05-0708, TP-2-08-0304, TP-2-11-0405, TP-2-DUP01
2,3,4,6,7,8-HxCDF	0.056	TP-2-02-0102, TP-2-04-0304, TP-2-05-0708, TP-2-08-0304, TP-2-11-0405, TP-2-DUP01
2,3,4,7,8-PeCDF	0.049	TP-2-02-0102, TP-2-04-0304, TP-2-05-0708, TP-2-11-0405, TP-2-DUP01
2,3,7,8-TCDF	0.47	TP-2-02-0102, TP-2-04-0304, TP-2-05-0708, TP-2-08-0304,
2,3,7,8-TCDD	0.17	TP-2-05-0708, TP-2-08-0304,
Total HpCDF	0.06	TP-2-05-0708, TP-2-08-0304,
Total HxCDF	0.21	TP-2-02-0102, TP-2-04-0304, TP-2-05-0708,

Blank actions were applied to the affected soil samples due to method blank contamination. The positive results in the samples affected by method blank contamination were qualified as not detected at the reported concentration (U). In cases where the reported result was identified as an EMPC, the "J" qualifier indicative of the uncertainty in the qualitative identification of this result was retained for an overall qualification of "UJ".

Although contamination was found in the laboratory method blanks, the project sensitivity goals are not impacted since the non-detected values do not exceed the project action limits for any individual dioxin or furan compounds and there are no regulatory limits for the total homologes. The results in the affected samples are usable as non-detected values.

Laboratory Duplicate

The laboratory performed laboratory duplicate analysis on sample TP-2-07-0304. The following table summarizes the compounds that did not meet the laboratory duplicate relative percent difference (RPD) precision criterion of <30%.

Compound	RPD	Action	
		(+)	ND
123478-HxCDF	44	J	
12378-PeCDF	36	J	
OCDD	36	J	
Total TCDD	47	J	
Total TCDF	108	J	

The RPD QC criteria were not met for the compounds listed above; therefore, the precision project goals may be impacted. These compound results in sample TP-2-07-0304 are usable as estimated values.

Laboratory Control Spike Recoveries

The following table summarizes the LCS and LCS duplicate (LCSD) recoveries that did not meet the QC limits:

Compound	LCS %R	LCSD %R	QC Limits	Actions	
			%R	(+)	NDs
1,2,3,7,8,9-HxCDD	146	146	70-130	J	
Associated samples: All soils					

The percent recovery QC were above the QC limits for 1,2,3,7,8,9-HxCDD; therefore, the accuracy project goals may be impacted. The positive results for 1,2,3,7,8,9-HxCDD in all the soil samples are usable as estimated values which may be biased high.

Labeled Compound Recoveries

The following table summarizes the labeled compound recoveries that did not meet the QC limits of 40-135% in the sample analyses:

Sample ID	13C-2,3,7,8-TCDD* % R (40-135%)	13C-1,2,3,7,8-PeCDD** %R (40-135%)	Actions	
			(+)	NDs
TP-2-07-0304	37	-	J	

Sample ID	13C-2,3,7,8-TCDD* % R (40-135%)	13C-1,2,3,7,8-PeCDD** %R (40-135%)	Actions	
			(+)	NDs
TP-2-DUP01	8.2	28.6	J	UJ
*Actions are applied to 2,3,7,8-TCDD and total TCDD results in the affected sample. **Actions are applied to 1,2,3,7,8-PeCDD and total PeCDD results in the affected sample.				

-criterion met

The labeled compound recovery QC criteria were not met for samples listed above; therefore, the accuracy project goals may be impacted. The positive and nondetected results for 2,3,7,8-TCDD; total TCDD; 1,2,3,7,8-PeCDD; and/or total PeCDD in the affected samples are usable as estimated values and estimated detection limits.

Field Duplicates

The following table summarizes the compounds that did not meet the field duplicate RPD precision criterion of <50% for the field duplicate pair TP-2-02-0102 and TP-2-DUP01.

Compound	TP-2-02-0102 (ng/Kg)	TP-2-DUP01 (ng/Kg)	RPD	Action	
				(+)	ND
OCDF	ND	6.8	NC	J	UJ
Total HxCDD	0.91	4.9	140	J	
Total HpCDD	8.1	21	89	J	
Total HxCDF	0.56	4.1	150	J	
NC: Not calculable					

The RPD QC criteria were not met for the compounds listed above; therefore, the precision project goals may be impacted. These compound results in these samples are usable as estimated values and estimated detection limits.

Target Compound Identification

Several 2378-substituted isomers in all samples were reported as EMPCs. EMPCs are defined as a detected response with a signal to noise ratio of $\geq$ 2.5 for both quantitation ions and having met all identification criteria with the exception of the ion abundance ratio. Also, in the case of several PCDF results, EMPCs were reported when the co-existence of a polychlorinated diphenyl ether (PCDPE) was present. These EMPC results were qualified as estimated (J) and they are identified with a “w” qualifier codes in the data tables.

Reporting Limits

Blank actions were applied to numerous dioxins and furans results in several samples due to method blank contamination; thus resulting in elevated estimated detection limits. As described above in the Blanks section, the project sensitivity goals are not impacted.

Data Usability Assessment

The data usability assessment was performed to determine if the data met the project data quality objectives for acceptable accuracy, precision, and sensitivity; and to determine and define the impact of the exceeded quality control indicators on the technical usability of the data. Please refer to the specific sections in the above validation report for further details.

The project goals with respect to accuracy were met for the PCDD/PCDF data set with the following exceptions. Select PCDD/PCDF compounds were qualified as estimated due to high LCS and LCSD recoveries and low labeled compound recoveries. Although specific method criteria were not met in these instances, the affected positive and nondetected results are usable as estimated values and estimated detection limits which may have a minor impact on data usability.

The project goals with respect to precision were met for the PCDD/PCDF data set with the following exceptions. Select PCDD/PCDF compounds were qualified as estimated due to poor laboratory or field duplicate precision. Although specific method criteria were not met in these instances, the affected positive and nondetected results are usable as estimated values and estimated detection limits which may have a minor impact on data usability.

The project goals with respect to sensitivity and completeness were met for the PCDD/PCDF data set.

Tables: Data Validation Qualifiers Codes
Data Summary Tables

Enclosures: Data Validation Worksheets

APPENDIX E

BACKGROUND COMPARISON

Background Comparisons

This Appendix presents the background comparisons used to determine if the chemicals detected in soil and groundwater at Site 02 Naval Air Station (NAS) Brunswick are similar to or greater than NAS Brunswick Background. For graphical evaluations, non-detect values were represented by a concentration equal to one-half the reported nondetect value. Statistical hypothesis were conducted using the full detection limit as indicated by Pro UCL version 4.00.05. Duplicate results (original and duplicate) were averaged to represent the concentration at the sample location for statistical evaluations. The statistical package R version 2.9.2 and PRO UCL version 4.00.05 were used to conduct the statistical analyses.

Methodology

The Site 02 data were compared to background data based on recommendations in "Background Study for Naval Air Station Brunswick" (January 2011) and the "Sampling and Analysis Plan (SAP) Background Study Naval Air Station Brunswick" (July 2009). Two statistical techniques (dataset to dataset comparison and an Upper Prediction Limit comparison) were used for these comparisons. Based on the recommendations in the SAP a dataset to dataset comparison was conducted if there were at least eight Site 02 samples. Table 1 presents the Site 02 sample locations and corresponding soil types. The soil types were used along with the recommendations in Background Study for Naval Air Station Brunswick for choosing the appropriate background samples. For test pit sample locations where an Upper Sand or Transition soil type was not found (i.e., ash, potential fill) the soil type was assumed to be Upper Sand and the appropriate background dataset as described in the Background Study Naval Air Station Brunswick was used. The Site 02 groundwater data were compared to a background dataset of Upper Sand and Transition concentrations since the Site 02 soil type was a mixture of Upper Sand and Transition. A summary of the results of the individual statistical analyses discussed below and final recommendations for each constituent are presented in Tables 2 through 7.

Dataset to Dataset Comparisons

Dataset to dataset comparisons were performed using side by side boxplots, normal Quantile-Quantile (Q-Q) plots, histograms, summary statistics, hypothesis tests on the mean/median, and hypothesis tests on the right tails of the datasets.

Box plots show the central tendency, degree of symmetry, range of variation, and potential outliers of a dataset. The dataset is shown as a rectangular box that represents the middle 50 percent of the data. The upper value of the box represents the 75th percentile and the lower value of the box represents the 25th percentile. The median is represented by the middle line in the box. Box plots for the same analyte in the two datasets were plotted on the same graph. Whiskers are drawn from the box extending outward to 1.5 times the interquartile range (difference between 75th and 25th percentiles). Concentrations that are less than the lower whisker and greater than the upper whisker are potential outliers and are plotted as circles. The plots were visually inspected to see which datasets look similar and which ones differed.

A normal Q-Q plot is a plot of the sample quantiles against the quantiles of the normal distribution. If the site and background distributions were exactly identical, the plotted values would lie on a straight line through the origin. Deviations from this line show the differences between the two distributions. If the site and background distributions are similar the scattering of the two datasets will be mixed. If there is grouping of the two datasets then datasets are most likely different. For the normal Q-Q plots presented at the end of this section the samples from the Site 02 dataset were plotted using a red circle while the samples from the Brunswick Background dataset are plotted using a blue triangle.

Histograms are a visual representation of the data collected into groups. The data range is divided into several bins or classes and the data are sorted into the bins. The x-axis displays the range of the bins and the y-axis shows the number of observations that fall within the bin. The histograms of the site and background datasets were plotted on top of each other to be able to compare the shapes of the two distributions, overall concentration ranges, and ranges of concentrations that have the most samples.

As stated above, the data were analyzed to determine whether they are similar. A number of statistical hypothesis tests can be used to determine if the datasets are similar. For the Site 02 dataset to dataset comparisons the Wilcoxon Rank-Sum test, Gehan test, two proportion test, Slippage test, and Quantile test were computed. If the combined percentage of non-detected concentrations was between 0 and 50 percent then a formal hypothesis test was conducted such as Wilcoxon Rank Sum test or Gehan test. If the combined percentage of non-detected concentrations was greater than 50 percent then a hypothesis test on the proportion of non-detected results was conducted. All hypothesis tests were conducted using a five percent significance level meaning that if the p-value associated with the hypothesis test is less than 0.05 there is statistically significant evidence that the assumed hypothesis is false. The p-value of a test can be thought of as the credibility of the assumed hypothesis; p-values greater than 0.05 indicate that the assumed hypothesis is credible whereas p-values less than 0.05 indicate otherwise.

The Wilcoxon Rank-Sum (WRS) nonparametric test is used to test for a shift in location between two independent populations. The WRS test can be used when the data do not follow a normal distribution and when a moderate number of nondetected values are present. As required by the SAP, Test Form II was used for the WRS. This hypothesis form assumes the Site 02 median concentration is greater than the background median concentration by at least two standard deviations. The alternative hypothesis assumes that the Site median concentration is less than the Background median concentration. When the p-value for the WRS test was less than 0.05 it was concluded that the Site median concentration is not statistically greater than the Background median concentration by two Background standard deviations and the Site 02 concentrations can be thought of as being within the Background concentration range. If the p-value associated with the WRS test is greater than 0.05 it was concluded that the Site median concentration is statistically greater than the Background median by at least two background standard deviations and the Site 02 concentrations can be thought of as being greater than Background concentrations.

The Gehan nonparametric test is used to test for a shift in location between two independent populations. The Gehan test can be used instead of the WRS test when the background or site datasets contain multiple nondetects with different reporting limits. As required by the SAP, Test Form I was used for the Gehan test. Test Form I assumes that the Site 02 concentrations, represented by the median concentration, are equal to or less than the background concentrations. The alternative hypothesis assumes that the Site 02 median concentration is greater than the Background median concentration. If the p-value associated with the Gehan test was less than 0.05 it was concluded that the Site median concentration is statistically greater than the Background median and the Site 02 concentrations can be thought of as being greater than Background concentrations. If the p-value associated with the Gehan test was greater than 0.05 it was concluded that the Site median concentration is not statistically greater than the Background median and the Site 02 concentrations can be thought of as being within the Background concentration range.

The two proportion test is used to test if there is a greater percentage of nondetected concentrations in the Background data set compared to the Site 02 dataset. The two proportion test was used when the combined percentage of non-detects between site and Background data sets was greater than 50 percent. The assumed hypothesis for the two proportion test was that the proportion of nondetected concentrations in the Background dataset is statistically similar to the proportion of nondetected concentrations in the Site 02 dataset. The alternative hypothesis

was that the proportion of nondetected concentrations in the Background dataset is greater than the proportion of nondetected concentrations in the Site 02 dataset. If the p-value associated with the proportion test was less than 0.05 it was concluded that the proportion of nondetected concentrations in the Background dataset is greater than the proportion of nondetected concentrations in the Site 02 datasets and the Site 02 concentrations can be thought of as being greater than Background concentrations. If the p-value associated with the two proportion test was greater than 0.05 it was concluded that the proportion of nondetected concentrations in the Site dataset is similar to the proportion of nondetected concentrations in the Background dataset and the Site 02 concentrations can be thought of as being within Background concentrations. Fisher's Exact test was computed if the normal approximation two proportion test assumptions were not valid. The normal approximation assumptions are that the proportion of nondetected concentrations times sample size and the proportion of detected concentrations times sample size are at least five for each data set.

The Slippage test is used to test for a shift to the right in the extreme right-tail of the site versus the background concentrations. This is equivalent to asking if a set of the largest values of the site distribution are larger than the maximum value of the background distribution. This test can be used regardless of the underlying distribution of the site and background datasets and assumes that the right tails of the two tests are equal. The alternative hypothesis is that the right tail of the Site 02 dataset is shifted above the right tail of the Background dataset. If the number of Site 02 concentrations that are greater than the maximum background concentration exceeds the critical value from Table C-3 in "Guidance for Environmental Background Analysis Volume I: Soil" (Naval Facilities Engineering Command, April 2002) it can be concluded that the right tail of the Site 02 dataset is shifted above the right tail of the Background dataset and the Site 02 concentrations can be thought of as being greater than Background concentrations. If the number of Site 02 concentrations greater than the maximum Background concentration does not exceed the critical value in Table C-3 it can be concluded that the right tail of the Site 02 dataset it not shifted above the right tail of the Background dataset and the Site 02 concentrations can be thought of as being within Background concentrations.

The Quantile test is used to identify the differences in the right tails of the site and background distributions. This may be regarded as detecting if the values in the right-tail of the site population are greater than the right-tail of the background distribution. The test is valid regardless of the underlying distribution of the site and background datasets. This test assumes that the right tails of the two tests are equal. The alternative hypothesis is that the right tail of the Site 02 dataset is shifted above the right tail of the Background dataset. The test looks at the "k" number of Site 02 concentrations in the "r" largest samples of the combined datasets. If the number of Site 02 concentrations in the 'r" largest samples exceeds the critical "k" value listed on Table C-6 in "Guidance for Environmental Background Analysis Volume I: Soil" (Naval Facilities Engineering Command, April 2002) it can be concluded that the right tail of the Site 02 dataset is shifted above than the right tail of the Background dataset and the Site 02 concentrations can be thought of as being greater than Background concentrations. If the number of Site 02 concentrations in the 'r" largest samples does not exceeds the critical "k" value listed on Table C-6 it can be concluded that the right tail of the Site 02 dataset it not shifted above the right tail of the Background dataset and the Site 02 concentrations can be thought of as being within Background concentrations.

Upper Prediction Limit Comparison

When it was not possible to perform a dataset to dataset comparison the alternative was to compare the maximum site detected concentration to the appropriate 95 percent Upper Prediction Limit (UPL) as presented in the Background Study. If the maximum detected site concentration was less than the UPL the Site 02 concentrations can be thought of as being within Background concentrations. If the maximum detected site concentration was greater than the UPL the Site 02 concentrations can be thought of as being greater than Background concentrations.

Soil Statistical Evaluations

PAHs, inorganics, and pesticides were detected in background surface soil and inorganics were detected in background subsurface soil. The recommendations in the Background Study Report were that inorganics with the exception of calcium, lead, and mercury could be combined based on geological unit (Upper Sand or Transition) and that there was no difference between surface and subsurface soil concentrations. Background calcium concentrations in Upper Sand surface soil were found to be statistically different than Upper Sand subsurface and Transition surface and subsurface soil. Background mercury concentrations were only detected in surface soil and Upper Sand and Transition concentrations were found to be statistically similar. Background lead concentrations in Upper Sand subsurface soil were found to be statistically different from Upper Sand surface soil and Transition surface and subsurface soil which were found to be statistically similar to each other. Surface soil was defined as 0 to 1 ft below ground surface (bgs) based on the Background Study Report. Subsurface soil was defined as soil deeper than 0 to 1 ft bgs. There were two Site 02 surface soil samples (TP-2-01-0006 and TP-2-02-0006), and five Transition subsurface soil concentrations (TP-2-05-0708, TP-2-08-0304, TP-2-09-0506, SB-2-303-1214, and SB-2-306-1620), and 18 Upper Sand subsurface soil concentrations.

Dataset to dataset comparisons were conducted for the Upper Sand inorganics with the exception of calcium, lead, and mercury because there were at least eight Site 02 samples. Table 2 presents the results of the Upper Sand dataset to dataset comparisons. The graphical displays are presented at the end of this section. Antimony, barium, beryllium, cadmium, chromium, cobalt, copper, magnesium, nickel, sodium, vanadium, and zinc concentrations in Site 02 were found to be greater than Background concentrations. Aluminum, arsenic, iron, manganese, potassium, and silver concentrations in Site 02 were found to be statistically similar to Background concentrations. Selenium and Thallium were not detected in the Site 02 or the Background samples so a background analysis was not conducted for these chemicals.

Dataset to dataset comparisons were also computed for Site 02 calcium subsurface soil and Site 02 lead Upper Sand subsurface soil concentrations. Site 02 calcium subsurface soil concentrations were compared to Background Upper Sand subsurface and Transition surface and subsurface soil. Site 02 lead Upper Sand subsurface concentrations were compared to Background Upper Sand Subsurface concentrations. Table 3 presents the results of the dataset to dataset comparisons for calcium and lead. The graphical displays are presented at the end of this section. Site 02 calcium subsurface soil and Site 02 Upper Sand lead concentrations were found to be greater than Background concentrations.

Table 4 presents the UPL comparisons for surface soil for calcium, lead, mercury, PAHs, and Pesticides. With the exception of acenaphthylene which was not detected in Site 02 surface soil the rest of the analytes detected in Site 02 surface soil were found to be greater than Background concentrations. Table 5 presents the UPL comparison for Transition subsurface soil for the inorganics with the exception of calcium and mercury. Mercury was only detected in background surface soil and the Site 02 Transition subsurface soil data were included in the analysis discussed above. Site 02 cadmium, selenium, silver, sodium, and thallium concentrations were nondetect. Site 02 antimony and lead Transition subsurface soil data were the only chemicals found to be greater than Background concentrations.

Groundwater Statistical Evaluations

There were two Site 02 samples, GW-2-302-102108 and GW2-309-102008, from the Transition unit whereas the rest of the samples were taken from Upper Sand/Transition Unit. A dataset to dataset comparison was conducted to the Site 02 samples in the Upper Sand/Transition Unit to a Background dataset consisting of the Upper Sand and Transition background samples. Table 6 presents the results of the dataset to dataset comparisons for the inorganics in the Upper Sand/Transition Unit. The graphical displays are presented at the end of this section. Aluminum, antimony, barium, beryllium, copper, lead, magnesium, sodium, vanadium, and zinc Site 02

concentrations in the Upper Sand/Transition Units were found to be within background. A comparison of the maximum detected concentration in the Site 02 Transition samples to the Background Transition UPL because there were not at least 8 samples. Table 7 presents the results of the UPL comparison. All the metals detected in the Transition wells were found to be within Background.

Summary

Soil dataset to dataset comparisons of Upper Sand soils indicated aluminum, arsenic, iron, manganese, potassium, and silver concentrations are similar to NASB background concentrations. In contrast, antimony, barium, beryllium, cadmium, chromium, cobalt, copper, magnesium, nickel, sodium, vanadium, and zinc concentrations in Site 02 soil exceed Background concentrations.

UPL comparisons for Upper Sand surface soil indicated calcium lead, mercury, PAHs, and Pesticides exceeded NASB background concentrations. Antimony and lead in Transition subsurface soil data are the only two chemicals that exceed the Background UPL.

Groundwater dataset to dataset comparisons indicated aluminum, antimony, barium, beryllium, copper, lead, magnesium, sodium, vanadium, and zinc concentrations in the Upper Sand/Transition zones are similar to Background concentrations. In contrast, arsenic, cadmium, calcium, chromium, cobalt, iron, manganese, and potassium in the wells from the Upper Sand/Transition zones exceed Background concentrations. Site groundwater metals concentrations in the Transition zones are similar to Background concentrations.

TABLES

TABLE 1
SITE SAMPLE LOCATIONS AND SOIL TYPE
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE

Sample ID	Media Sampled	Sample Depth (ft bgs)	Soil Type
Test Pit Samples (October 2008)			
TP-2-01-0006	Soil	00-0.5	Potential Fill - sand (f-m)
TP-2-01-0203	Soil	02-03	Potential Fill - sand, some gravel, trace silt with some pieces of charcoal
TP-2-02-0006	Soil	00-0.5	Potential Fill - silt/clay
TP-2-02-0102	Soil	01-02	Suspected Ash - black v.fine grain
TP-2-04-0304	Soil	03-04	Suspected Ash - black v.fine grain
TP-2-05-0102	Soil	01-02	Potential Fill - silty sand (f-m)
TP-2-05-0708	Soil	07-08	Transition - silty sand (f-m)
TP-2-06-0102	Soil	01-02	Potential Fill - sand (f-m)
TP-2-07-0304	Soil	03-04	Suspected Ash - black v.fine grain
TP-2-07-0607	Soil	06-07	Upper Sand - sand (f-m)
TP-2-08-0304	Soil	03-04	Transition - silty sand
TP-2-09-0506	Soil	05-06	Transition - sand (f) with silt
TP-2-10-0405	Soil	04-05	Potential Fill - black sand (f-m)
TP-2-11-0405	Soil	04-05	Potential Fill - black sand (f-m) trace silt
TP-2-11-0708	Soil	07-08	Upper Sand - sand (f-m) trace silt
Soil Boring Samples (October 2008)			
SB-2-301-0406	Soil	04-06	Upper Sand
SB-2-302-0002	Soil	00-02	Upper Sand/Potential Fill
SB-2-303-1214	Soil	12-14	Transition
SB-2-304-1620	Soil	16-20	Upper Sand
SB-2-305-0507	Soil	05-07	Upper Sand
SB-2-306-1620	Soil	16-20	Transition
SB-2-307-0507	Soil	05-07	Upper Sand
SB-2-308-0003	Soil	00-03	Upper Sand
SB-2-309-0002	Soil	00-02	Upper Sand
SB-2-310-0408	Soil	04-08	Upper Sand
Groundwater Samples (October 2008)			
GW-2-301-102108	Groundwater	21	Upper Sand/Transition Unit
GW-2-302-102108	Groundwater	23	Transition Unit
GW-2-303-102108	Groundwater	20	Upper Sand/Transition Unit
GW-2-304-102108	Groundwater	25	Upper Sand/Transition Unit
GW-2-305-102008	Groundwater	22	Upper Sand/Transition Unit
GW-2-306-102008	Groundwater	23	Upper Sand/Transition Unit
GW-2-307-102008	Groundwater	13.7	Upper Sand/Transition Unit
GW-2-308-102008	Groundwater	13.5	Upper Sand/Transition Unit
GW-2-309-102208	Groundwater	21.55	Transition Unit
GW-2-310-102108	Groundwater	29	Upper Sand/Transition Unit

TABLE 2
UPPER SAND SOILS BACKGROUND DATASET TO DATASET COMPARISONS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE

Parameter	Background FOD	Site FOD	Total FOD	Background Maximum Detected Concentration(1)	Background Maximum Nondetect Concentration(1)	Site Maximum Detected Concentration(1)	Site Maximum NonDetect Concentration(1)	Graphical Display Comparison(2)	Background Distribution(3)	Site Distribution(3)	Hypothesis Test	Hypothesis Test Pvalue	Hypothesis Test Conclusion(2)	Number Site concentrations Greater than Background	Slippage Test(3,4)	Number Site that are in the 2 Largest Concentrations	Quantile Test(3,5)	Final Conclusion(6)
Inorganics																		
ALUMINUM	31 / 31	20 / 20	51 / 51	19800	--	24000	--	Similar	Nonparametric	Nonparametric	WRS(7)	3.87E-08	Less	1	Less	1	Less	Site Within Background
ANTIMONY	3 / 31	15 / 20	18 / 51	0.08	0.05	3.6	0.105	Greater	Nonparametric	Nonparametric	Proportion(9)	2.58E-05	Greater	NA	NA	NA	NA	Site Greater Background
ARSENIC	31 / 31	20 / 20	51 / 51	8.8	--	7.6	--	Similar	Nonparametric	Nonparametric	WRS(7)	8.80E-06	Less	0	Less	1	Less	Site Within Background
BARIUM	31 / 31	20 / 20	51 / 51	16.1	--	109	--	Greater	Nonparametric	Nonparametric	WRS(7)	0.84	Greater	11	Greater	3	Greater	Site Greater Background
BERYLLIUM	31 / 31	19 / 20	50 / 51	0.84	--	1.5	0.02	Similar	Nonparametric	Nonparametric	WRS(7)	1.10E-04	Less	3	Less	3	Greater	Site Greater Background
CADMIUM	23 / 31	7 / 20	30 / 51	0.07	0.02	2.2	0.235	Greater	Nonparametric	Nonparametric	Gehan(7)	0.657	Less	8	Greater	3	Greater	Site Greater Background
CHROMIUM	31 / 31	20 / 20	51 / 51	18.7	--	40.8	--	Similar	Nonparametric	Nonparametric	WRS(7)	0.0031	Less	4	Less	3	Greater	Site Greater Background
COBALT	31 / 31	20 / 20	51 / 51	4.1	--	12.4	--	Similar	Nonparametric	Nonparametric	WRS(7)	7.50E-05	Less	4	Less	3	Greater	Site Greater Background
COPPER	29 / 31	20 / 20	49 / 51	6.8	3.2	244	--	Greater	Nonparametric	Nonparametric	Gehan(7)	0.043	Greater	10	Greater	3	Greater	Site Greater Background
IRON	31 / 31	20 / 20	51 / 51	16900	--	29200	--	Similar	Nonparametric	Nonparametric	WRS(7)	5.70E-04	Less	2	Less	2	Less	Site Within Background
MAGNESIUM	31 / 31	20 / 20	51 / 51	1910	--	7480	--	Similar	Nonparametric	Normal	WRS(7)	9.23E-06	Less	3	Less	3	Greater	Site Greater Background
MANGANESE	31 / 31	20 / 20	51 / 51	265	--	518	--	Similar	Nonparametric	Normal	WRS(7)	9.00E-08	Less	1	Less	1	Less	Site Within Background
NICKEL	31 / 31	20 / 20	51 / 51	9.4	--	520	--	Greater	Nonparametric	Normal	WRS(7)	0.132	Greater	8	Greater	3	Greater	Site Greater Background
POTASSIUM	31 / 31	20 / 20	51 / 51	1230	--	4220	--	Similar	Nonparametric	Normal	WRS(7)	7.50E-04	Less	2	Less	2	Less	Site Within Background
SELENIUM	0 / 31	0 / 20	0 / 51	--	1	--	0.97	Similar	Assumed Nonparametric	Assumed Nonparametric	No Hypothesis Test(8)	NA	NA	NA	NA	NA	NA	NA
SILVER	12 / 31	6 / 20	18 / 51	0.29	0.07	3.2	0.325	Greater	Nonparametric	Nonparametric	Proportion	0.7454	Less	NA	NA	NA	NA	Site Within Background
SODIUM	19 / 31	7 / 20	26 / 51	50	80.1	211	133	Greater	Nonparametric	Normal	Gehan(7)	1	Less	8	Greater	3	Greater	Site Greater Background
THALLIUM	0 / 31	0 / 20	0 / 51	--	0.13	--	0.3	Similar	Assumed Nonparametric	Assumed Nonparametric	No Hypothesis Test(8)	NA	NA	NA	NA	NA	NA	NA
VANADIUM	31 / 31	20 / 20	51 / 51	32.6	--	5380	--	Greater	Nonparametric	Nonparametric	WRS(7)	4.49E-05	Less	3	Less	3	Greater	Site Greater Background
ZINC	31 / 31	20 / 20	51 / 51	16.1	--	1310	--	Greater	Nonparametric	Nonparametric	WRS(7)	0.565	Greater	12	Greater	3	Greater	Site Greater Background

Notes:
(1) Units for inorganics are mg/kg.
(2) For the background comparisons the following codes were used:
Less = Site concentrations are not statistically greater than background; Proportion of Site Nondetects is similar to Proportion of Background Nondetects
Similar = Site concentrations are similar to background.
Greater = Site concentrations are shifted above background; Proportion of Site Nondetects is statistically less than Proportion of Background nondetects.
(3) Shapiro Wilks test with a significance level of 0.05 was used to determine distribution.
(4) Slippage test was conducted at 0.05 significance level and concluded that the site concentrations are shifted above background if more than 4 site concentrations are greater than the maximum background concentration.
Critical values for the Slippage test were obtained from Table C-3 of Guidance for Environmental Background Analysis Volume I: Soil, NFESC User's Guide UG-2049-ENV April 2002.
(5) Quantile test was conducted at 0.05 significance level and concluded that site was greater than background if 3 of the 3 largest concentrations are from the site dataset.
Critical values for the Quantile test were obtained from Table C-6 of Guidance for Environmental Background Analysis Volume I: Soil, NFESC User's Guide UG-2049-ENV April 2002.
(6) If the graphical evaluation and all three statistical tests conclude that the site data set concentrations are shifted below background the final conclusion is that site is within background.
If any of the four evaulations concludes that site concentrations are shifted above background concentrations the final conclusion is that site concentrations are greater than background.
(7) For the Gehan test Form 1 was used for the WRS Form 2 was used assuming MDD = 2 times background standard deviation
(8) There are less than three detected background concentrations or three site concentrations. A meaningfull hypothesis tests could not be computed final conclusion based on comparison of maximum detected and maximum nondetected concentration.
(9) Fisher's Exact Test was conducted at 0.05 significance level. The normal approximation assumptions were not valid.

Abbreviations:
FOD = Frequency of Detection
MDD= Minimum Detectable Difference
NA = Not Applicable
WRS = Wilcoxon Rank Sum Test

TABLE 3
SUBSURFACE SOIL BACKGROUND DATASET TO DATASET COMPARISONS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE

Parameter	Background FOD	Site FOD	Total FOD	Background Maximum Detected Concentration(1)	Background Maximum Nondetect Concentration(1)	Site Maximum Detected Concentration(1)	Site Maximum NonDetect Concentration(1)	Graphical Display Comparison(2)	Background Distribution(3)	Site Distribution(3)	Hypothesis Test	Hypothesis Test Pvalue	Hypothesis Test Conclusion(2)	Number Site concentrations Greater than Background	Slippage Test(3,4)	Number Site that are in the R Largest Concentrations	Quantile Test(3,5)	Final Conclusion(6)
Inorganics																		
Caclium	44/44	23/23	67/67	3260	--	4160	--	Similar	Nonparametric	Nonparametric	WRS(7)	1.72E-07	Less	3	Less	3	Greater	Site Greater Background
Lead	14/14	18/18	22/22	3.7	--	228	--	Greater	Normal	Lognormal	WRS(7)	9.96E-01	Greater	14	Greater	5	Greater	Site Greater Background

Notes:
(1) Units for inorganics are mg/kg.
(2) For the background comparisons the following codes were used:
Less = Site concentrations are not statistically greater than background; Proportion of Site Nondetects is similar to Proportion of Background Nondetects
Similar = Site concentrations are similar to background.
Greater = Site concentrations are shifted above background; Proportion of Site Nondetects is statistically less than Proportion of Background nondetects.
(3) Shapiro Wilks test with a significance level of 0.05 was used to determine distribution.
(4) Slippage test was conducted at 0.05 significance level and concluded that the site concentrations are shifted above background if the number of site concentrations are greater than the maximum background concentration exceeds the critical value.
Critical values for the Slippage test were obtained from Table C-3 of Guidance for Environmental Background Analysis Volume I: Soil, NFESC User's Guide UG-2049-ENV April 2002.
(5) Quantile test was conducted at 0.05 significance level and concluded that site was greater than background if k of the r largest concentrations are from the site dataset.
Critical values for the Quantile test were obtained from Table C-6 of Guidance for Environmental Background Analysis Volume I: Soil, NFESC User's Guide UG-2049-ENV April 2002.
(6) If the graphical evaluation and all three statistical tests conclude that the site data set concentrations are shifted below background the final conclusion is that site is within background.
If any of the four evaulations concludes that site concentrations are shifted above background concentrations the final conclusion is that site concentrations are greater than background.
(7) For the Gehan test Form 1 was used for the WRS Form 2 was used assuming MDD = 2 times background standard deviation

Abbreviations:
FOD = Frequency of Detection
MDD= Minimum Detectable Difference
NA = Not Applicable
WRS = Wilcoxon Rank Sum Test

TABLE 4
COMPARISON OF SITE UPPER SAND SURFACE SOIL TO BACKGROUND UPPER PREDICTION LIMITS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE

Parameter	Site FOD	Site Minimum Nondetect	Site Maximum Nondetect	Site Minimum Detect	Site Maximum Detected Concentration	Upper Sand UPL(1)	Final Conclusion
Inorganics (mg/kg)							
CALCIUM	2 / 2	--	--	1400	2030	**444**	Site Greater Background
LEAD	2 / 2	--	--	105	175	**19**	Site Greater Background
MERCURY	2 / 2	--	--	0.22	0.36	**0.08**	Site Greater Background
PAHS (µg/kg)							
ACENAPHTHENE	1 / 2	390	390	320	320	**ND**	Site Greater Background
ACENAPHTHYLENE	0 / 2	390	420	--	--	ND	NA
ANTHRACENE	1 / 2	390	390	420	420	**7**	Site Greater Background
BENZO(A)ANTHRACENE	2 / 2	--	--	50	1400	**23**	Site Greater Background
BENZO(A)PYRENE	2 / 2	--	--	52	1200	**28**	Site Greater Background
BENZO(B)FLUORANTHENE	1 / 2	25	25	120	120	**51**	Site Greater Background
BENZO(G,H,I)PERYLENE	1 / 2	390	390	560	560	**12**	Site Greater Background
BENZO(K)FLUORANTHENE	1 / 2	390	390	1100	1100	**13**	Site Greater Background
CHRYSENE	1 / 2	390	390	1200	1200	**35**	Site Greater Background
DIBENZO(A,H)ANTHRACENE	2 / 2	--	--	21	390	**13**	Site Greater Background
FLUORANTHENE	1 / 2	390	390	2200	2200	**62**	Site Greater Background
INDENO(1,2,3-CD)PYRENE	2 / 2	--	--	54	1000	**39**	Site Greater Background
PHENANTHRENE	1 / 2	390	390	2000	2000	**32**	Site Greater Background
PYRENE	1 / 2	390	390	2800	2800	**64**	Site Greater Background
Pesticides/PCBs(µg/kg)							
4,4'-DDD	2 / 2	--	--	22	80	**ND**	Site Greater Background
4,4'-DDE	2 / 2	--	--	460	960	**1.3**	Site Greater Background
4,4'-DDT	2 / 2	--	--	1000	2300	**3.4**	Site Greater Background
ENDOSULFAN I	0 / 2	2.2	10	--	--	**ND**	Site Greater Background
GAMMA-BHC (LINDANE)	0 / 2	2.2	10	--	--	**ND**	Site Greater Background

Shaded UPL indicates that the maximum site concentration exceeded the background UPL.

Notes:
(1) UPLs presented in the Background Study for Naval Air Station Brunswick (August 2010).

FOD = Frequency of Detection
ND = There were not enough detected background concentrations to compute a meaningfull UPL.
UPL = Upper Prediction Limit

TABLE 5
COMPARISON OF TRANSITION SUBSURFACE SOIL TO BACKGROUND UPPER PREDICTION LIMITS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE

Parameter	Site FOD	Site Minimum Nondetect	Site Maximum Nondetect	Site Minimum Detect	Site Maximum Detected Concentration	Transition UPL[1]	Final Conclusion
Inorganics (mg/kg)							
ALUMINUM	5 / 5	--	--	5380	18000	19400	Site Within Background
ANTIMONY	2 / 5	0.05	0.22	0.13	0.25	**0.04**	Site Greater Background
ARSENIC	5 / 5	--	--	1.3	5.4	**4.5**	Site Greater Background
BARIUM	5 / 5	--	--	12.8	76.1	**15.9**	Site Greater Background
BERYLLIUM	4 / 5	0.15	0.15	0.34	0.94	**0.69**	Site Greater Background
CADMIUM	0 / 5	0.01	0.01	--	--	0.05	ND
CHROMIUM	5 / 5	--	--	3.9	25.9	**15.3**	Site Greater Background
COBALT	5 / 5	--	--	0.76	10.6	**4**	Site Greater Background
COPPER	5 / 5	--	--	2.9	21	**6.7**	Site Greater Background
IRON	5 / 5	--	--	6400	22400	**14400**	Site Greater Background
LEAD	5 / 5	--	--	3.3	24.3	**17.9**	Site Greater Background
MAGNESIUM	5 / 5	--	--	232	5260	**1953**	Site Greater Background
MANGANESE	5 / 5	--	--	21.6	437	**267**	Site Greater Background
NICKEL	5 / 5	--	--	2.1	24.8	**9.8**	Site Greater Background
POTASSIUM	5 / 5	--	--	121	3320	**940**	Site Greater Background
SELENIUM	0 / 5	0.33	0.95	--	--	ND	ND
SILVER	0 / 5	0.06	0.07	--	--	0.21	ND
SODIUM	0 / 5	36.2	101	--	--	ND	ND
THALLIUM	0 / 5	0.06	0.19	--	--	ND	ND
VANADIUM	5 / 5	--	--	8.8	35.5	52.9	Site Within Background
ZINC	5 / 5	--	--	8.5	45.4	**26.3**	Site Greater Background

Shaded UPL indicates that the maximum site concentration exceeded the background UPL.

Notes:
(1) UPLs presented in the Background Study for Naval Air Station Brunswick (August 2010).

FOD = Frequency of Detection
ND = There were not enough detected background concentrations to compute a meaningfull UPL.
UPL = Upper Prediction Limit

TABLE 6
GROUNDWATER UPPER SAND/TRANSITION WELLS BACKGROUND COMPARISONS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE

Parameter	Background FOD	Site FOD	Total FOD	Background Maximum Detected Concentration(1)	Background Maximum Nondetect Concentration(1)	Site Maximum Detected Concentration(1)	Site Maximum NonDetect Concentration(1)	Graphical Display Comparison(2)	Background Distribution(3)	Site Distribution(3)	Hypothesis Test	Hypothesis Test Pvalue	Hypothesis Test Conclusion(2)	Number Site concentrations Greater than Background	Slippage Test(3,4)	Number Site that are in the 2 Largest Concentrations	Quantile Test(3,5)	Final Conclusion(6)
Inorganics																		
ALUMINUM	14 / 30	7 / 8	21 / 38	2890	427	659	14.6	Similar	Normal	Nonparametric	Gehan(7)	0.538	Less	0	Less	0	Less	Site Within Background
ANTIMONY	1 / 30	2 / 8	3 / 38	1.8	1.3	0.14	0.1	Similar	Assumed Nonparametric	Assumed Nonparametric	No Hypothesis Test(8)	NA	NA	NA	NA	NA	NA	Site Within Background
ARSENIC	5 / 30	1 / 8	6 / 38	6.2	6.7	9.8	5	Similar	Assumed Nonparametric	Nonparametric	No Hypothesis Test(8)	NA	NA	NA	NA	NA	NA	Site Greater Background
BARIUM	29 / 30	8 / 8	37 / 38	215	3.4	92.8	--	Greater	Normal	Nonparametric	WRS(7)	1.60E-06	Less	0	Less	1	Less	Site Within Background
BERYLLIUM	3 / 30	2 / 8	5 / 38	0.39	0.14	0.37	0.05	Similar	Assumed Nonparametric	Nonparametric	No Hypothesis Test(8)	NA	NA	NA	NA	NA	NA	Site Within Background
CADMIUM	0 / 30	2 / 8	2 / 38	--	0.21	0.12	0.1	Greater	Assumed Nonparametric	Assumed Nonparametric	No Hypothesis Test(8)	NA	NA	NA	NA	NA	NA	Site Greater Background
CALCIUM	30 / 30	8 / 8	38 / 38	17850	--	46000	--	Greater	Nonparametric	Nonparametric	WRS(7)	0.162	Greater	3	Greater	2	Greater	Site Greater Background
CHROMIUM	0 / 30	1 / 8	1 / 38	--	6.9	6	1.5	Similar	Assumed Nonparametric	Assumed Nonparametric	No Hypothesis Test(8)	NA	NA	NA	NA	NA	NA	Site Greater Background
COBALT	24 / 30	6 / 8	30 / 38	3	0.69	24.6	0.24	Greater	Nonparametric	Nonparametric	Gehan(7)	0.223	Less	2	Greater	2	Greater	Site Greater Background
COPPER	10 / 30	6 / 8	16 / 38	5.1	13.4	4.1	0.75	Similar	Nonparametric	Nonparametric	Proportion(9)	0.3463	Less	NA	NA	NA	NA	Site Within Background
IRON	26 / 30	6 / 8	32 / 38	4430	142.5	90200	9	Greater	Nonparametric	Nonparametric	Gehan(7)	0.282	Less	3	Greater	2	Greater	Site Greater Background
LEAD	10 / 30	2 / 8	12 / 38	2.2	0.97	1.7	0.97	Similar	Assumed Nonparametric	Nonparametric	No Hypothesis Test(8)	NA	NA	NA	NA	NA	NA	Site Within Background
MAGNESIUM	30 / 30	8 / 8	38 / 38	14000	--	5300	--	Similar	Normal	Nonparametric	WRS(7)	9.40E-06	Less	0	Less	0	Less	Site Within Background
MANGANESE	30 / 30	8 / 8	38 / 38	285	--	9690	--	Greater	Nonparametric	Nonparametric	WRS(7)	0.999	Greater	7	Greater	2	Greater	Site Greater Background
POTASSIUM	22 / 30	8 / 8	30 / 38	3000	1140	7120	--	Greater	Normal	Normal	Gehan(7)	1.61E-04	Greater	7	Greater	2	Greater	Site Greater Background
SODIUM	30 / 30	8 / 8	38 / 38	79800	--	28700	--	Similar	Normal	Nonparametric	WRS(7)	9.40E-06	Less	0	Less	0	Less	Site Within Background
VANADIUM	8 / 30	5 / 8	13 / 38	7.8	7.1	5.2	0.38	Similar	Nonparametric	Nonparametric	Proportion(9)	0.07196	Less	NA	NA	NA	NA	Site Within Background
ZINC	16 / 30	8 / 8	24 / 38	15.2	3.55	69.5	--	Similar	Nonparametric	Nonparametric	WRS(7)	0.0158	Less	1	Less	1	Less	Site Within Background

Notes:
(1) Units for inorganics are µg/L.
(2) For the background comparisons the following codes were used:
Less = Site concentrations are not statistically greater than background; Proportion of Site Nondetects is similar to Proportion of Background Nondetects
Similar = Site concentrations are similar to background.
Greater = Site concentrations are shifted above background; Proportion of Site Nondetects is statistically less than Proportion of Background nondetects.
(3) Shapiro Wilks test with a significance level of 0.05 was used to determine distribution.
(4) Slippage test was conducted at 0.05 significance level and concluded that the site concentrations are shifted above background if more than 4 site concentrations are greater than the maximum background concentration.
Critical values for the Slippage test were obtained from Table C-3 of Guidance for Environmental Background Analysis Volume I: Soil, NFESC User's Guide UG-2049-ENV April 2002.
(5) Quantile test was conducted at 0.05 significance level and concluded that site was greater than background if 3 of the 3 largest concentrations are from the site dataset.
Critical values for the Quantile test were obtained from Table C-6 of Guidance for Environmental Background Analysis Volume I: Soil, NFESC User's Guide UG-2049-ENV April 2002.
(6) If the graphical evaluation and all three statistical tests conclude that the site data set concentrations are shifted below background the final conclusion is that site is within background.
If any of the four evaulations concludes that site concentrations are shifted above background concentrations the final conclusion is that site concentrations are greater than background.
(7) For the Gehan test Form 1 was used for the WRS Form 2 was used assuming MDD = 2 times background standard deviation
(8) There are less than three detected background concentrations or three site concentrations. A meaningfull hypothesis tests could not be computed final conclusion based on comparison of maximum detected and maximum nondetected concentration.
(9) Fisher's Exact Test was conducted at 0.05 significance level. The normal approximation assumptions were not valid.

Abbreviations:
FOD = Frequency of Detection
MDD= Minimum Detectable Difference
NA = Not Applicable
WRS = Wilcoxon Rank Sum Test

TABLE 7
COMPARISON OF SITE TRANSITION WELLS TO BACKGROUND UPPER PREDICTION LIMITS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE

Parameter	Site FOD	Site Minimum NonDetect	Site Maximum NonDetect	Site Minimum Detected Concentration	Site Maximum Detected Concentration	Fall Transition UPL(1)	Final Conclusion
Inorganics (µg/L)							
ALUMINUM	2 / 2	--	--	36.7	316	3640	Site Within Background
ANTIMONY	0 / 2	0.1	0.1	--	--	NA	ND
ARSENIC	0 / 2	1.69	3	--	--	18.7	ND
BARIUM	2 / 2	--	--	4.3	10.8	56.6	Site Within Background
BERYLLIUM	0 / 2	0.05	0.05	--	--	ND	ND
CADMIUM	0 / 2	0.1	0.1	--	--	ND	ND
CALCIUM	2 / 2	--	--	8410	14100	24404	Site Within Background
CHROMIUM	0 / 2	0.7	0.98	--	--	ND	ND
COBALT	1 / 2	0.24	0.24	0.32	0.32	2.4	Site Within Background
COPPER	1 / 2	0.75	0.75	1.1	1.1	28	Site Within Background
IRON	2 / 2	--	--	23.6	940	4430	Site Within Background
LEAD	1 / 2	0.97	0.97	1.1	1.1	5.3	Site Within Background
MAGNESIUM	2 / 2	--	--	3580	5320	13500	Site Within Background
MANGANESE	2 / 2	--	--	195	288	599	Site Within Background
MERCURY	0 / 2	0.03	0.03	--	--	ND	Site Within Background
NICKEL	0 / 2	0.68	1.4	--	--	6.4	ND
POTASSIUM	2 / 2	--	--	1780	2570	3653	Site Within Background
SELENIUM	0 / 2	0.96	0.96	--	--	ND	ND
SILVER	0 / 2	0.29	0.67	--	--	ND	ND
SODIUM	2 / 2	--	--	15500	20800	30300	Site Within Background
THALLIUM	0 / 2	0.6	0.6	--	--	ND	ND
VANADIUM	2 / 2	--	--	0.46	0.74	NA	Site Within Background
ZINC	2 / 2	--	--	3.4	6	33.8	Site Within Background

Shaded UPL indicates that the maximum site concentration exceeded the background UPL.

Notes:
(1) UPLs presented in the Background Study for Naval Air Station Brunswick (August 2010).

FOD = Frequency of Detection
UPL = Upper Prediction Limit
NA = Not Applicable less than three detected concentrations
ND = Background data all non-detect.

TABLE 8
SUMMARY OF DETECTED ANALYTICAL CONCENTRATIONS WITHIN BACKGROUND CONCENTRATIONS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

Site 2	Concentrations within Background?			
	Upper Sand		Transition	
Soil Analytes Detected	Surface	Subsurface	Surface	Subsurface
PAHs				
ACENAPHTHENE	No	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	NA
ANTHRACENE	No	NA	NA	NA
BENZO(A)ANTHRACENE	No	NA	NA	NA
BENZO(A)PYRENE	No	NA	NA	NA
BENZO(B)FLUORANTHENE	No	NA	NA	NA
BENZO(G,H,I)PERYLENE	No	NA	NA	NA
BENZO(K)FLUORANTHENE	No	NA	NA	NA
CHRYSENE	No	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	No	NA	NA	NA
FLUORANTHENE	No	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	No	NA	NA	NA
PHENANTHRENE	No	NA	NA	NA
PYRENE	No	NA	NA	NA
Metals				
ALUMINUM	**Yes**	**Yes**	NA	**Yes**
ANTIMONY	No	No	NA	No
ARSENIC	**Yes**	**Yes**	NA	No
BARIUM	No	No	NA	No
BERYLLIUM	No	No	NA	No
CALCIUM	No	No	NA	NA
CADMIUM	No	No	NA	NA
CHROMIUM	No	No	NA	No
COBALT	No	No	NA	No
COPPER	No	No	NA	No
IRON	**Yes**	**Yes**	NA	No
LEAD	No	No	NA	No
MAGNESIUM	No	No	NA	No
MANGANESE	**Yes**	**Yes**	NA	No
MERCURY	No	NA	NA	NA
NICKEL	No	No	NA	No
POTASSIUM	**Yes**	**Yes**	NA	No
SELENIUM	NA	NA	NA	NA
SILVER	**Yes**	**Yes**	NA	NA
SODIUM	No	No	NA	NA
THALLIUM	NA	NA	NA	NA
VANADIUM	No	No	NA	**Yes**
ZINC	No	No	NA	No
Pesticides/PCBs				
4,4'-DDD	No	NA	NA	NA
4,4'-DDE	No	NA	NA	NA
4,4'-DDT	No	NA	NA	NA
ENDOSULFAN I	No	NA	NA	NA
GAMMA-BHC (LINDANE)	No	NA	NA	NA

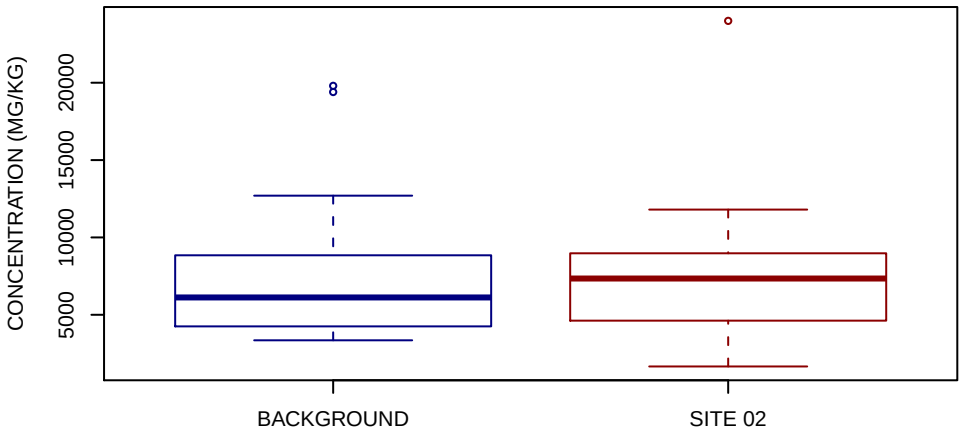
TABLE 8
SUMMARY OF DETECTED ANALYTICAL CONCENTRATIONS WITHIN BACKGROUND CONCENTRATIONS
SITE 2
NAS BRUNSWICK
BRUNSWICK, MAINE

Shaded/Text bolded means analyte concentrations consistent with Background levels.
NA - not applicable.

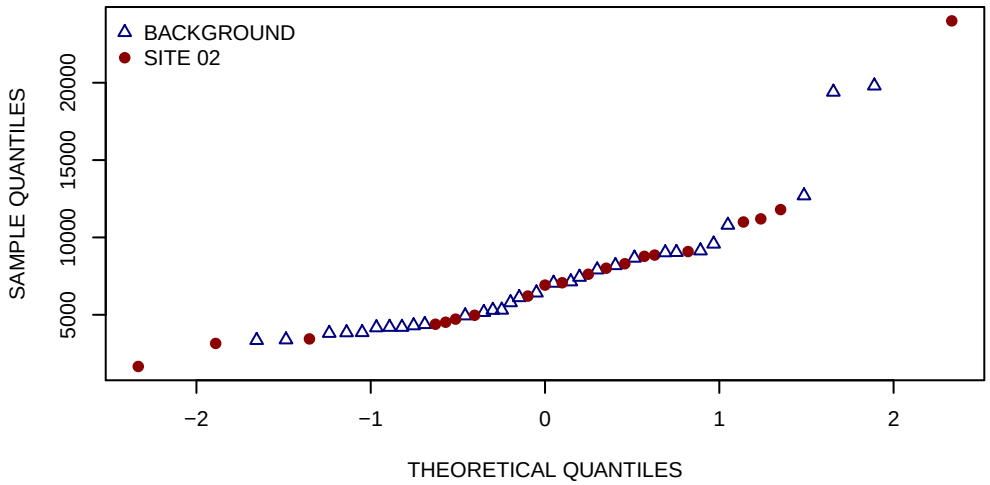
FIGURES

ALUMINUM UPPER SAND INORGANICS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 1 OF 20

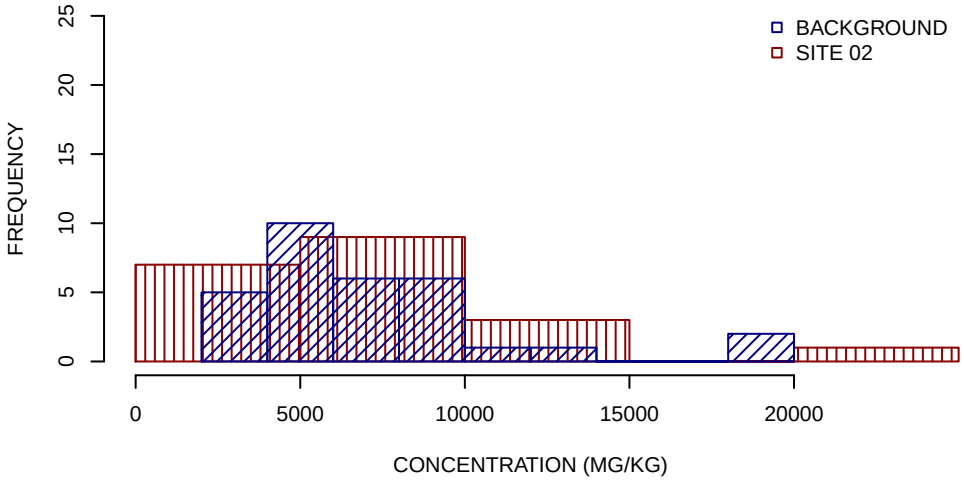
BOXPLOTS



NORMAL Q−Q PLOT



HISTOGRAMS



SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	3400	1700
25TH PERCENTILE	4200	4700
MEDIAN	6100	7300
MEAN	7200	7800
75TH PERCENTILE	8800	8900
MAXIMUM	20000	24000

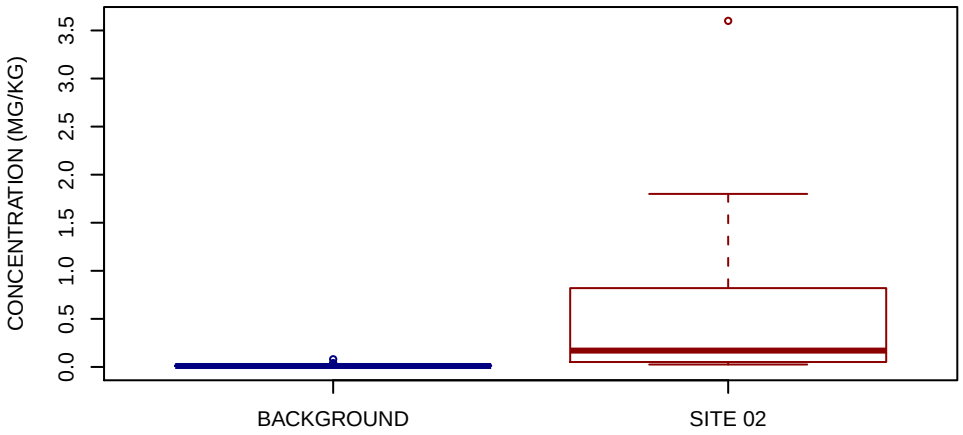
UNITS ARE MG/KG

1/2 DETECTION LIMIT USED FOR NON−DETECTS

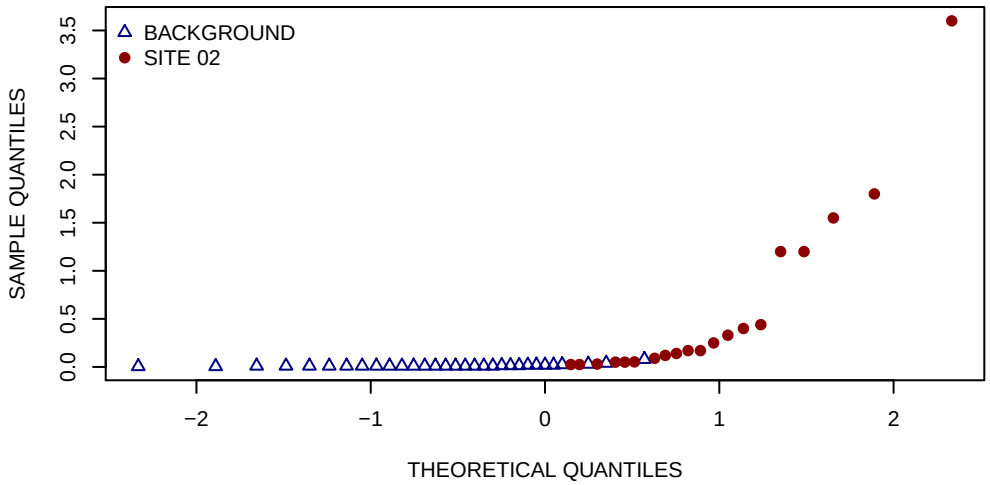
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

ANTIMONY UPPER SAND INORGANICS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 2 OF 20

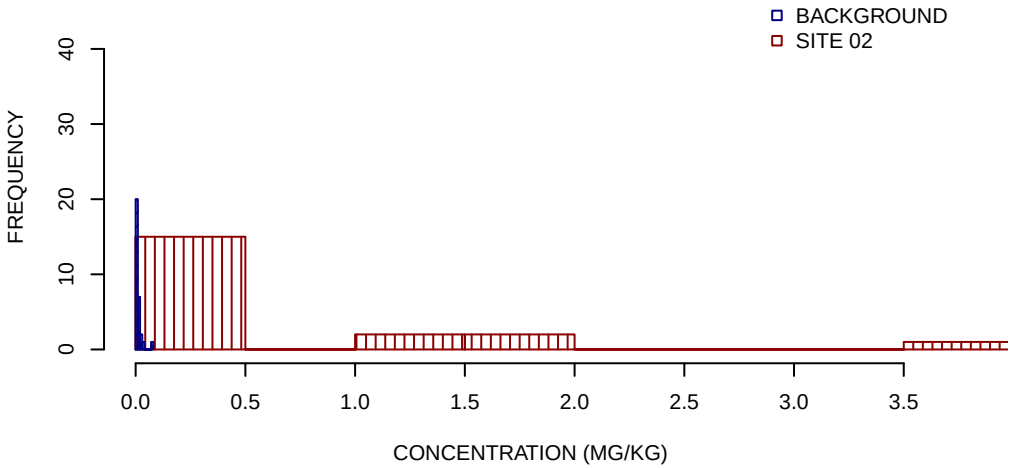
BOXPLOTS



NORMAL Q−Q PLOT



HISTOGRAMS



SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	0.005	0.025
25TH PERCENTILE	0.01	0.052
MEDIAN	0.01	0.17
MEAN	0.016	0.58
75TH PERCENTILE	0.018	0.63
MAXIMUM	0.08	3.6

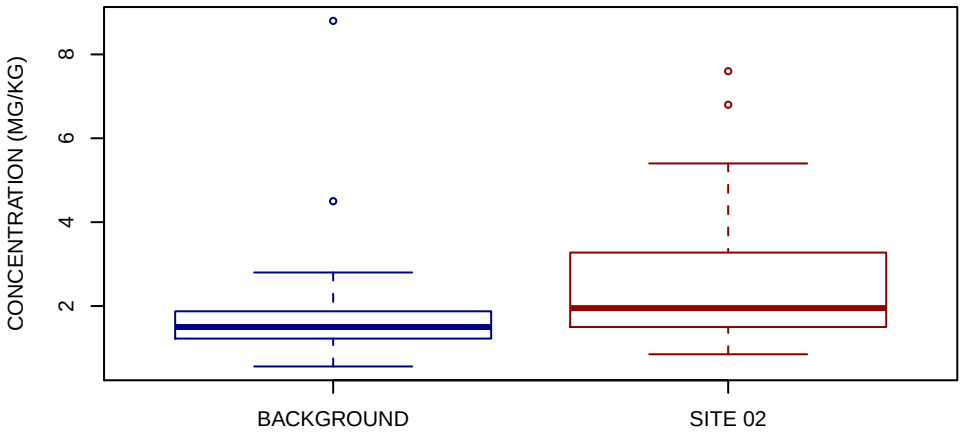
UNITS ARE MG/KG

1/2 DETECTION LIMIT USED FOR NON−DETECTS

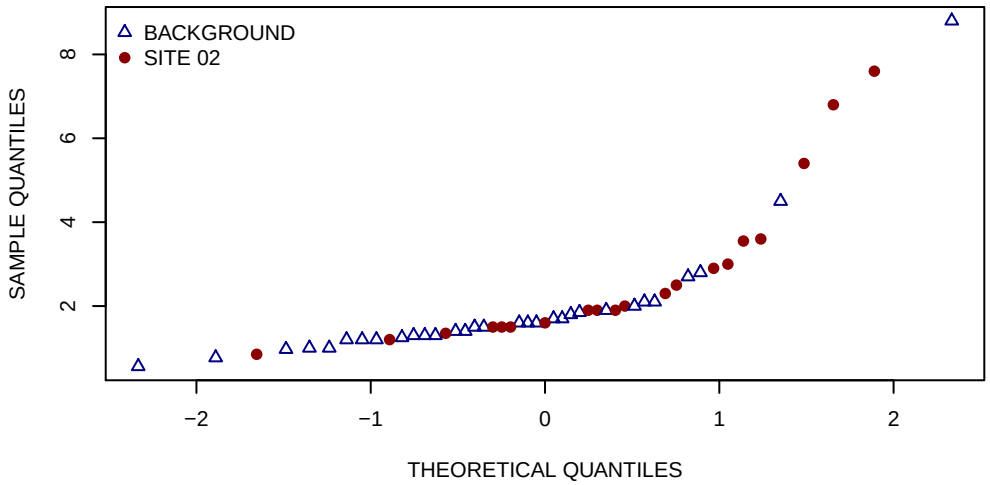
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

ARSENIC UPPER SAND INORGANICS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 3 OF 20

BOXPLOTS



NORMAL Q−Q PLOT



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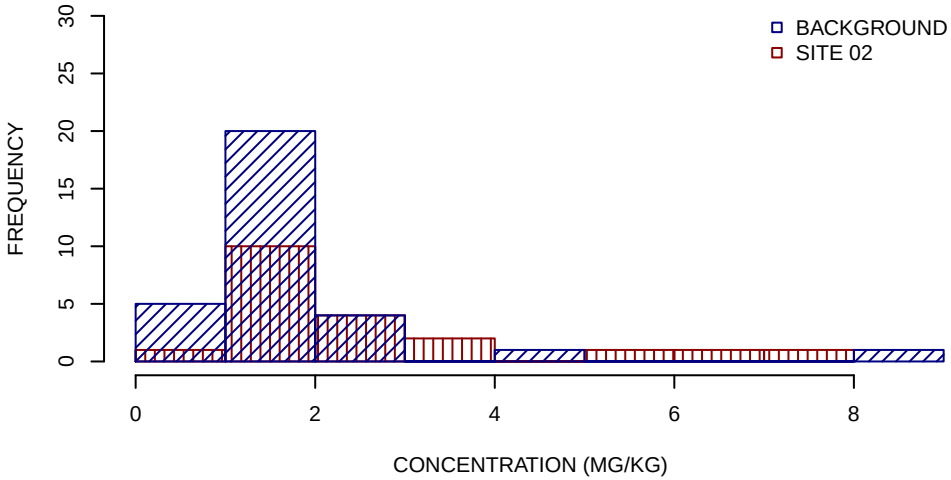


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	0.56	0.85
25TH PERCENTILE	1.2	1.5
MEDIAN	1.5	1.9
MEAN	1.9	2.7
75TH PERCENTILE	1.9	3.1
MAXIMUM	8.8	7.6

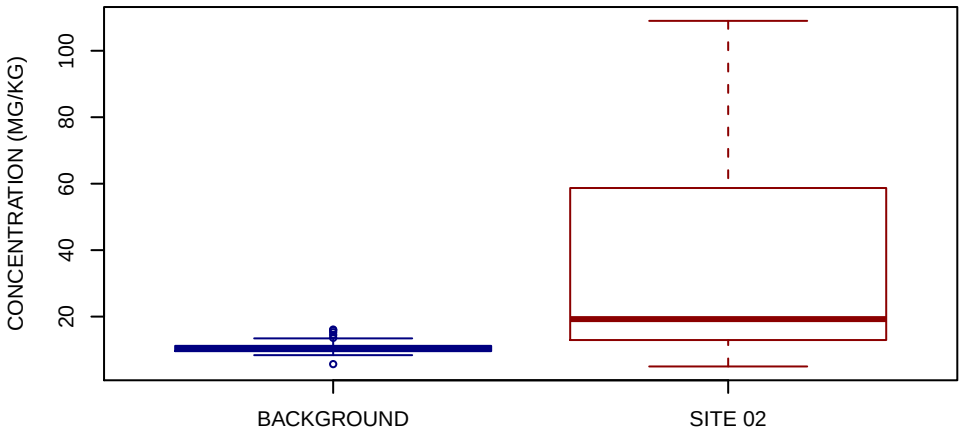
UNITS ARE MG/KG

1/2 DETECTION LIMIT USED FOR NON−DETECTS

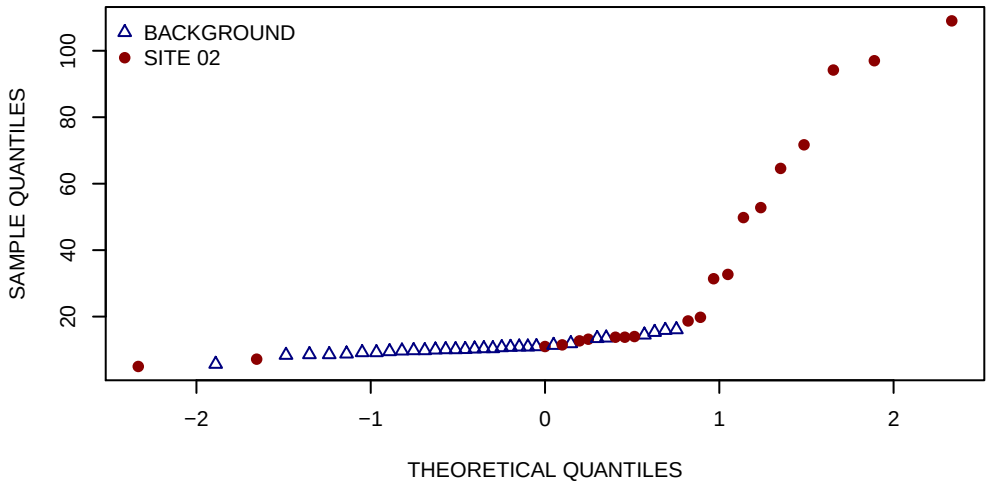
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

BARIUM UPPER SAND INORGANICS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 4 OF 20

BOXPLOTS



NORMAL Q−Q PLOT



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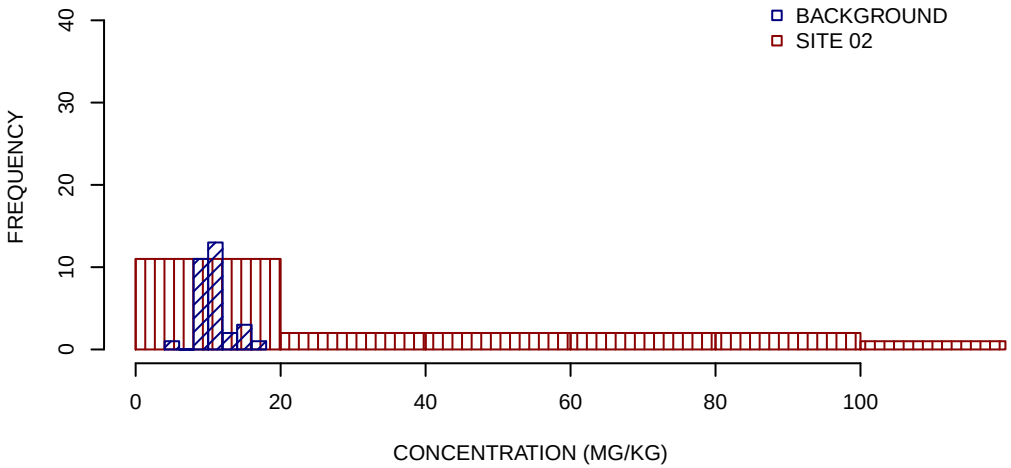


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	5.7	5
25TH PERCENTILE	9.6	13
MEDIAN	10	19
MEAN	11	37
75TH PERCENTILE	11	56
MAXIMUM	16	110

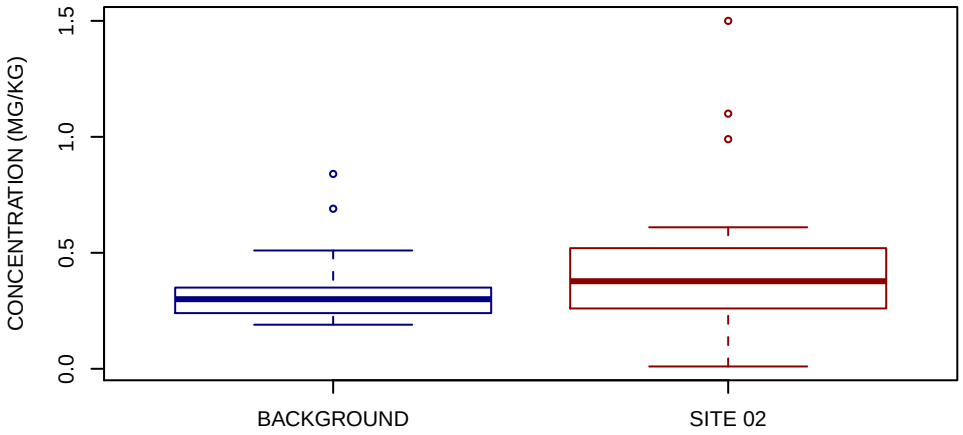
UNITS ARE MG/KG

1/2 DETECTION LIMIT USED FOR NON−DETECTS

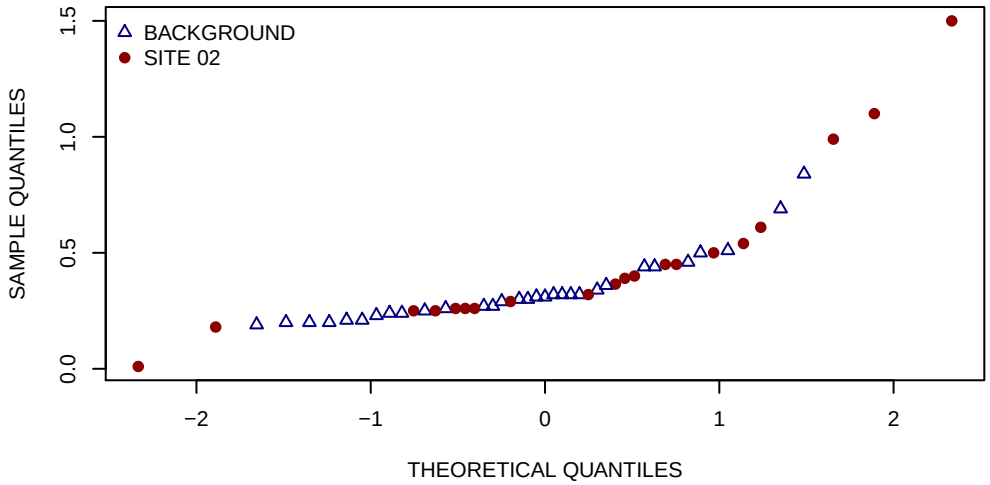
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

BERYLLIUM UPPER SAND INORGANICS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 5 OF 20

BOXPLOTS



NORMAL Q−Q PLOT



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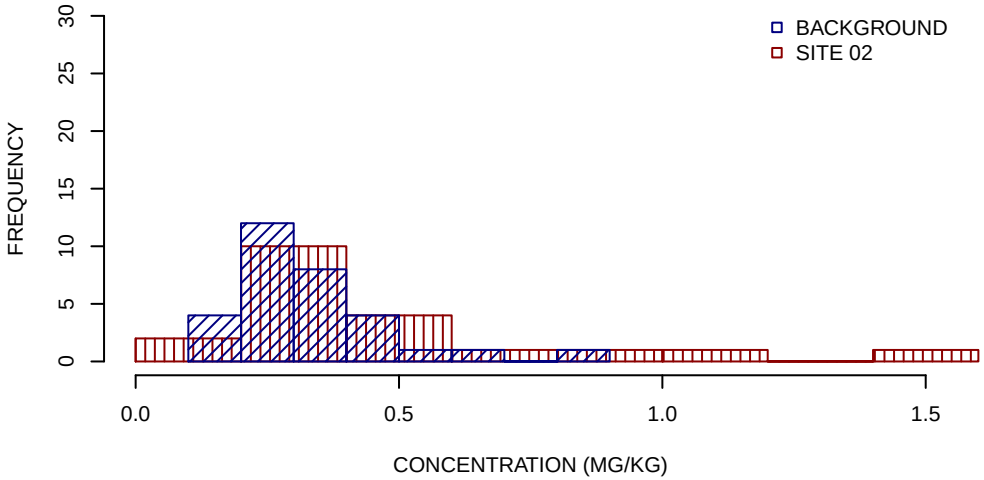


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	0.19	0.01
25TH PERCENTILE	0.24	0.26
MEDIAN	0.3	0.38
MEAN	0.33	0.47
75TH PERCENTILE	0.35	0.51
MAXIMUM	0.84	1.5

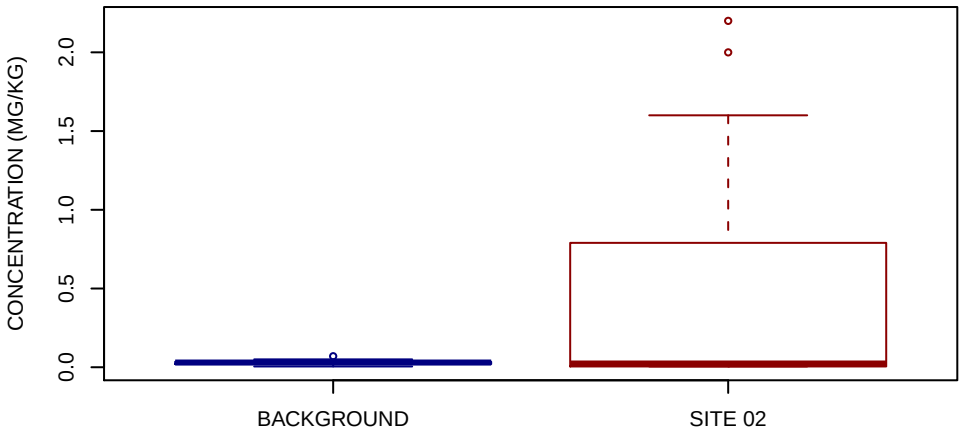
UNITS ARE MG/KG

1/2 DETECTION LIMIT USED FOR NON−DETECTS

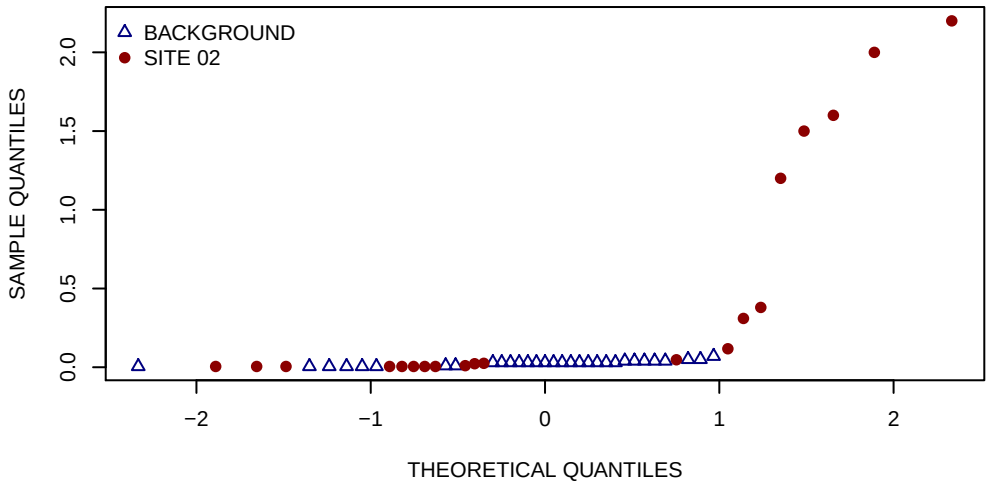
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

CADMIUM UPPER SAND INORGANICS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 6 OF 20

BOXPLOTS



NORMAL Q−Q PLOT



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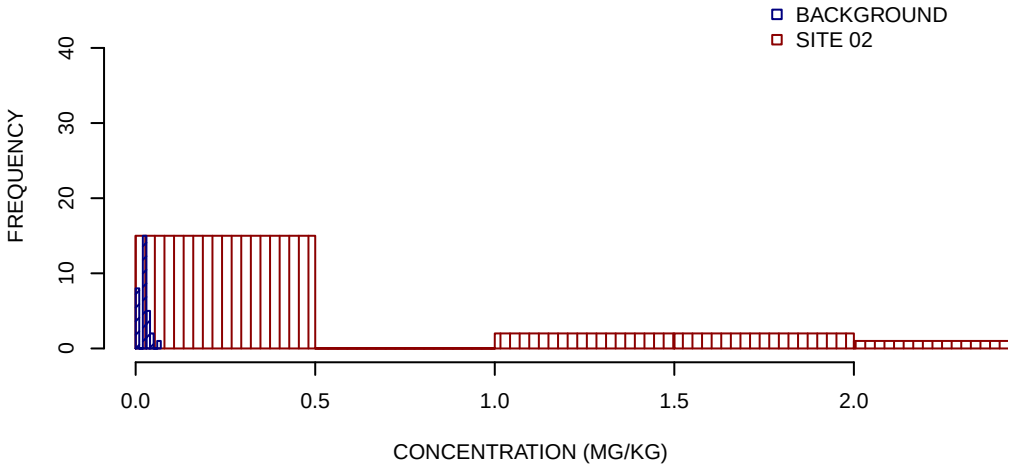


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	0.005	0.005
25TH PERCENTILE	0.02	0.005
MEDIAN	0.03	0.024
MEAN	0.028	0.47
75TH PERCENTILE	0.035	0.58
MAXIMUM	0.07	2.2

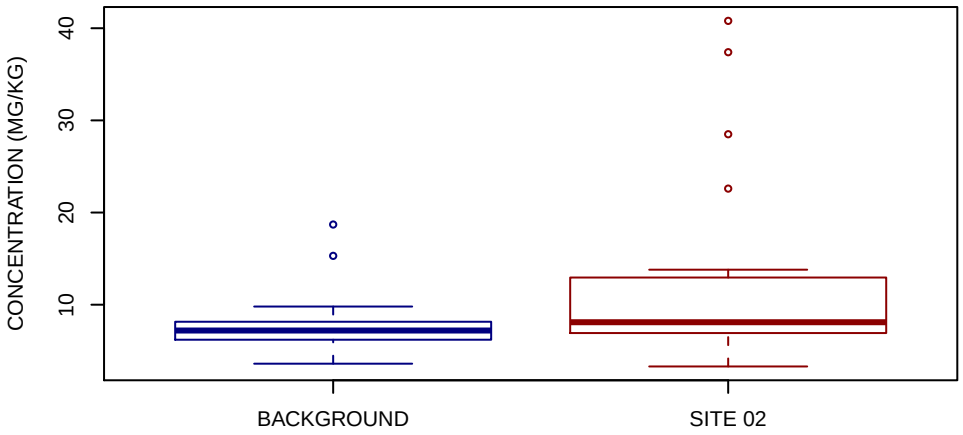
UNITS ARE MG/KG

1/2 DETECTION LIMIT USED FOR NON−DETECTS

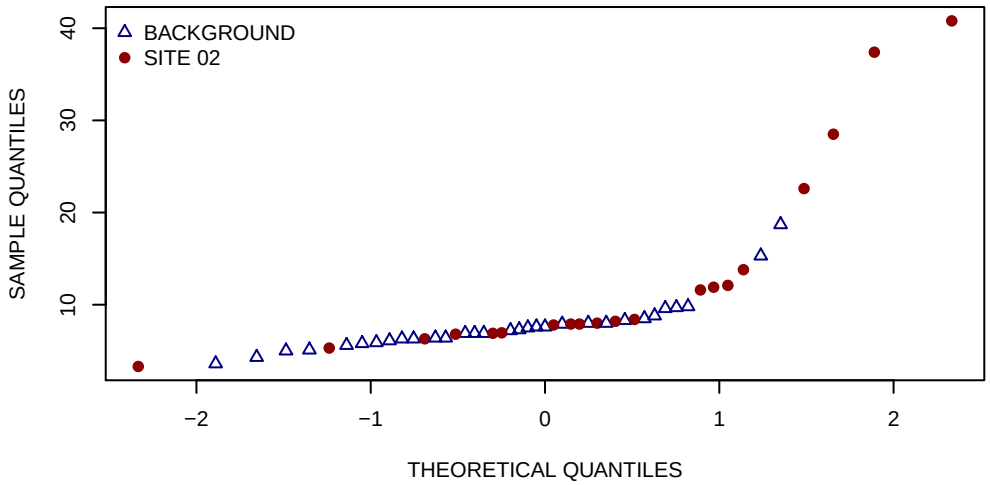
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

CHROMIUM UPPER SAND INORGANICS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 7 OF 20

BOXPLOTS



NORMAL Q−Q PLOT



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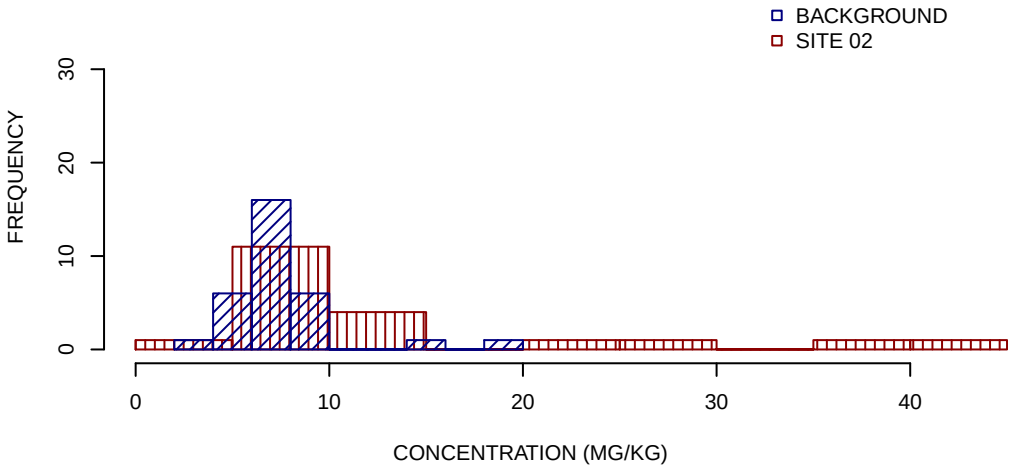


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	3.6	3.3
25TH PERCENTILE	6.2	6.9
MEDIAN	7.2	8.1
MEAN	7.7	13
75TH PERCENTILE	8.2	13
MAXIMUM	19	41

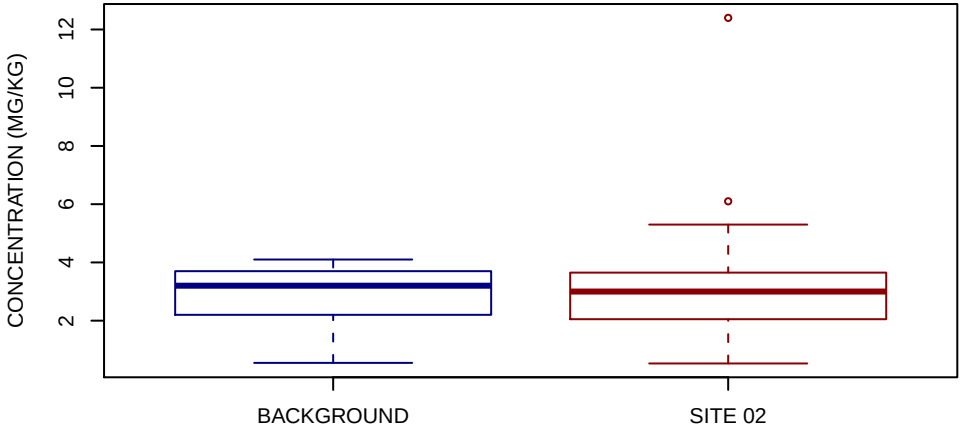
UNITS ARE MG/KG

1/2 DETECTION LIMIT USED FOR NON−DETECTS

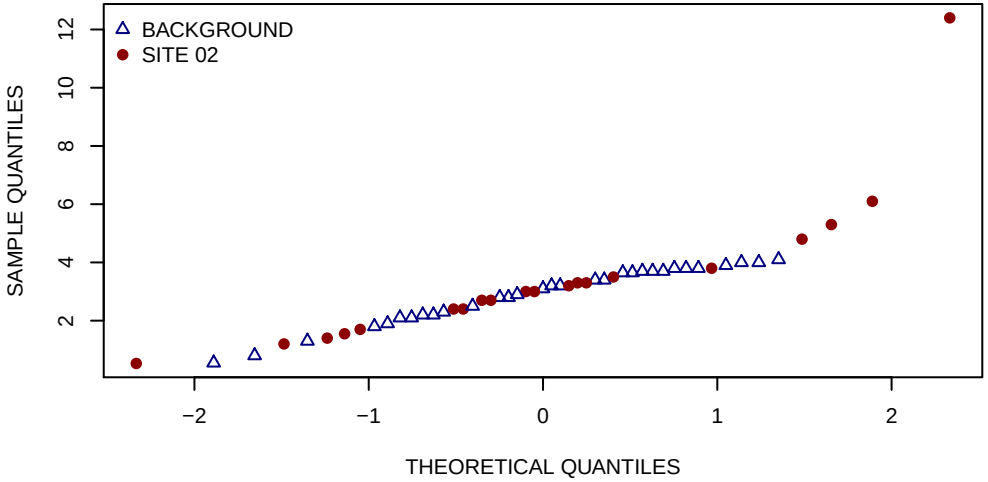
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

COBALT UPPER SAND INORGANICS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 8 OF 20

BOXPLOTS



NORMAL Q−Q PLOT



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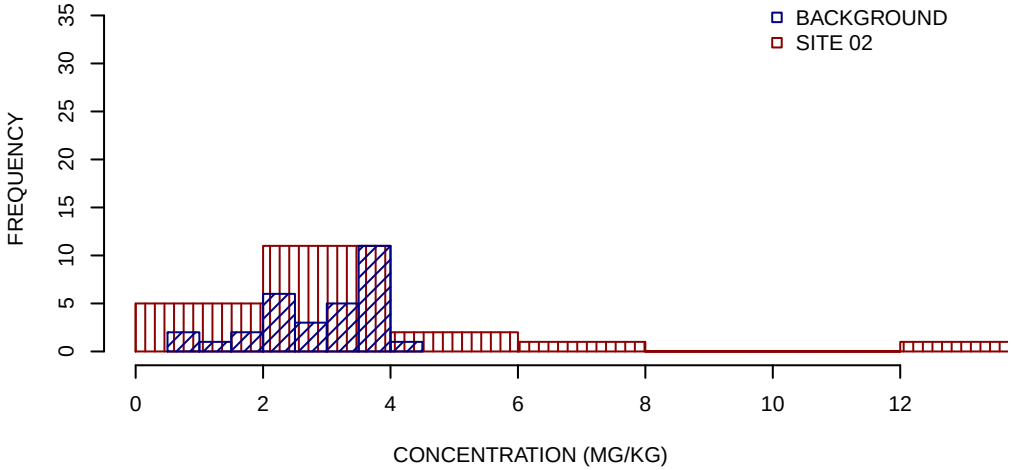


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	0.55	0.53
25TH PERCENTILE	2.2	2.2
MEDIAN	3.2	3
MEAN	2.9	3.4
75TH PERCENTILE	3.7	3.6
MAXIMUM	4.1	12

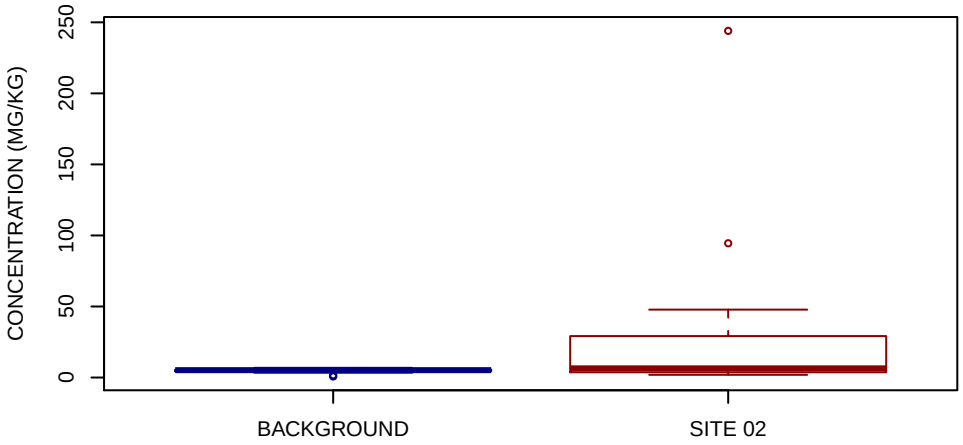
UNITS ARE MG/KG

1/2 DETECTION LIMIT USED FOR NON−DETECTS

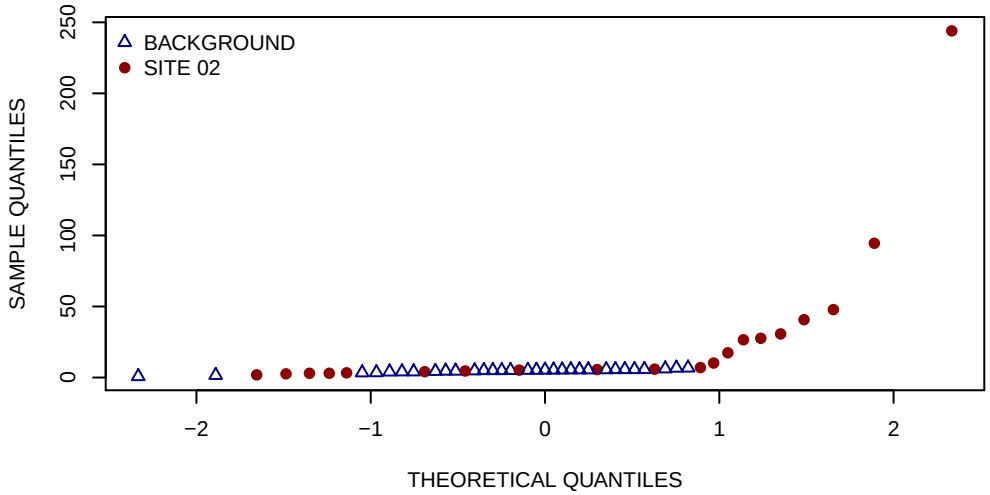
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

COPPER UPPER SAND INORGANICS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 9 OF 20

BOXPLOTS



NORMAL Q−Q PLOT



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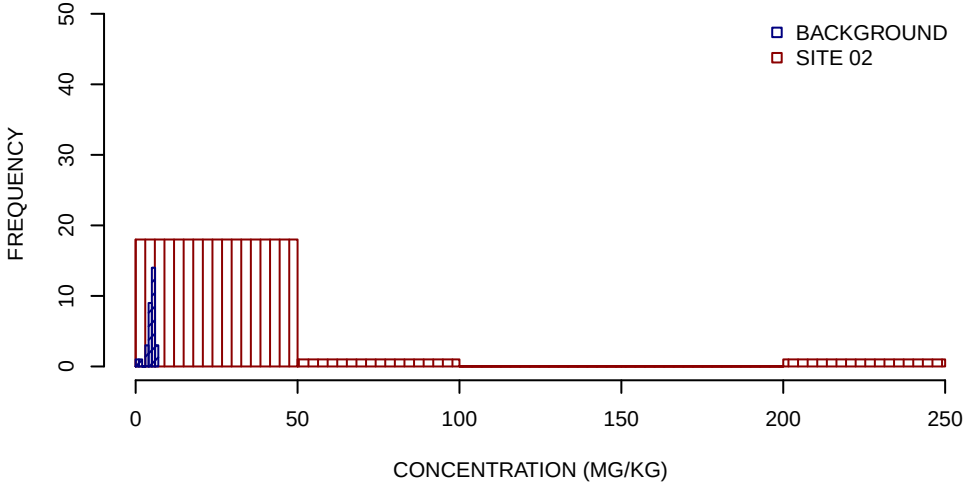


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	0.75	1.9
25TH PERCENTILE	4.5	3.9
MEDIAN	5.2	6.5
MEAN	4.9	29
75TH PERCENTILE	5.5	28
MAXIMUM	6.8	240

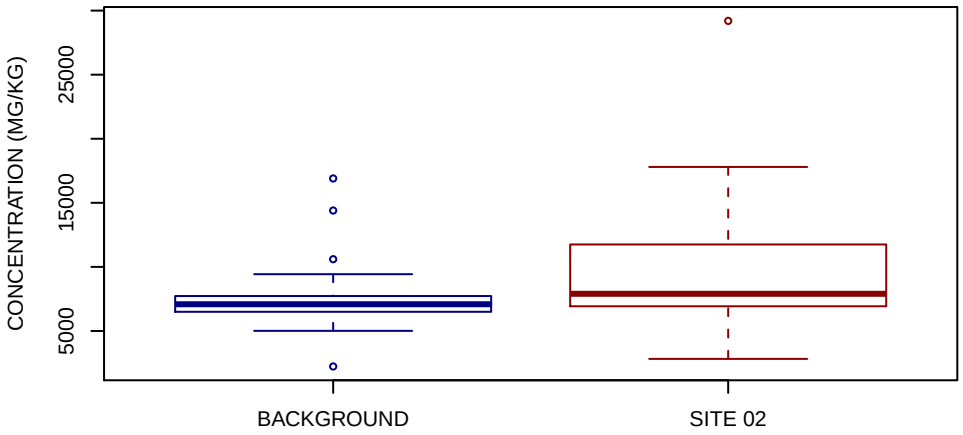
UNITS ARE MG/KG

1/2 DETECTION LIMIT USED FOR NON−DETECTS

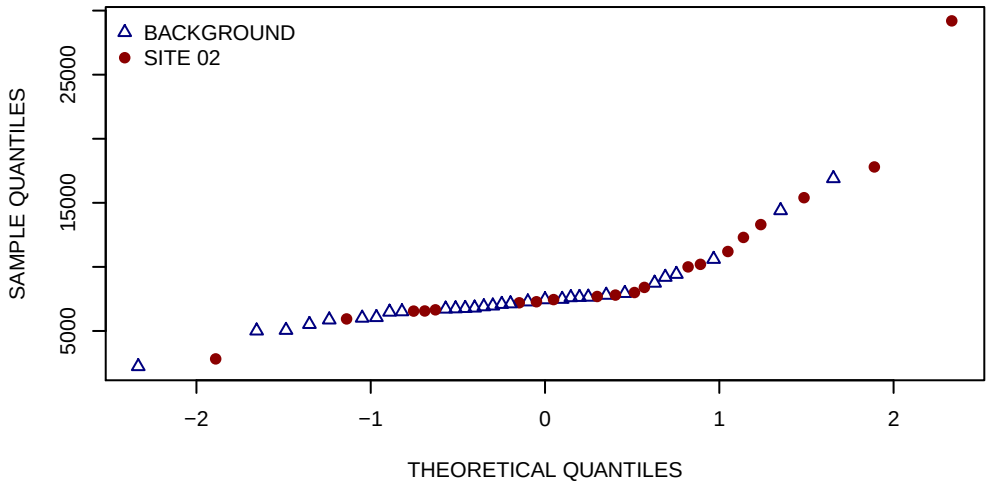
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

IRON UPPER SAND INORGANICS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 10 OF 20

BOXPLOTS



NORMAL Q−Q PLOT



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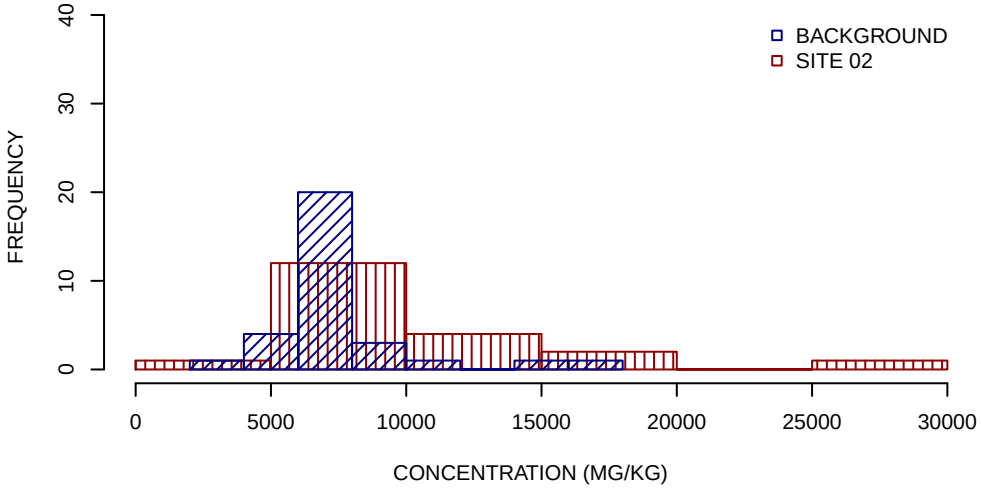


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	2200	2800
25TH PERCENTILE	6500	7100
MEDIAN	7100	7900
MEAN	7500	10000
75TH PERCENTILE	7700	11000
MAXIMUM	17000	29000

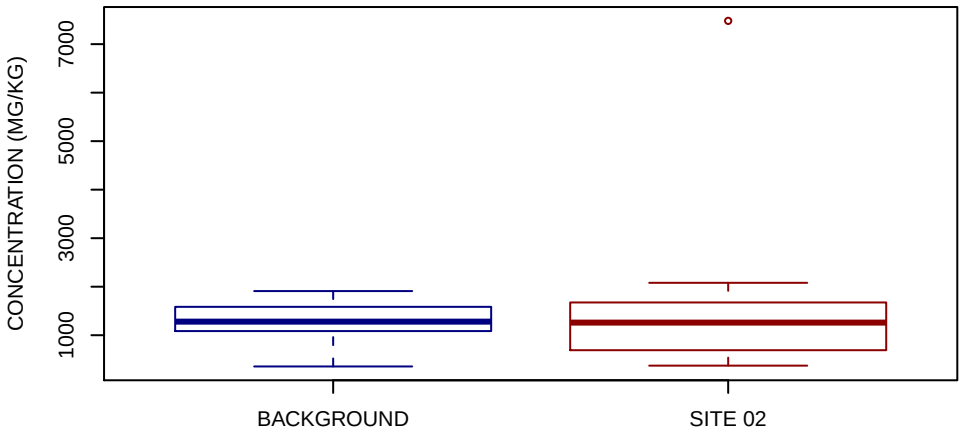
UNITS ARE MG/KG

1/2 DETECTION LIMIT USED FOR NON−DETECTS

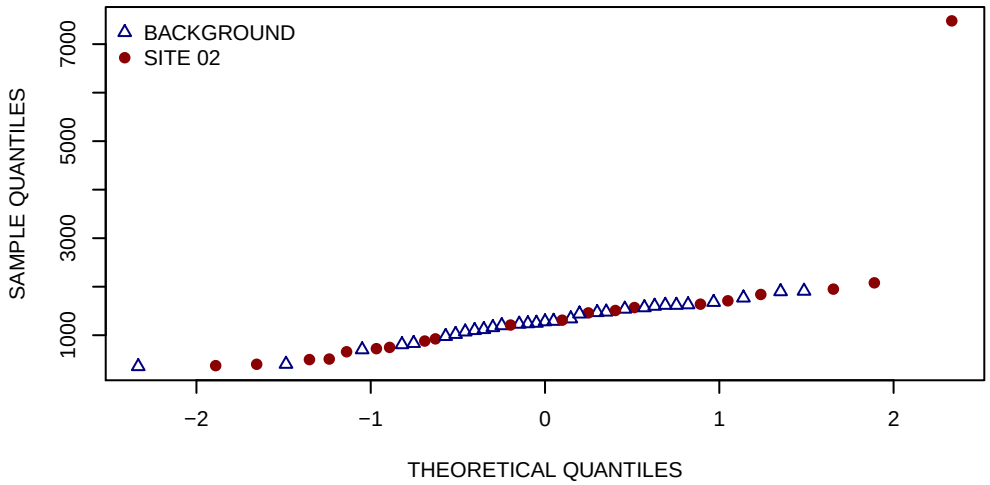
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

MAGNESIUM UPPER SAND INORGANICS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 11 OF 20

BOXPLOTS



NORMAL Q−Q PLOT



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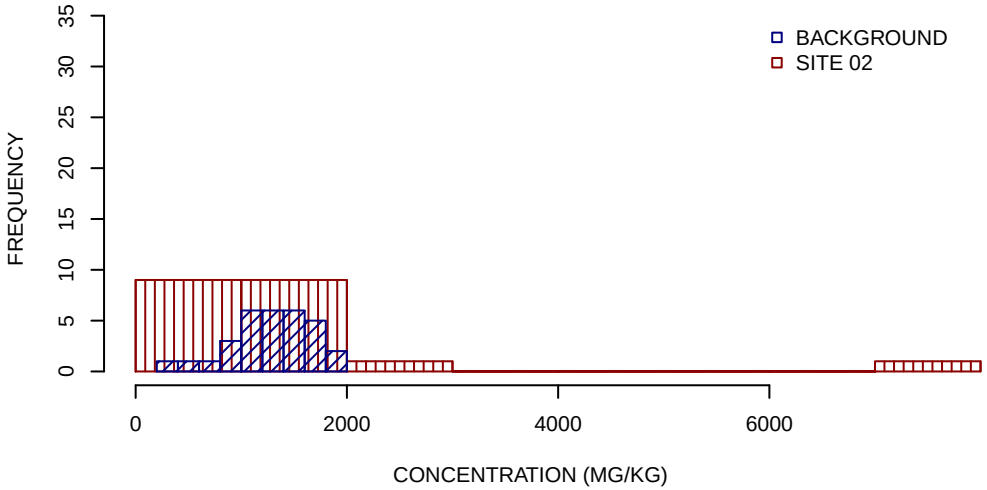


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	360	370
25TH PERCENTILE	1100	710
MEDIAN	1300	1300
MEAN	1300	1500
75TH PERCENTILE	1600	1700
MAXIMUM	1900	7500

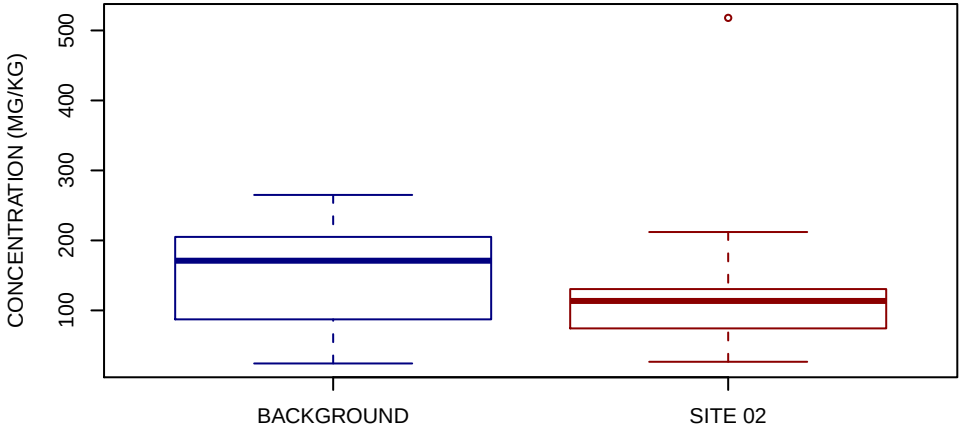
UNITS ARE MG/KG

1/2 DETECTION LIMIT USED FOR NON−DETECTS

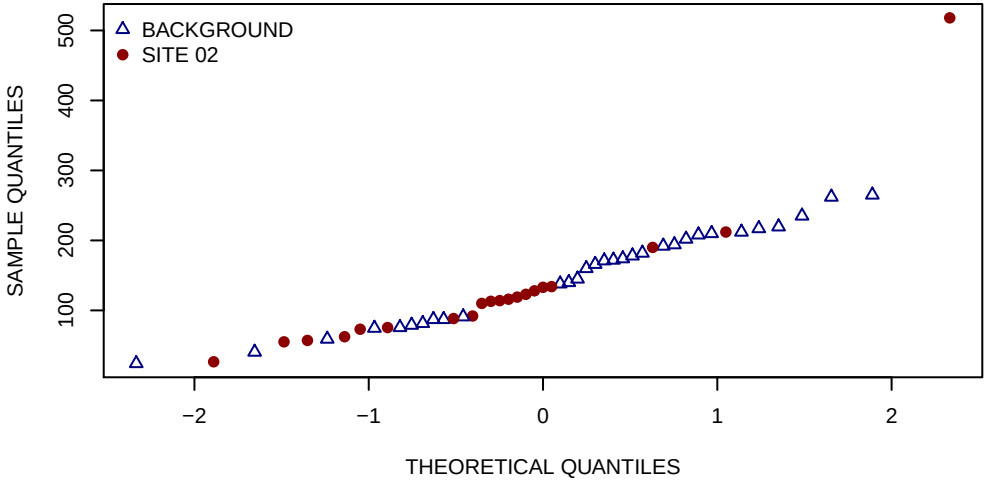
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

MANGANESE UPPER SAND INORGANICS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 12 OF 20

BOXPLOTS



NORMAL Q−Q PLOT



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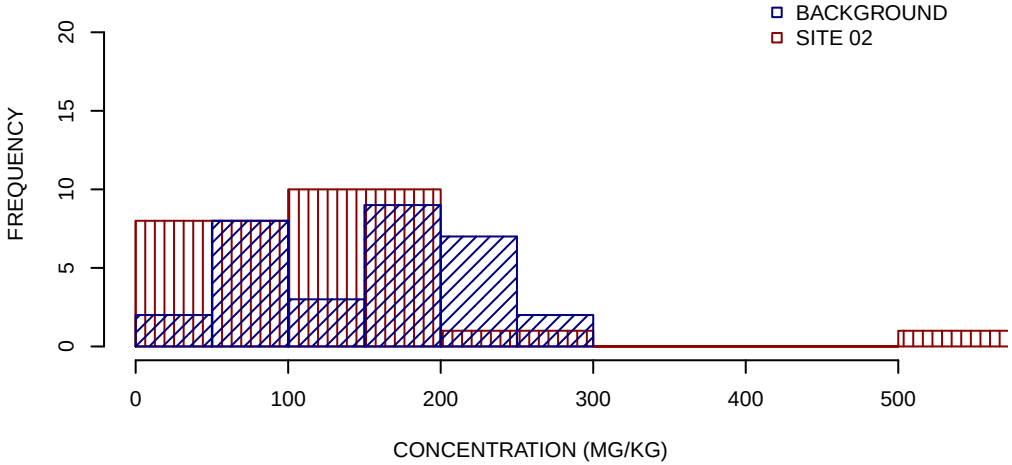


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	24	27
25TH PERCENTILE	87	75
MEDIAN	170	110
MEAN	150	130
75TH PERCENTILE	200	130
MAXIMUM	260	520

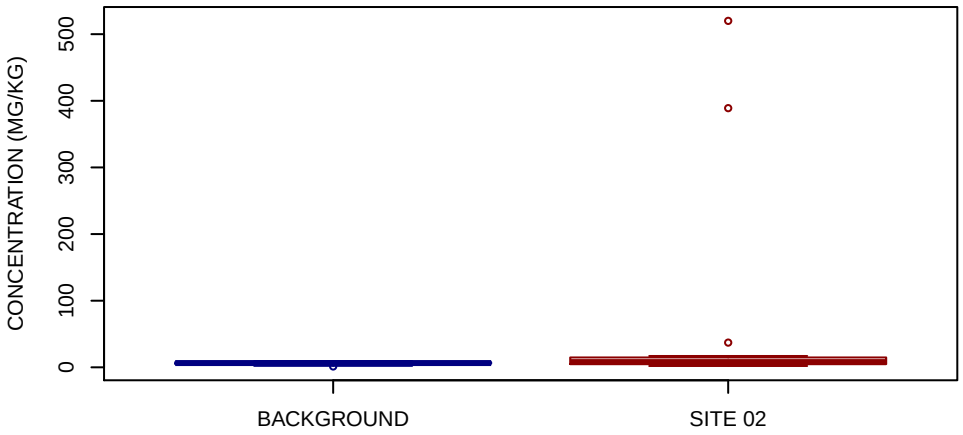
UNITS ARE MG/KG

1/2 DETECTION LIMIT USED FOR NON−DETECTS

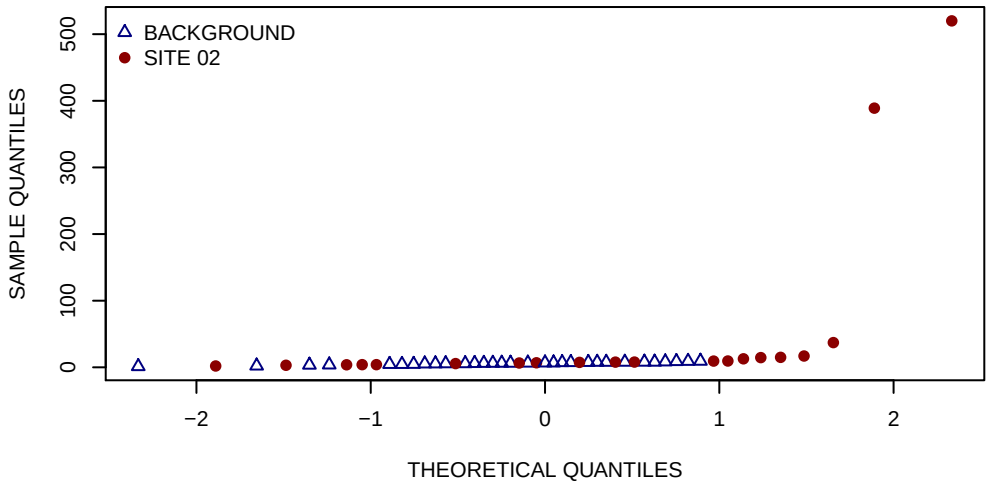
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

NICKEL UPPER SAND INORGANICS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 13 OF 20

BOXPLOTS



NORMAL Q−Q PLOT



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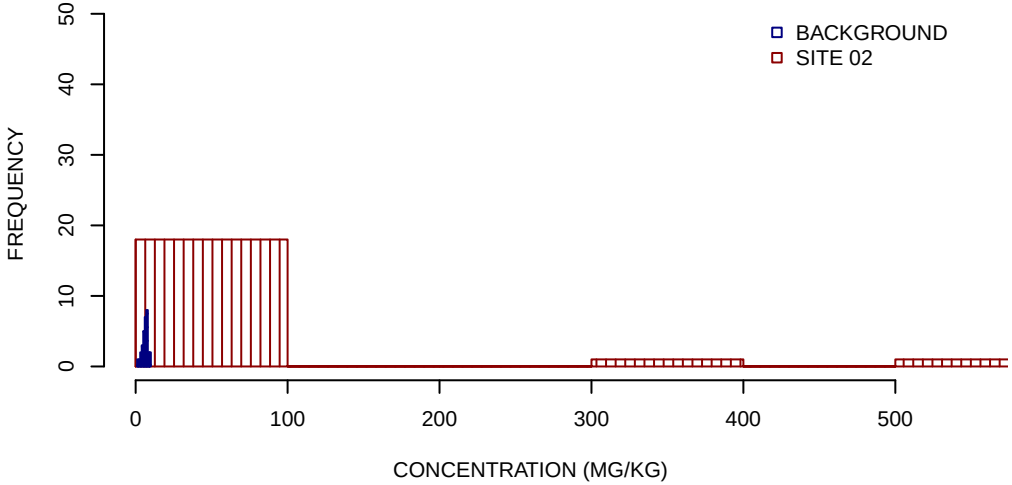


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	1.3	2
25TH PERCENTILE	5.3	5.2
MEDIAN	6.4	7.8
MEAN	6.3	54
75TH PERCENTILE	7.8	15
MAXIMUM	9.4	520

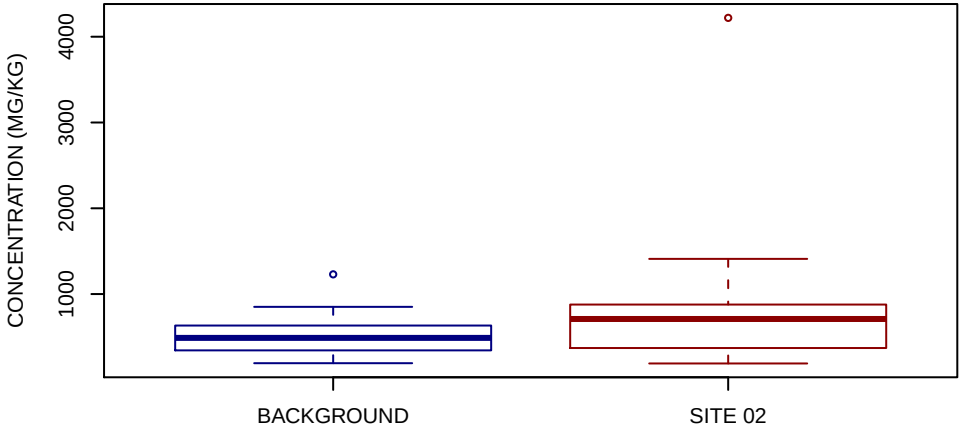
UNITS ARE MG/KG

1/2 DETECTION LIMIT USED FOR NON−DETECTS

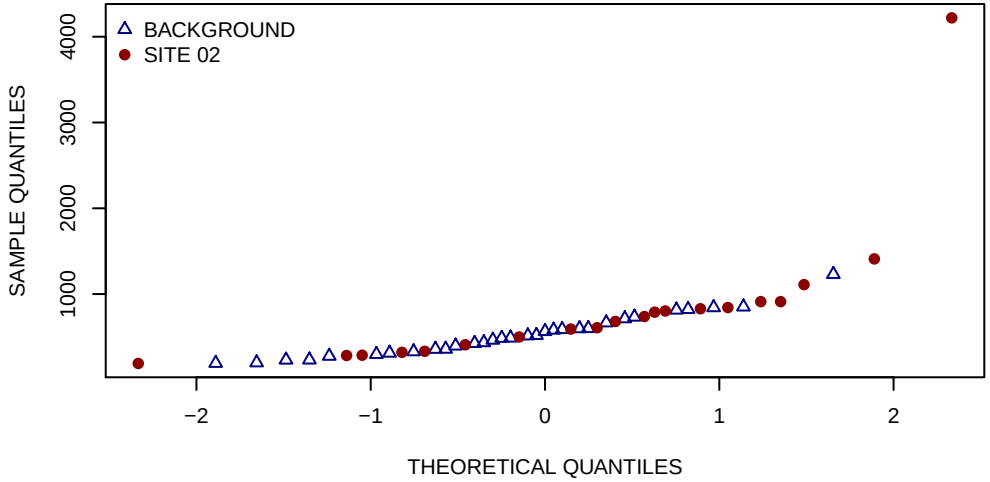
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

POTASSIUM UPPER SAND INORGANICS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 14 OF 20

BOXPLOTS



NORMAL Q−Q PLOT



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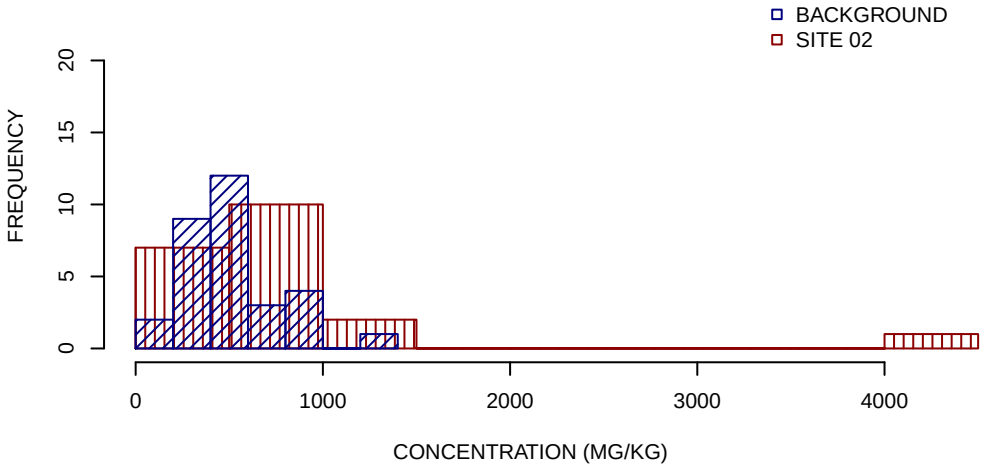


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	190	190
25TH PERCENTILE	340	390
MEDIAN	490	710
MEAN	520	840
75TH PERCENTILE	630	860
MAXIMUM	1200	4200

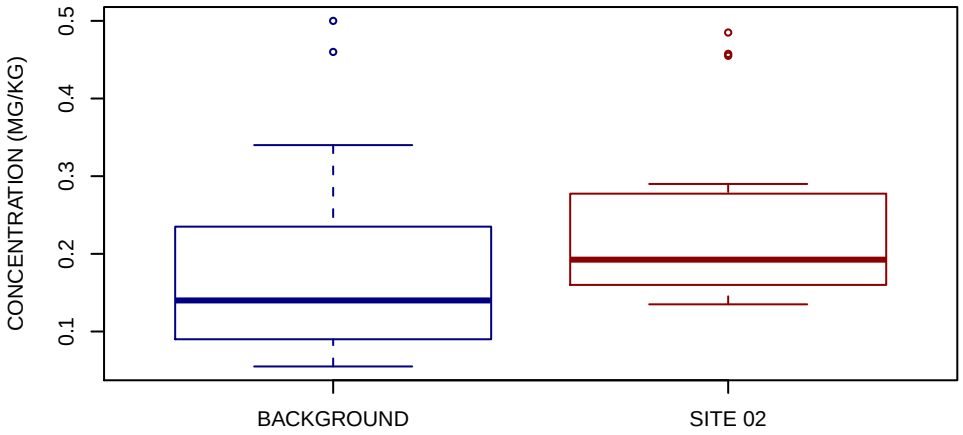
UNITS ARE MG/KG

1/2 DETECTION LIMIT USED FOR NON−DETECTS

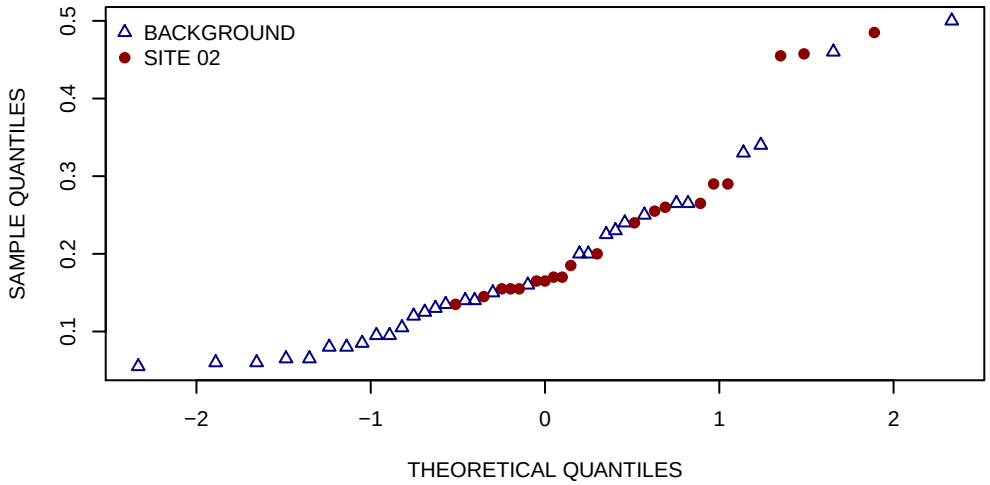
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

SELENIUM UPPER SAND INORGANICS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 15 OF 20

BOXPLOTS



NORMAL Q−Q PLOT



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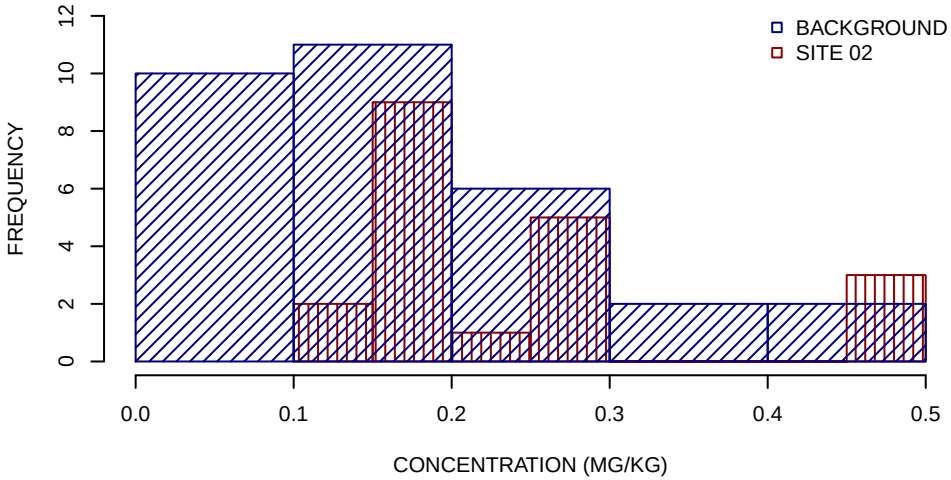


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	0.055	0.14
25TH PERCENTILE	0.09	0.16
MEDIAN	0.14	0.19
MEAN	0.18	0.24
75TH PERCENTILE	0.23	0.27
MAXIMUM	0.5	0.48

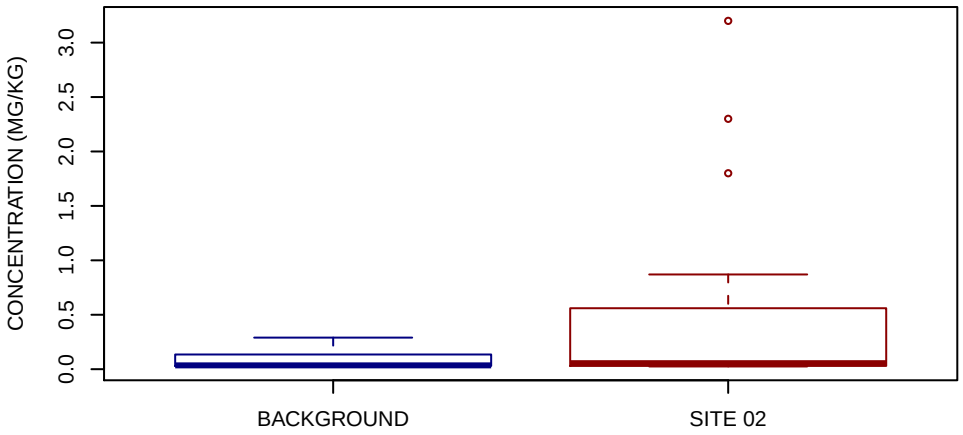
UNITS ARE MG/KG

1/2 DETECTION LIMIT USED FOR NON−DETECTS

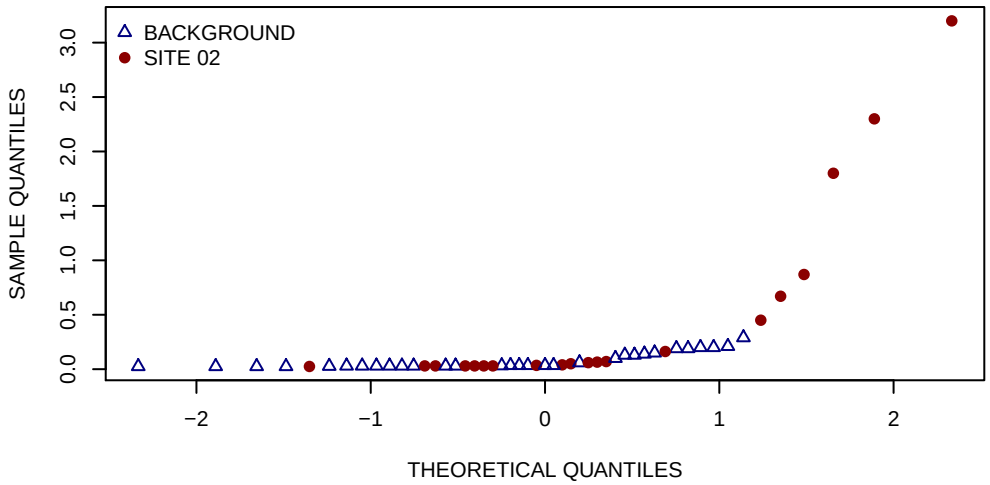
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

SILVER UPPER SAND INORGANICS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 16 OF 20

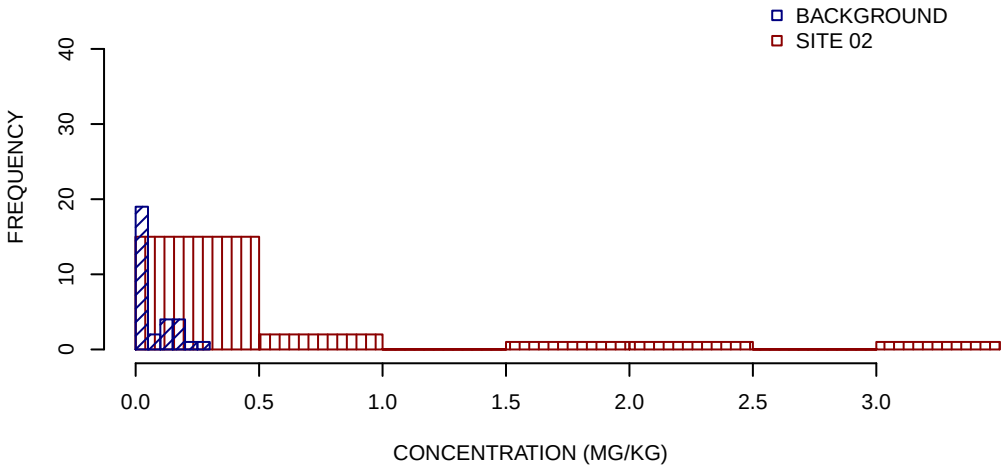
BOXPLOTS



NORMAL Q−Q PLOT



HISTOGRAMS



SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	0.025	0.025
25TH PERCENTILE	0.03	0.03
MEDIAN	0.035	0.055
MEAN	0.083	0.5
75TH PERCENTILE	0.14	0.51
MAXIMUM	0.29	3.2

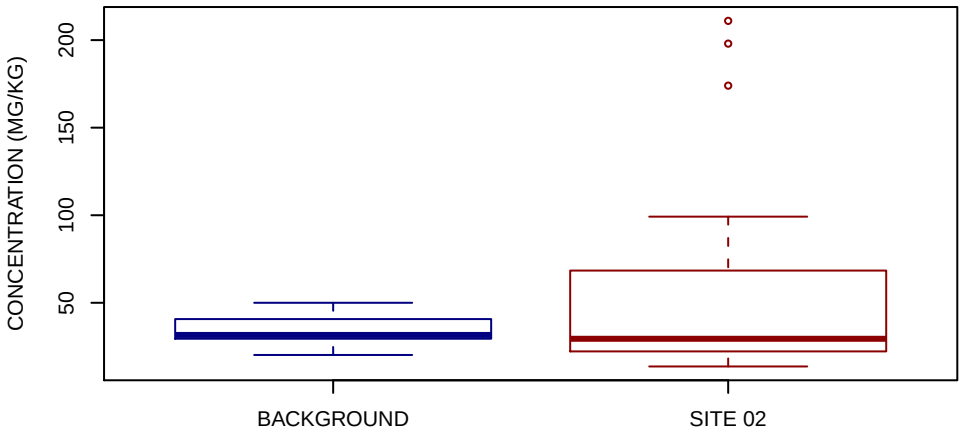
UNITS ARE MG/KG

1/2 DETECTION LIMIT USED FOR NON−DETECTS

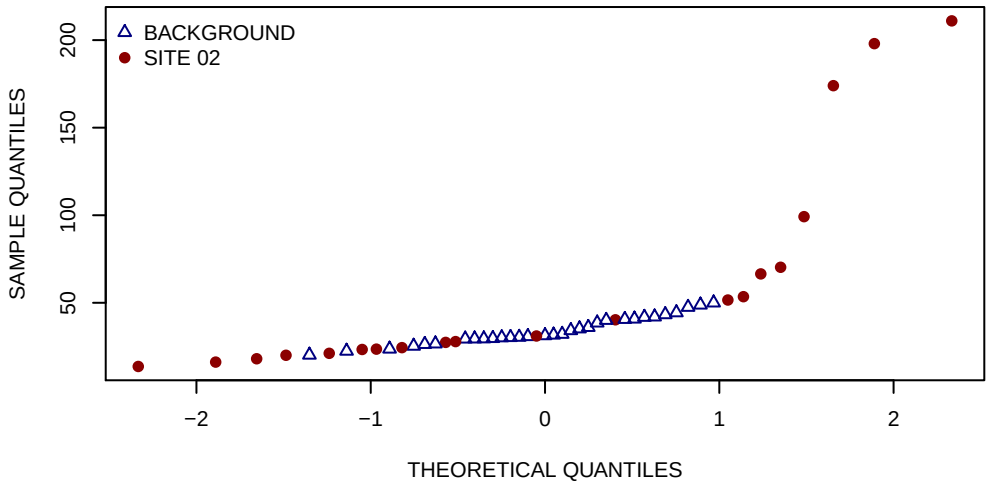
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

SODIUM UPPER SAND INORGANICS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 17 OF 20

BOXPLOTS



NORMAL Q−Q PLOT



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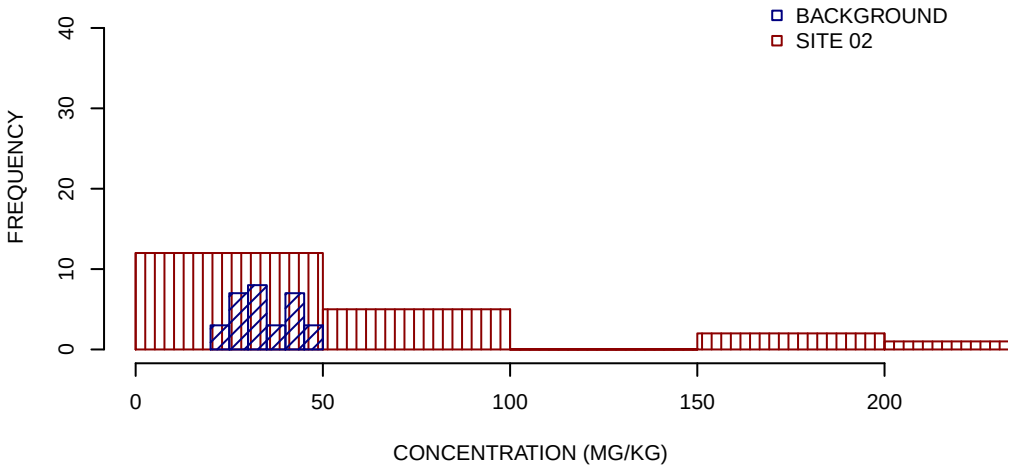


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	20	14
25TH PERCENTILE	29	23
MEDIAN	32	29
MEAN	34	61
75TH PERCENTILE	41	67
MAXIMUM	50	210

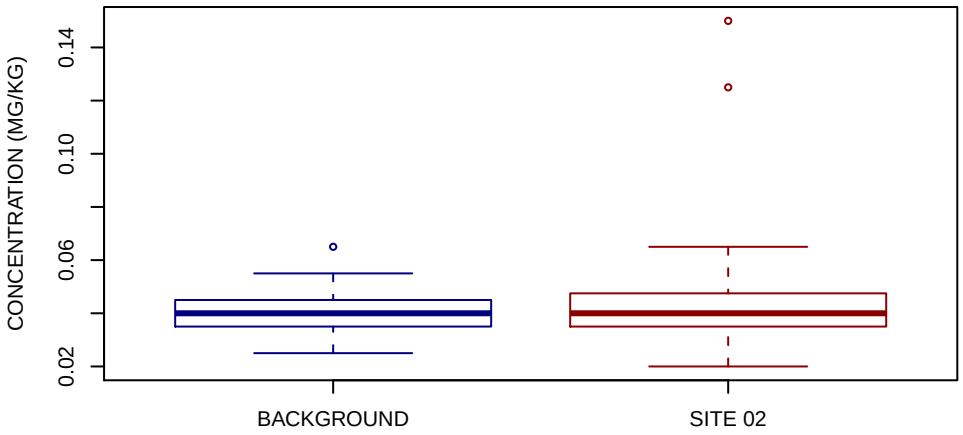
UNITS ARE MG/KG

1/2 DETECTION LIMIT USED FOR NON−DETECTS

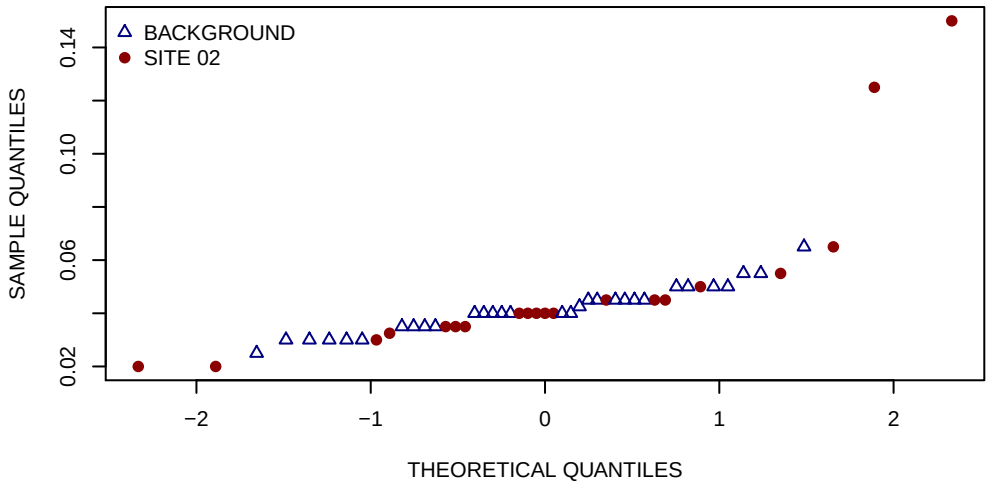
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

THALLIUM UPPER SAND INORGANICS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 18 OF 20

BOXPLOTS



NORMAL Q−Q PLOT



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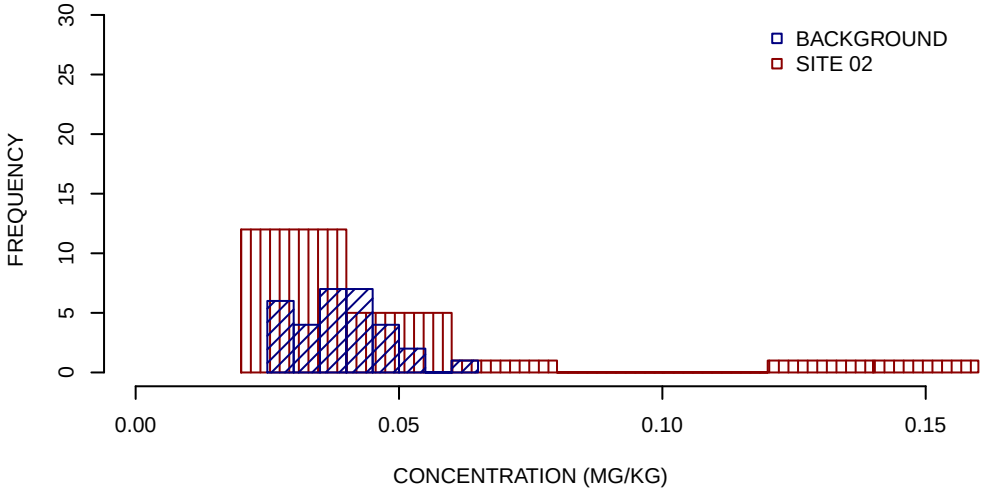


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	0.025	0.02
25TH PERCENTILE	0.035	0.035
MEDIAN	0.04	0.04
MEAN	0.041	0.049
75TH PERCENTILE	0.045	0.046
MAXIMUM	0.065	0.15

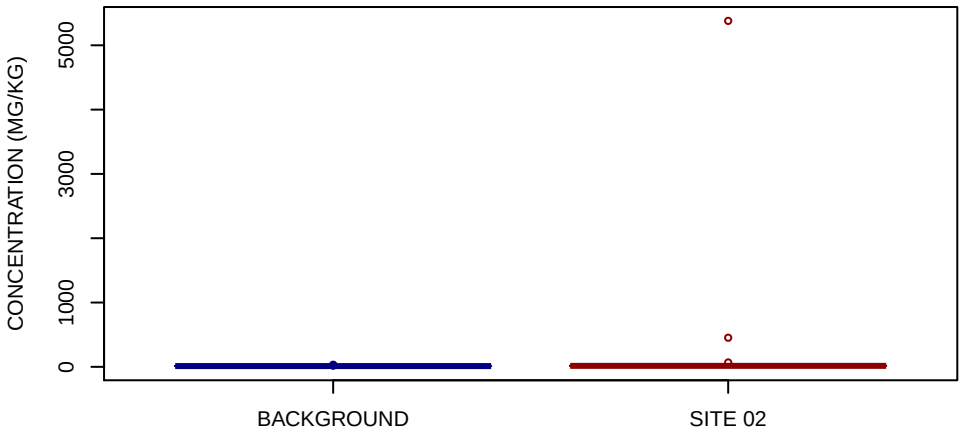
UNITS ARE MG/KG

1/2 DETECTION LIMIT USED FOR NON−DETECTS

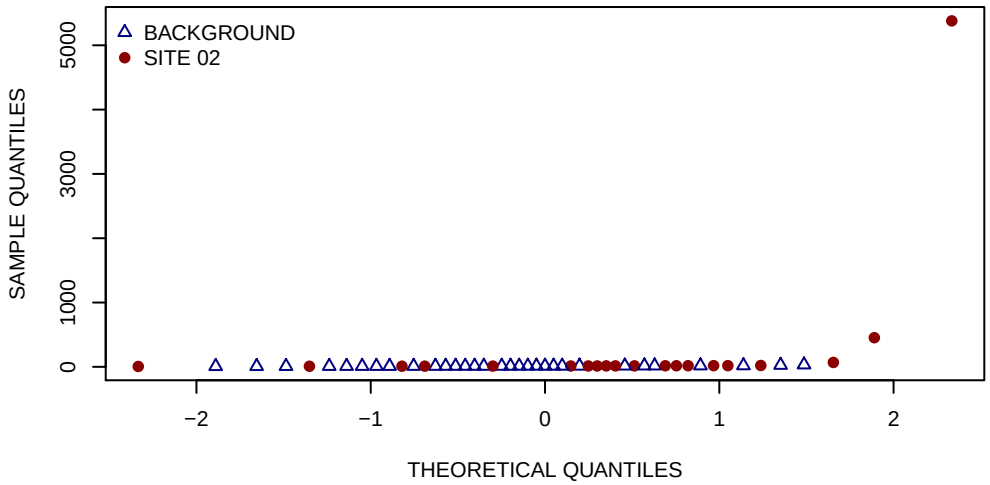
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

VANADIUM UPPER SAND INORGANICS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 19 OF 20

BOXPLOTS



NORMAL Q−Q PLOT



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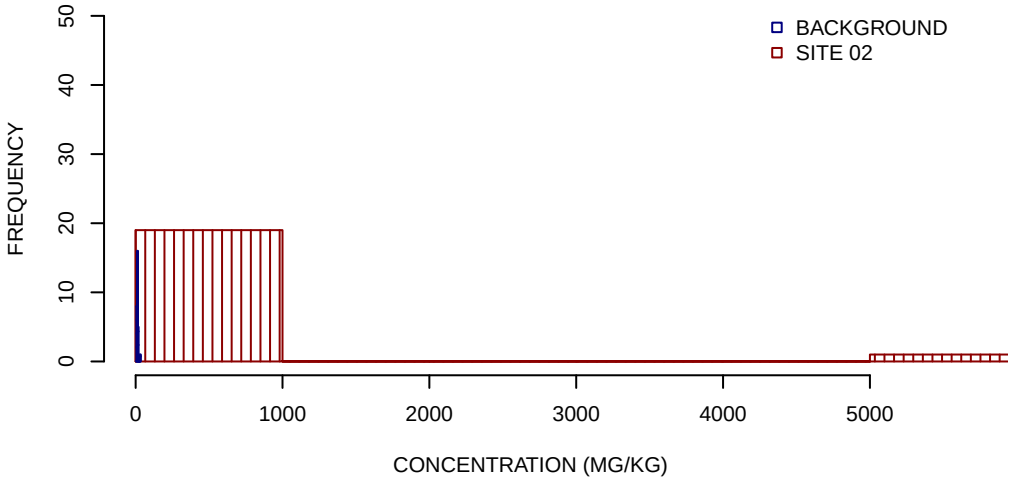


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	7.5	6.1
25TH PERCENTILE	10	13
MEDIAN	12	15
MEAN	13	310
75TH PERCENTILE	14	19
MAXIMUM	33	5400

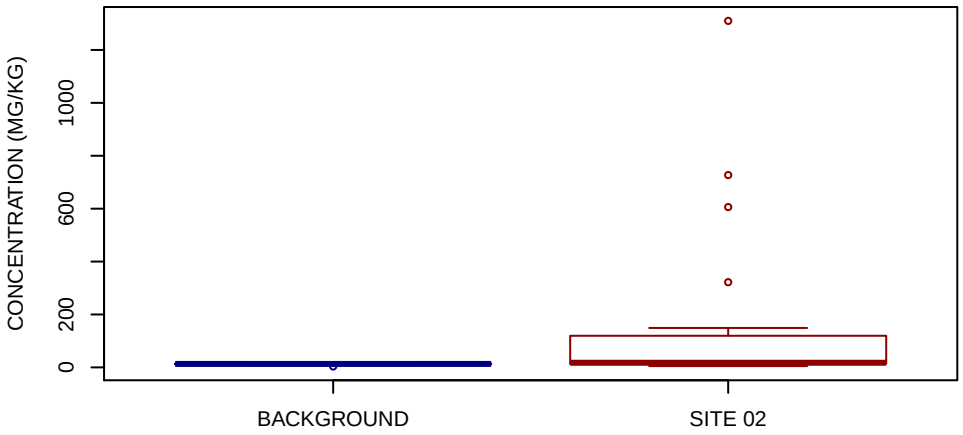
UNITS ARE MG/KG

1/2 DETECTION LIMIT USED FOR NON−DETECTS

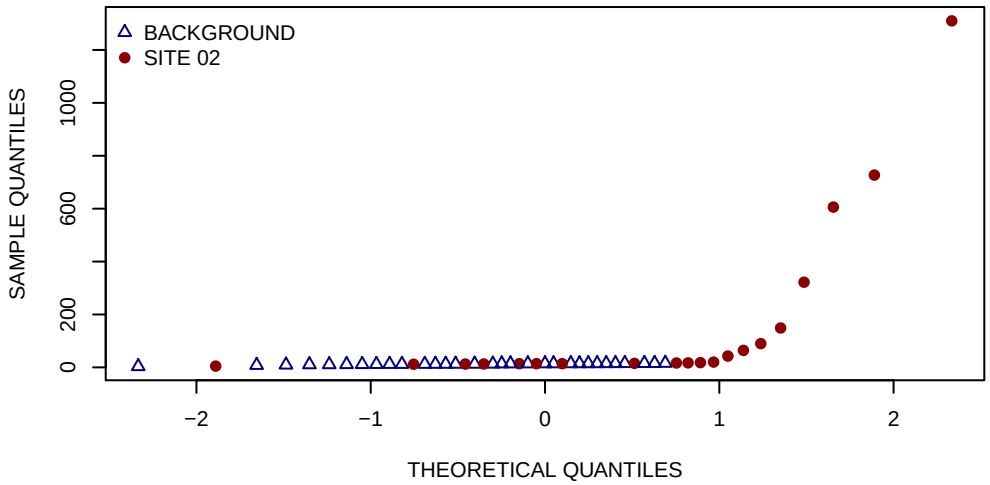
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

ZINC UPPER SAND INORGANICS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 20 OF 20

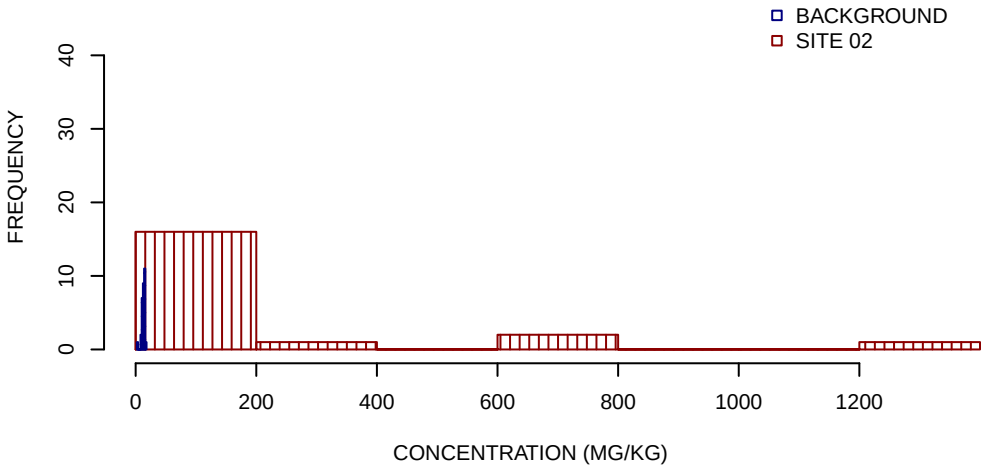
BOXPLOTS



NORMAL Q−Q PLOT



HISTOGRAMS



SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	3.5	4.9
25TH PERCENTILE	12	14
MEDIAN	13	18
MEAN	13	170
75TH PERCENTILE	15	100
MAXIMUM	16	1300

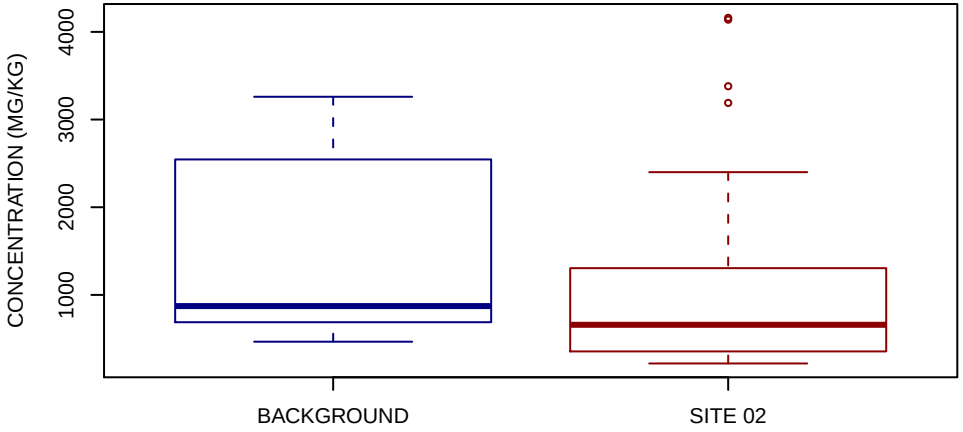
UNITS ARE MG/KG

1/2 DETECTION LIMIT USED FOR NON−DETECTS

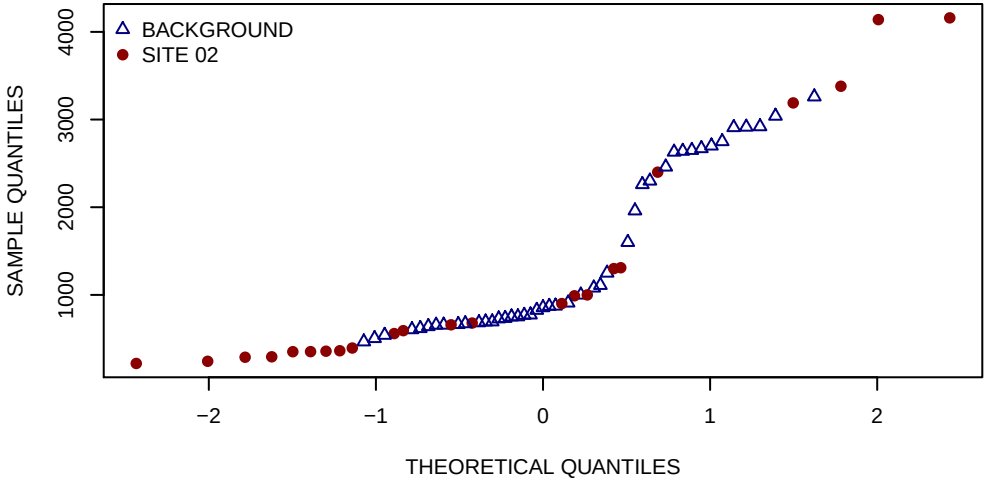
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

CALCIUM UPPER SAND SUBSURFACE SOIL GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 1 OF 2

BOXPLOTS



NORMAL Q−Q PLOT



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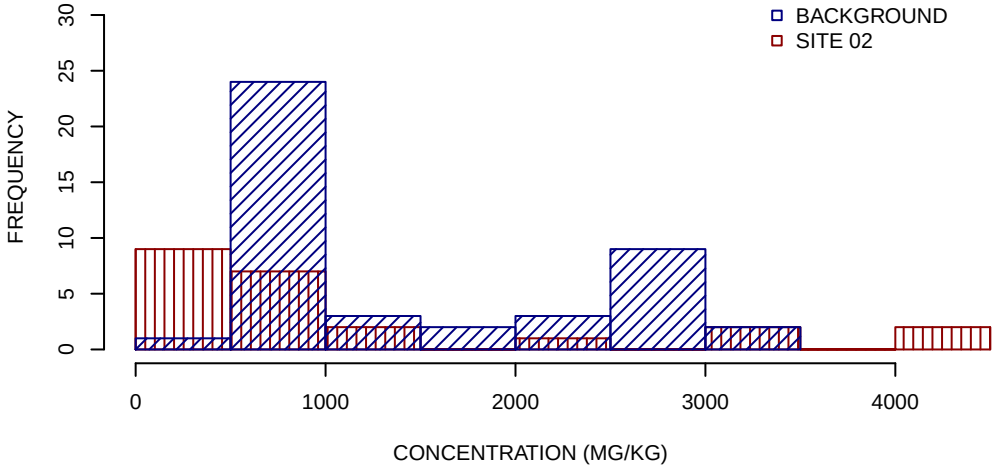


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	470	220
25TH PERCENTILE	690	360
MEDIAN	870	660
MEAN	1400	1200
75TH PERCENTILE	2500	1300
MAXIMUM	3300	4200

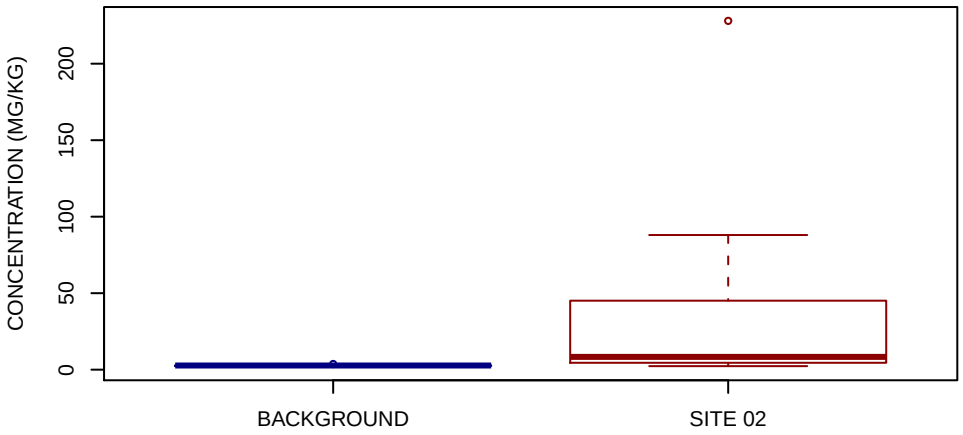
UNITS ARE MG/KG

1/2 DETECTION LIMIT USED FOR NON−DETECTS

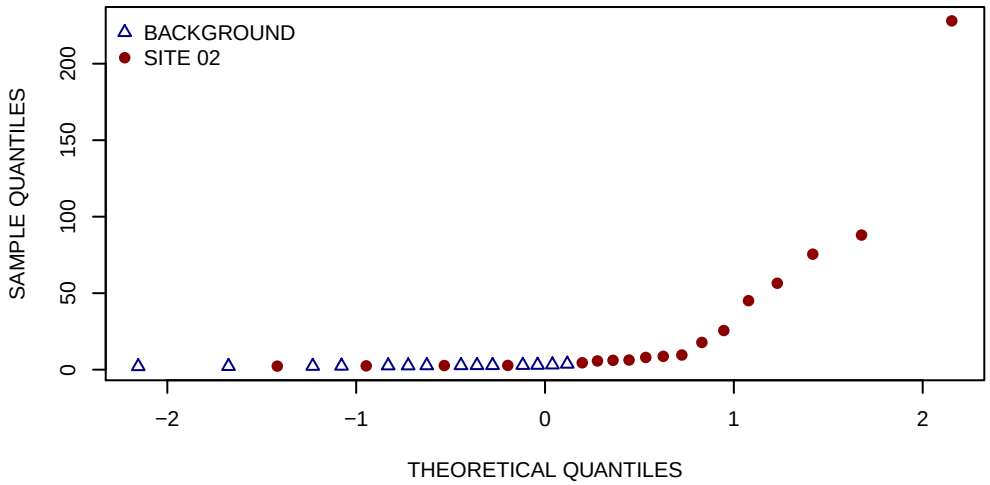
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

LEAD UPPER SAND SUBSURFACE SOIL GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 2 OF 2

BOXPLOTS



NORMAL Q−Q PLOT



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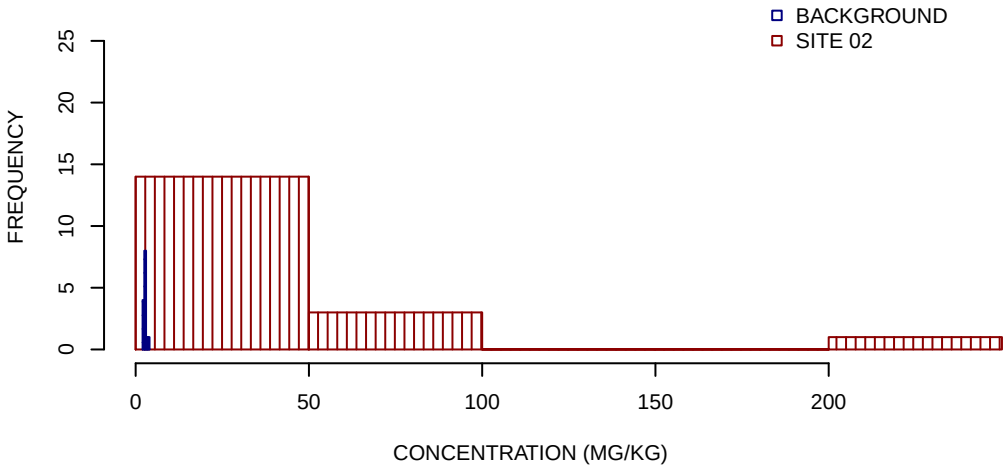


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	2.1	2.3
25TH PERCENTILE	2.5	4.8
MEDIAN	2.7	8.3
MEAN	2.7	33
75TH PERCENTILE	2.9	40
MAXIMUM	3.7	230

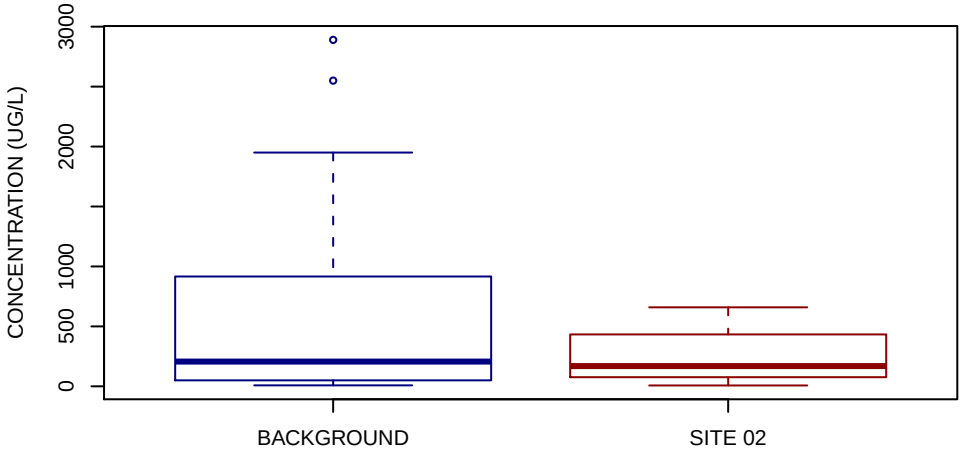
UNITS ARE MG/KG

1/2 DETECTION LIMIT USED FOR NON−DETECTS

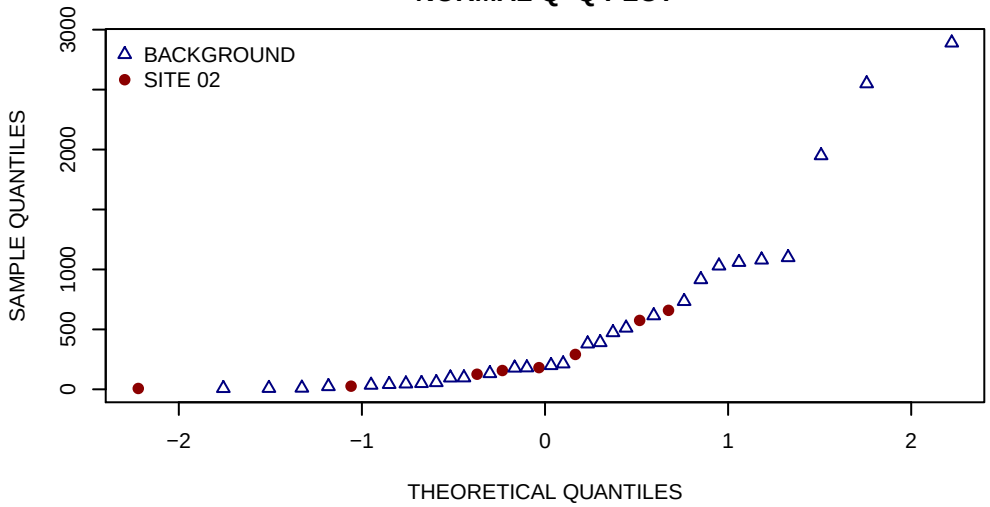
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

ALUMINUM GROUNDWATER UPPER SAND/TRANSITION WELLS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 1 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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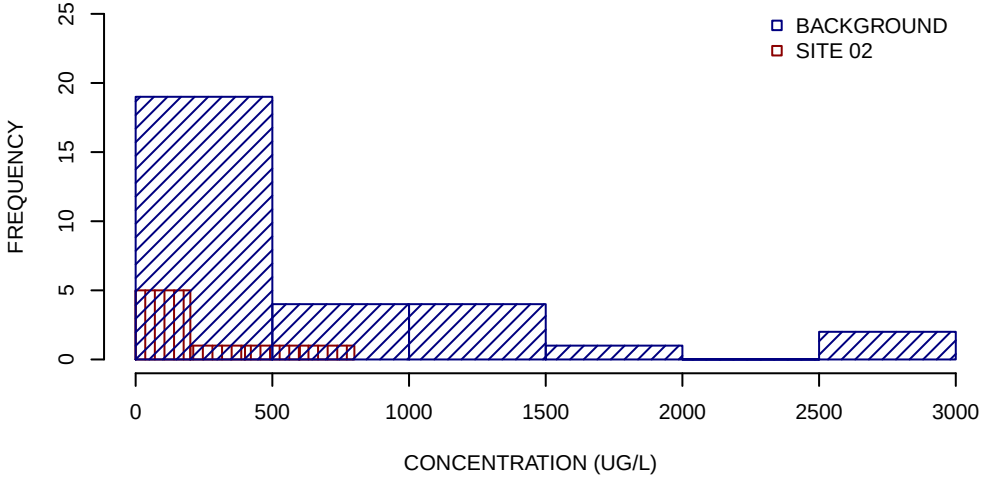


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	8.2	7.3
25TH PERCENTILE	52	100
MEDIAN	210	170
MEAN	570	250
75TH PERCENTILE	870	360
MAXIMUM	2900	660

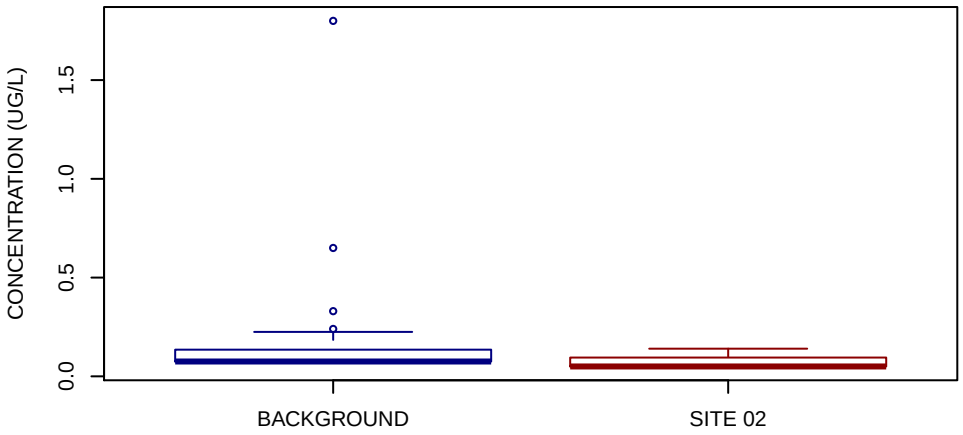
UNITS ARE UG/L

1/2 DETECTION LIMIT USED FOR NON−DETECTS

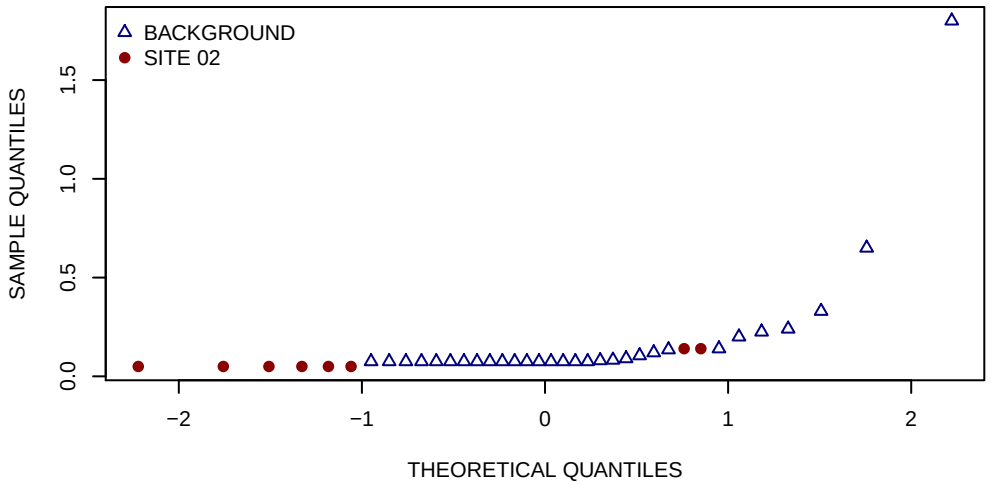
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

ANTIMONY GROUNDWATER UPPER SAND/TRANSITION WELLS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 2 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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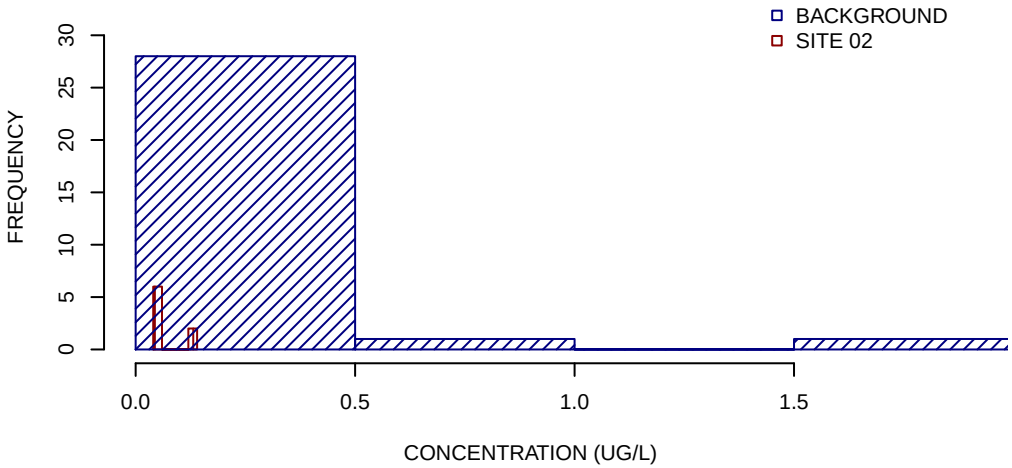


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	0.075	0.05
25TH PERCENTILE	0.075	0.05
MEDIAN	0.075	0.05
MEAN	0.18	0.072
75TH PERCENTILE	0.13	0.072
MAXIMUM	1.8	0.14

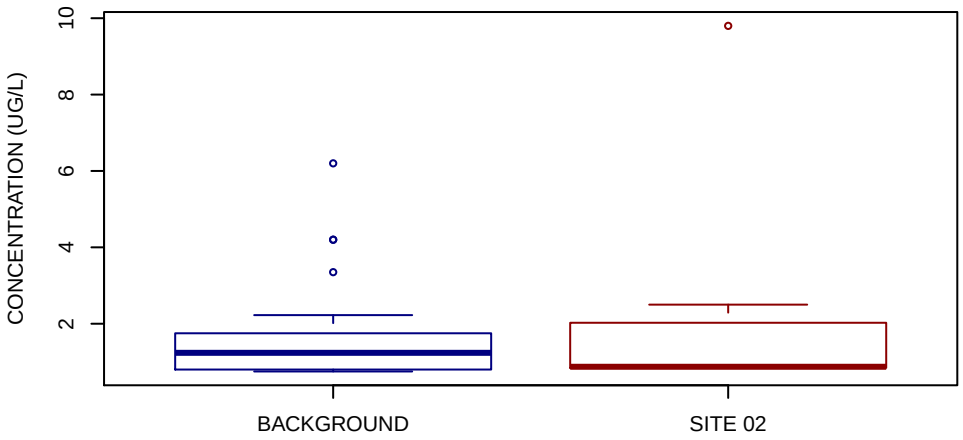
UNITS ARE UG/L

1/2 DETECTION LIMIT USED FOR NON−DETECTS

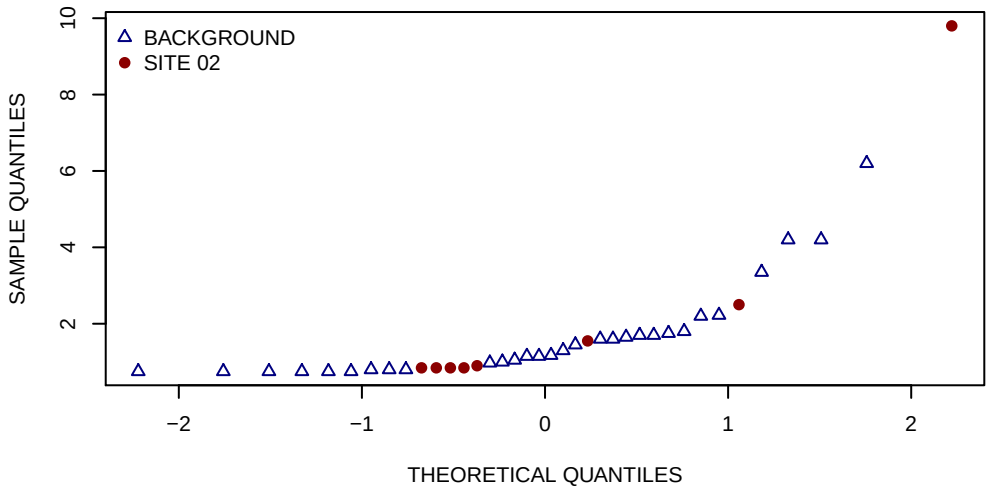
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

ARSENIC GROUNDWATER UPPER SAND/TRANSITION WELLS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 3 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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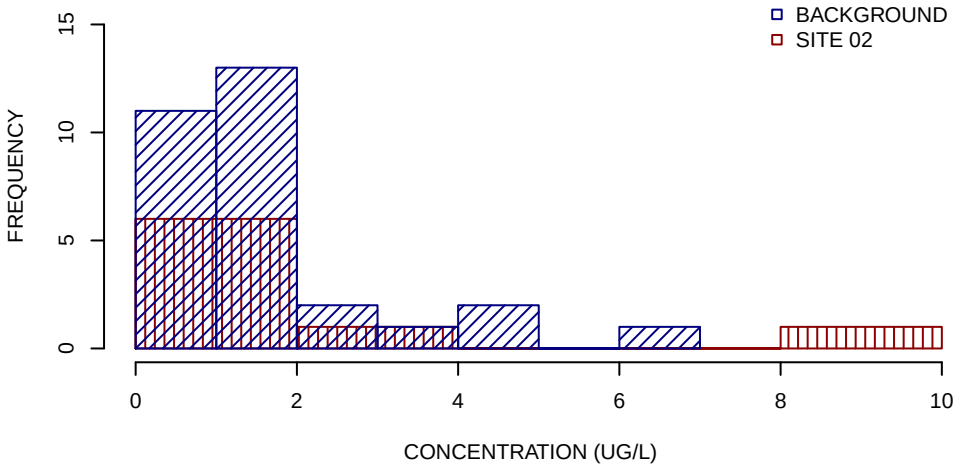


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	0.75	0.84
25TH PERCENTILE	0.8	0.84
MEDIAN	1.2	0.87
MEAN	1.7	2.3
75TH PERCENTILE	1.7	1.8
MAXIMUM	6.2	9.8

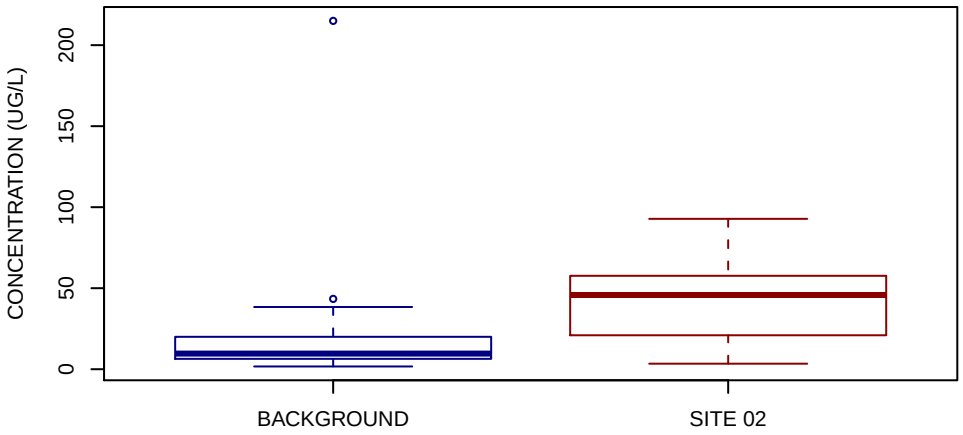
UNITS ARE UG/L

1/2 DETECTION LIMIT USED FOR NON−DETECTS

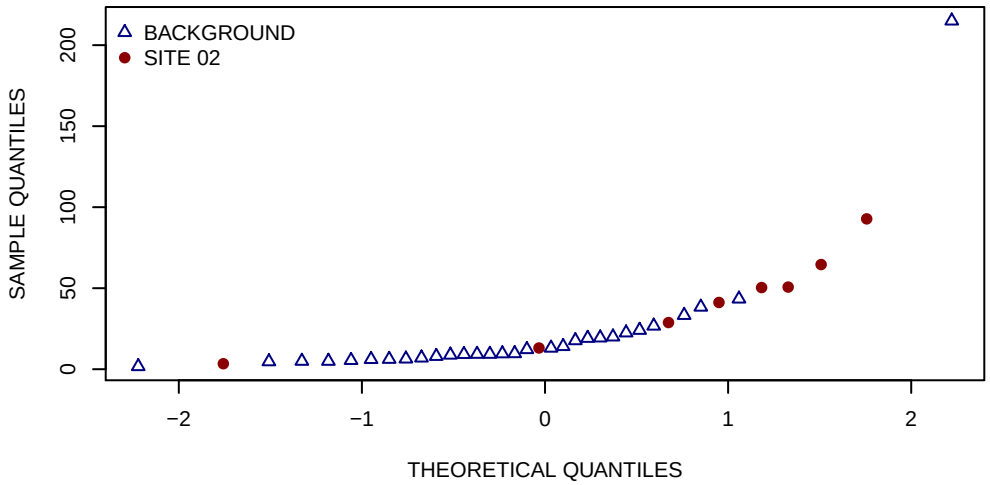
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

BARIUM GROUNDWATER UPPER SAND/TRANSITION WELLS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 4 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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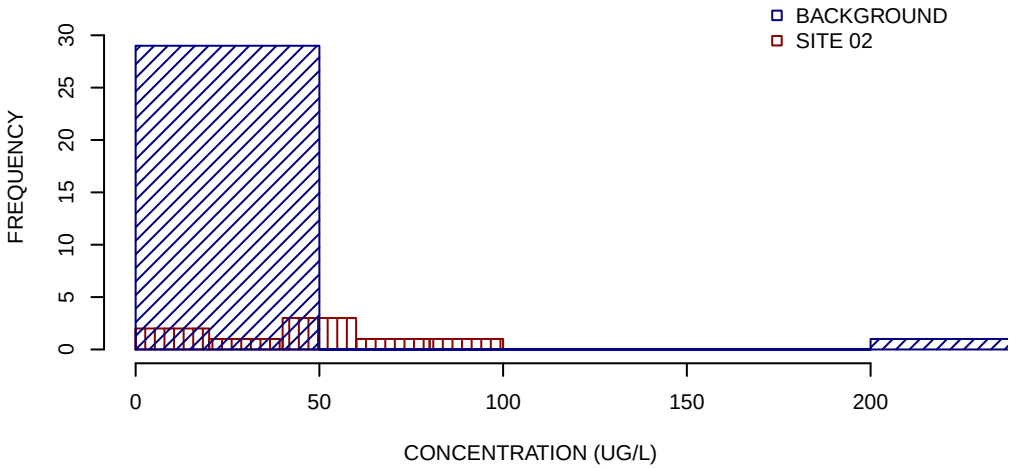


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	1.7	3.4
25TH PERCENTILE	6.5	25
MEDIAN	9.7	46
MEAN	21	43
75TH PERCENTILE	20	54
MAXIMUM	220	93

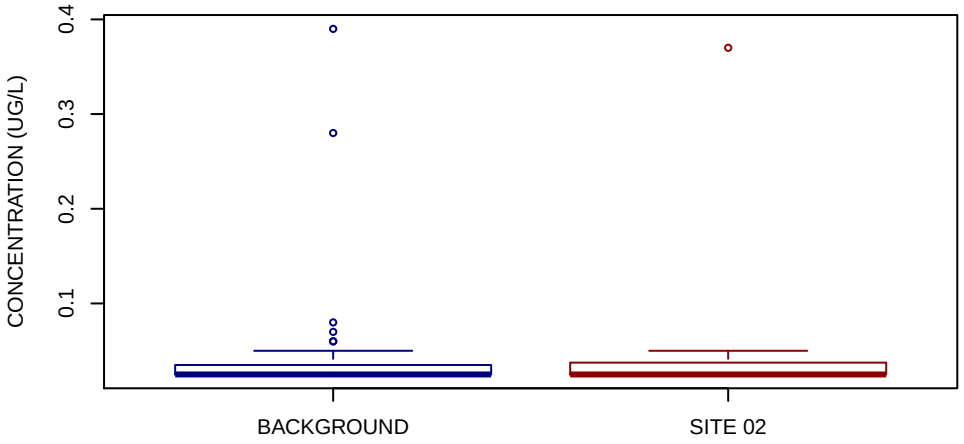
UNITS ARE UG/L

1/2 DETECTION LIMIT USED FOR NON−DETECTS

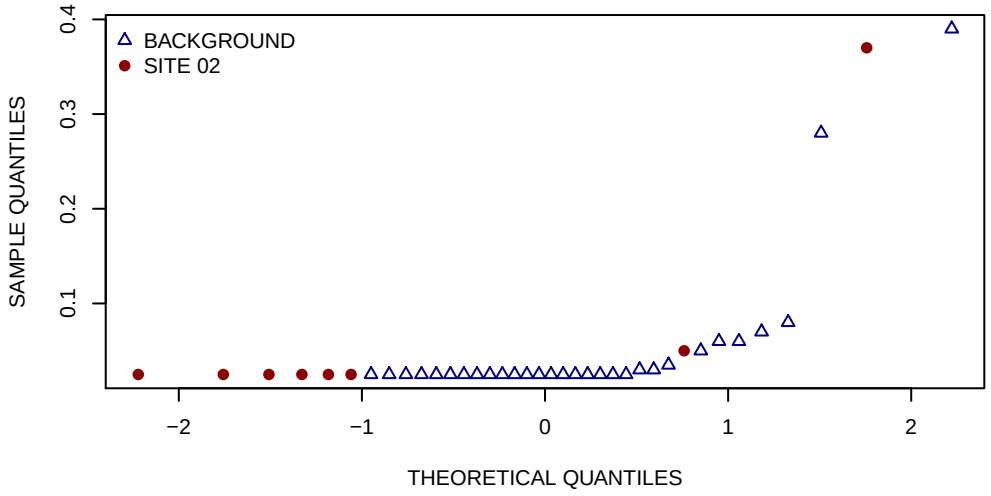
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

BERYLLIUM GROUNDWATER UPPER SAND/TRANSITION WELLS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 5 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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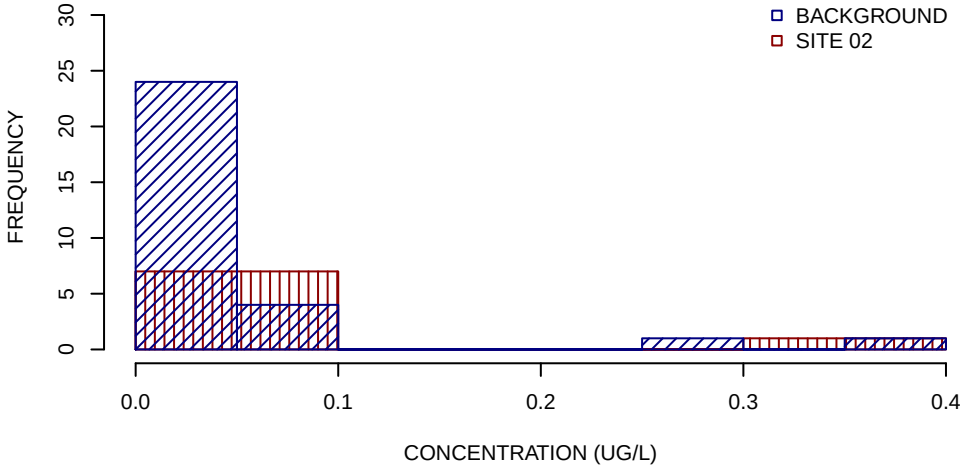


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	0.025	0.025
25TH PERCENTILE	0.025	0.025
MEDIAN	0.025	0.025
MEAN	0.053	0.071
75TH PERCENTILE	0.034	0.031
MAXIMUM	0.39	0.37

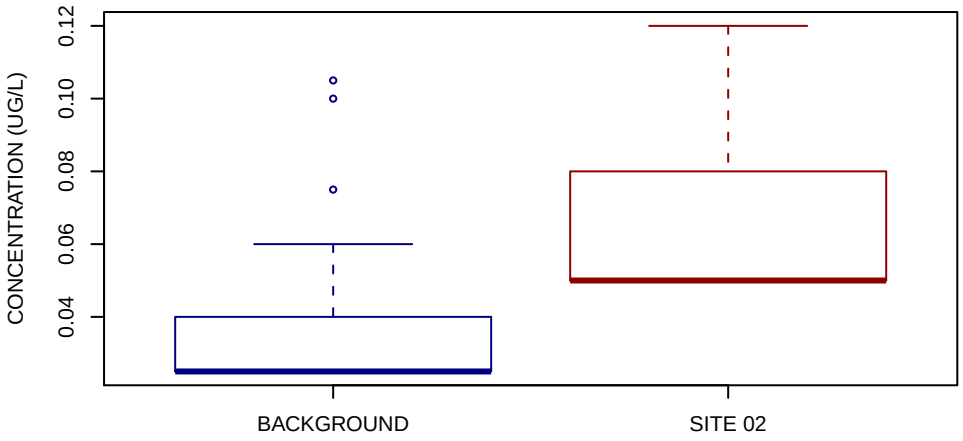
UNITS ARE UG/L

1/2 DETECTION LIMIT USED FOR NON−DETECTS

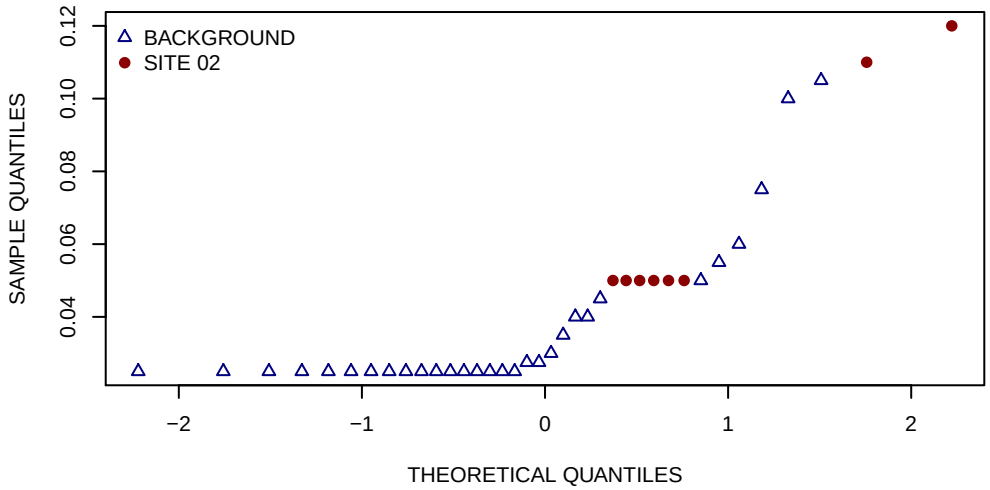
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

CADMIUM GROUNDWATER UPPER SAND/TRANSITION WELLS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 6 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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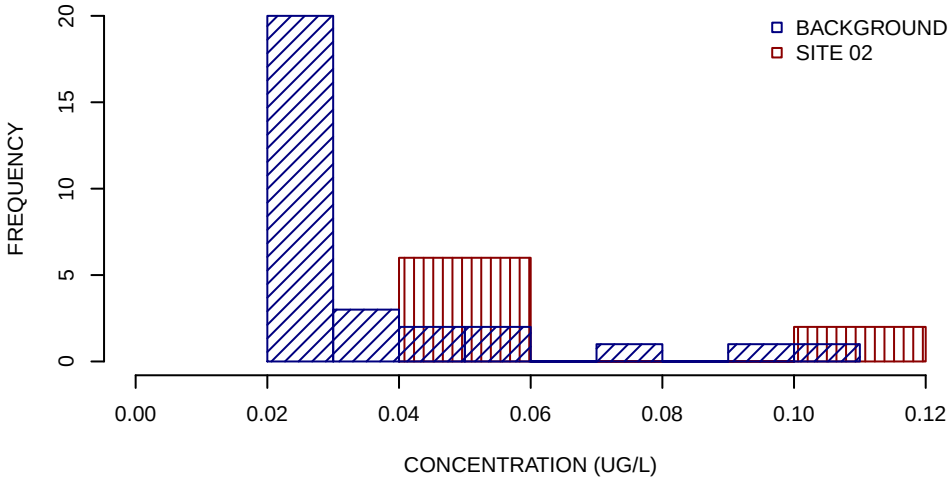


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	0.025	0.05
25TH PERCENTILE	0.025	0.05
MEDIAN	0.025	0.05
MEAN	0.037	0.066
75TH PERCENTILE	0.04	0.065
MAXIMUM	0.1	0.12

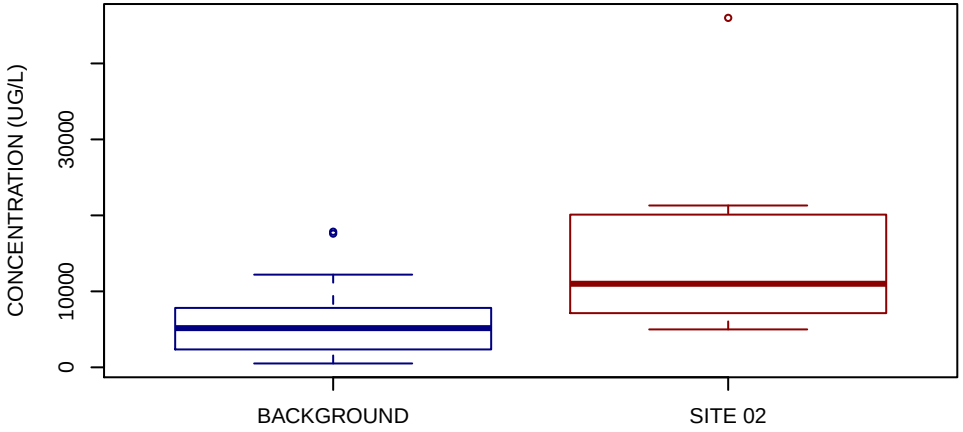
UNITS ARE UG/L

1/2 DETECTION LIMIT USED FOR NON−DETECTS

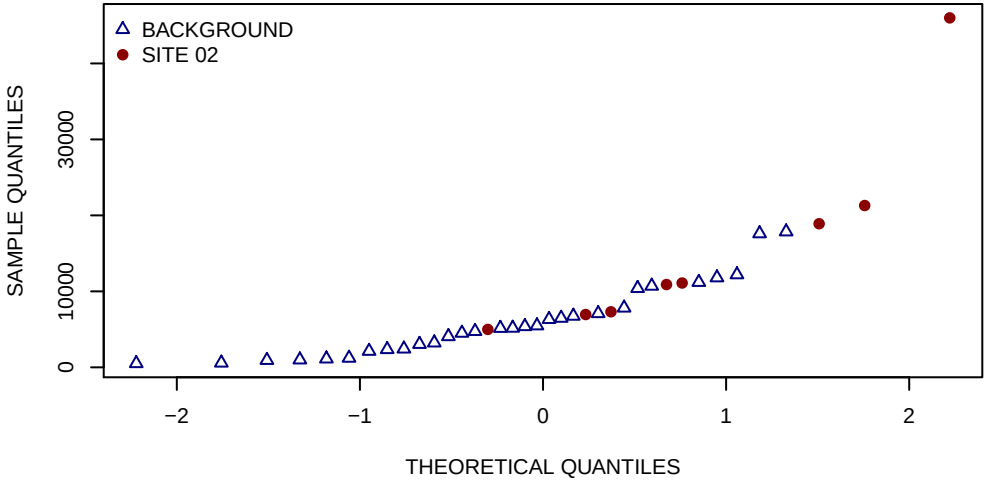
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

CALCIUM GROUNDWATER UPPER SAND/TRANSITION WELLS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 7 OF 23

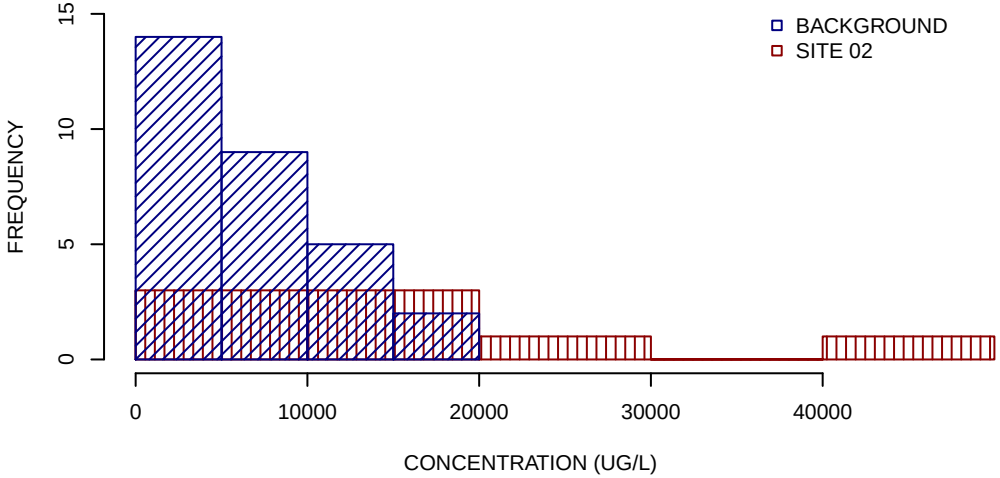
BOXPLOTS



NORMAL Q−Q PLOT



HISTOGRAMS



SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	510	5000
25TH PERCENTILE	2400	7200
MEDIAN	5200	11000
MEAN	6000	16000
75TH PERCENTILE	7600	20000
MAXIMUM	18000	46000

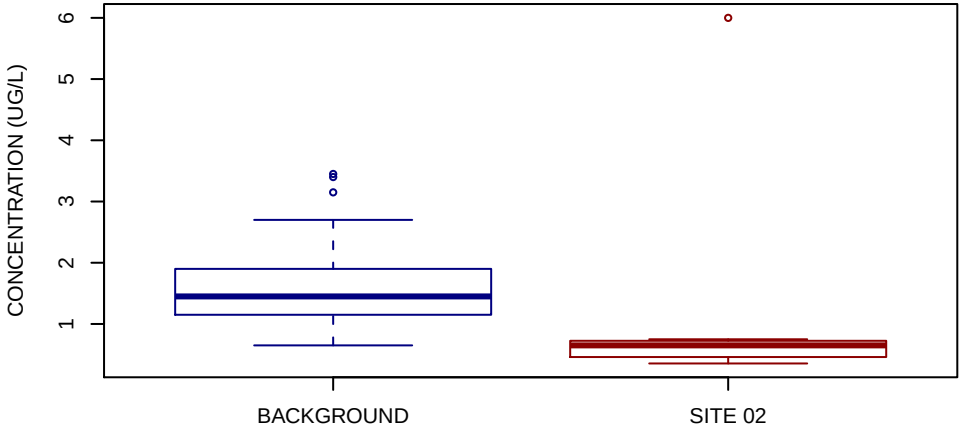
UNITS ARE UG/L

1/2 DETECTION LIMIT USED FOR NON−DETECTS

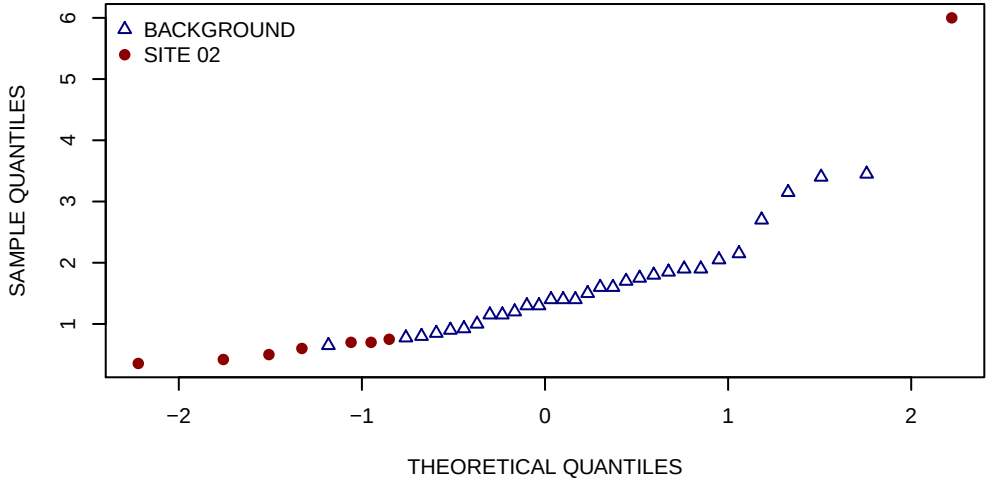
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

CHROMIUM GROUNDWATER UPPER SAND/TRANSITION WELLS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 8 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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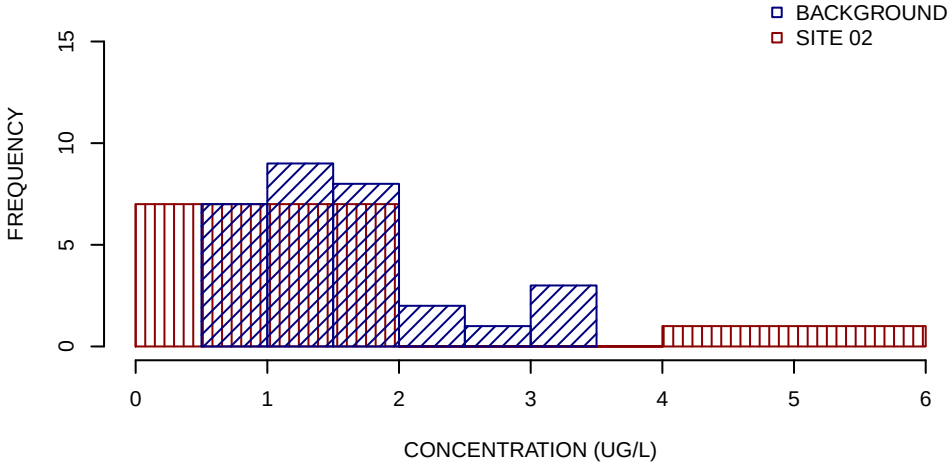


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	0.65	0.35
25TH PERCENTILE	1.1	0.48
MEDIAN	1.4	0.65
MEAN	1.6	1.3
75TH PERCENTILE	1.9	0.71
MAXIMUM	3.5	6

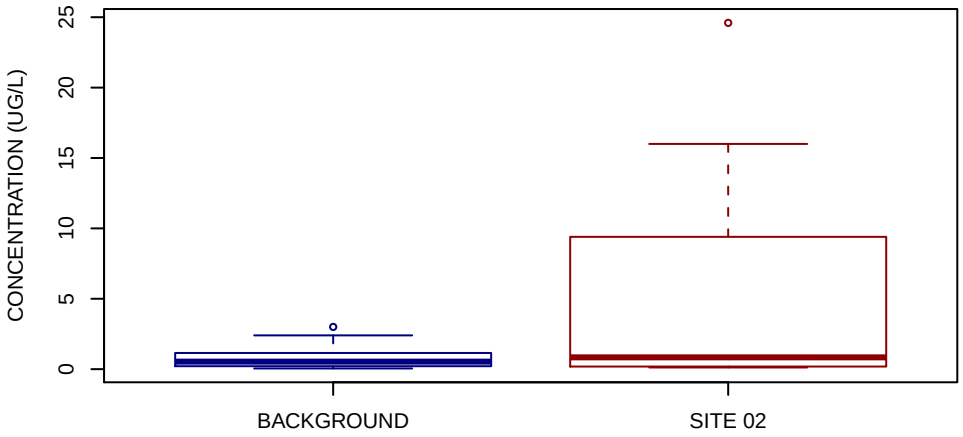
UNITS ARE UG/L

1/2 DETECTION LIMIT USED FOR NON−DETECTS

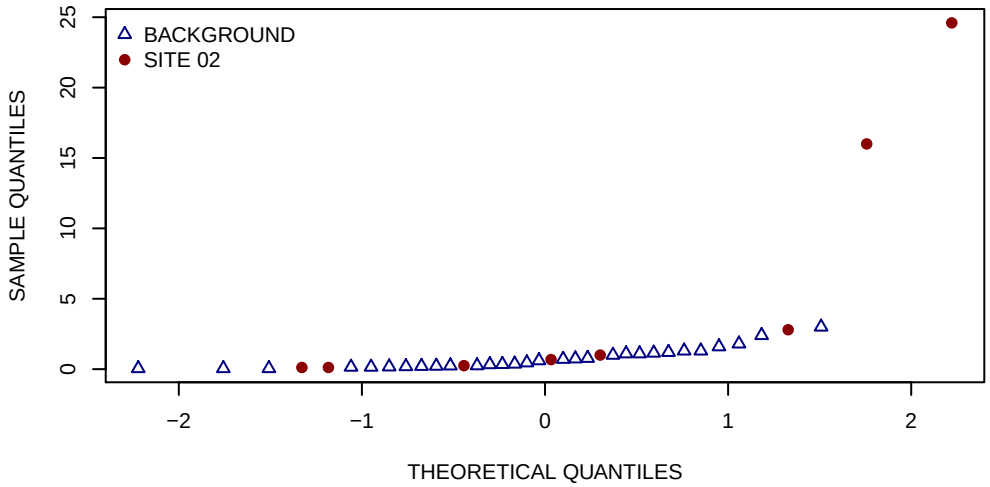
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

COBALT GROUNDWATER UPPER SAND/TRANSITION WELLS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 9 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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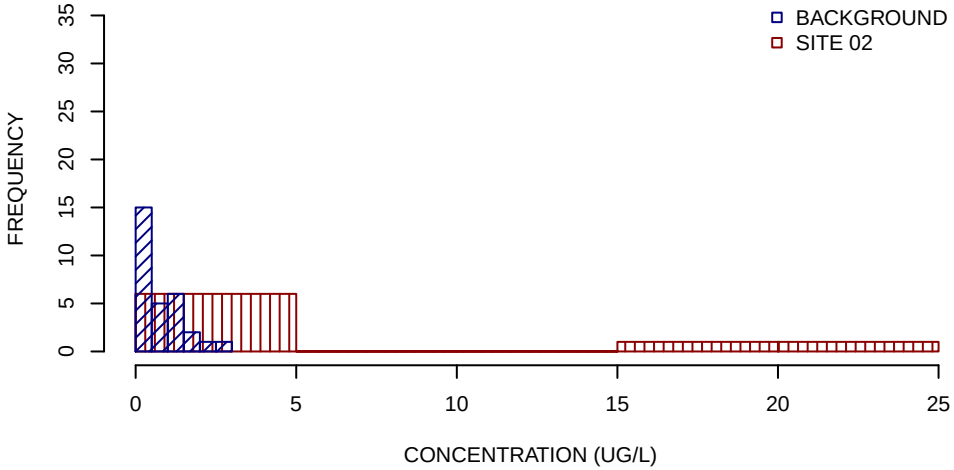


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	0.05	0.12
25TH PERCENTILE	0.21	0.22
MEDIAN	0.54	0.84
MEAN	0.77	5.7
75TH PERCENTILE	1.1	6.1
MAXIMUM	3	25

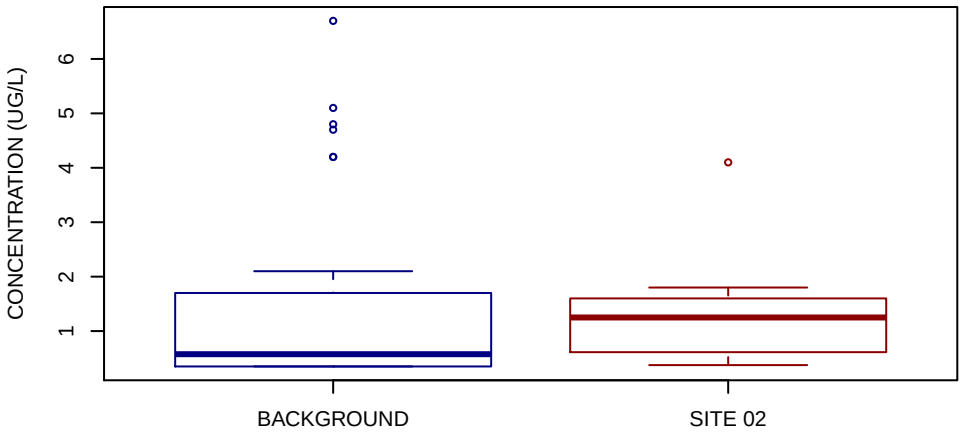
UNITS ARE UG/L

1/2 DETECTION LIMIT USED FOR NON−DETECTS

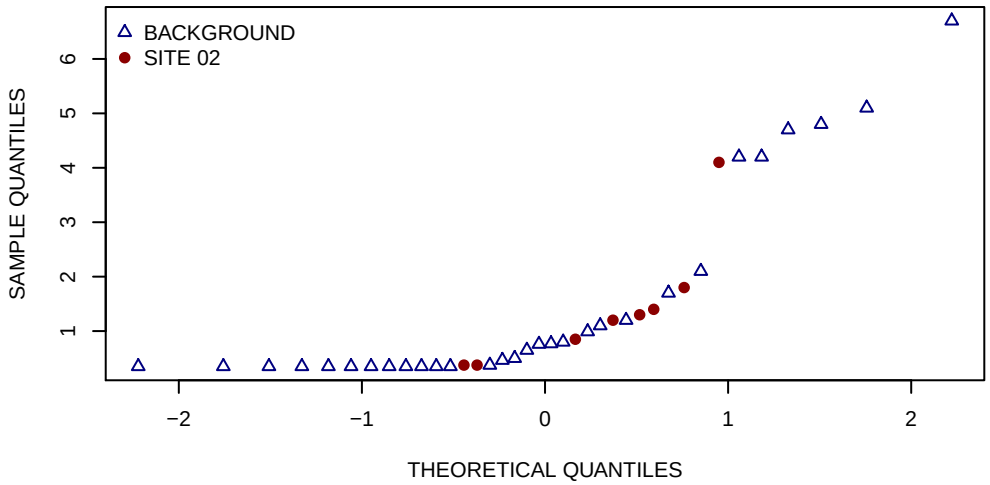
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

COPPER GROUNDWATER UPPER SAND/TRANSITION WELLS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 10 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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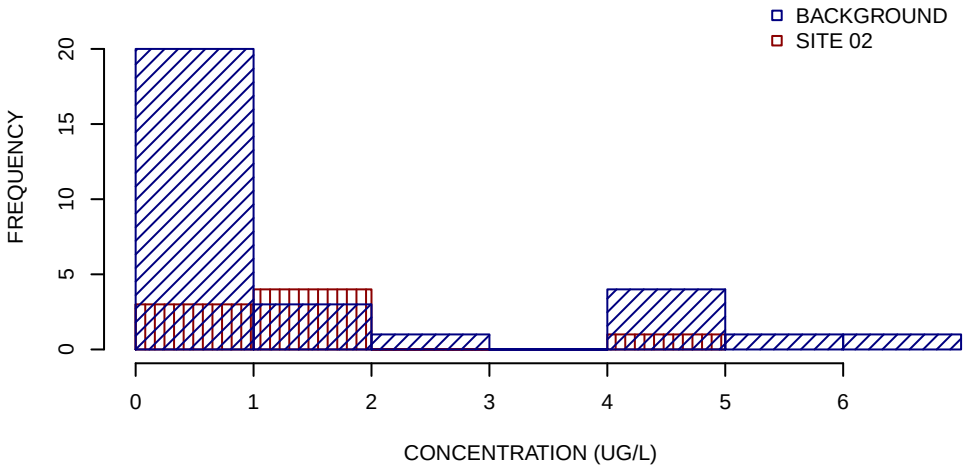


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	0.35	0.38
25TH PERCENTILE	0.35	0.73
MEDIAN	0.57	1.2
MEAN	1.5	1.4
75TH PERCENTILE	1.6	1.5
MAXIMUM	6.7	4.1

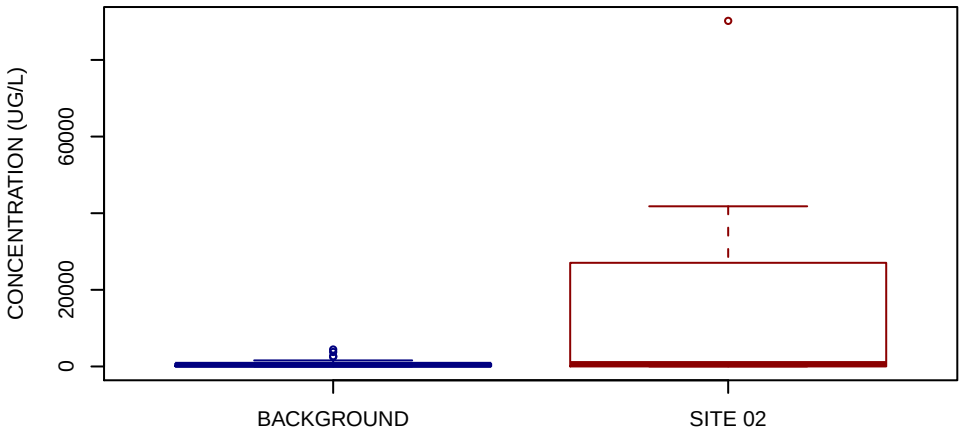
UNITS ARE UG/L

1/2 DETECTION LIMIT USED FOR NON−DETECTS

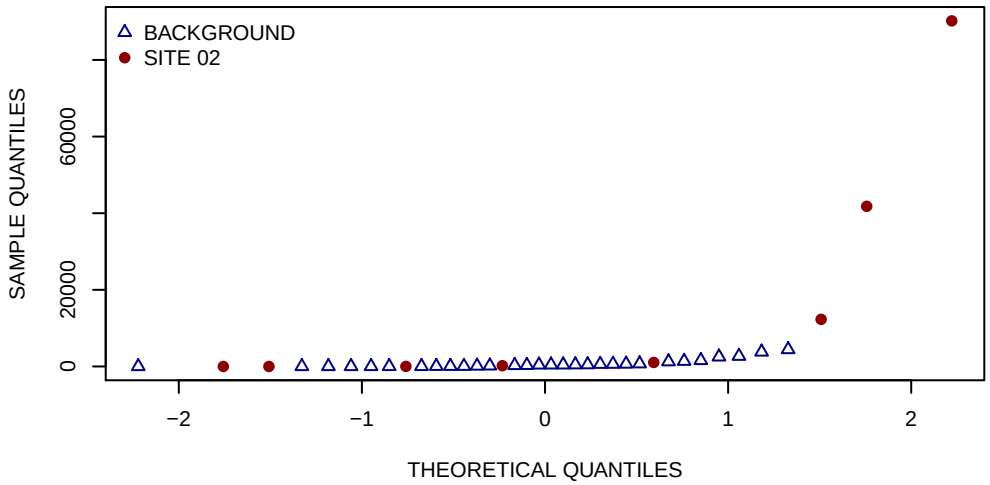
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

IRON GROUNDWATER UPPER SAND/TRANSITION WELLS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 11 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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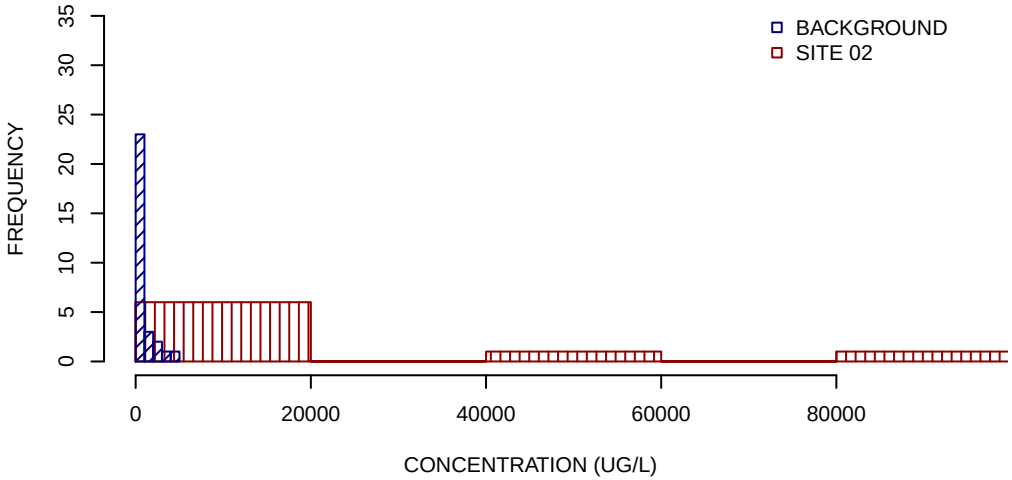


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	3.4	4.5
25TH PERCENTILE	62	21
MEDIAN	430	630
MEAN	790	18000
75TH PERCENTILE	700	20000
MAXIMUM	4400	90000

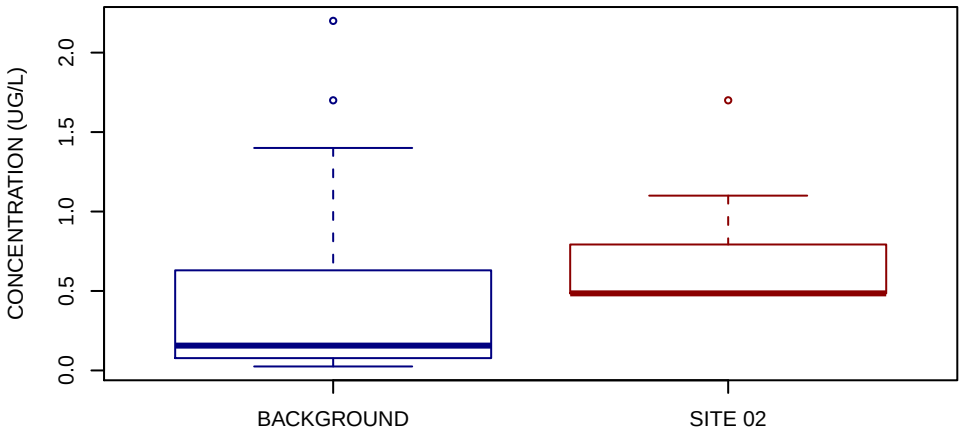
UNITS ARE UG/L

1/2 DETECTION LIMIT USED FOR NON−DETECTS

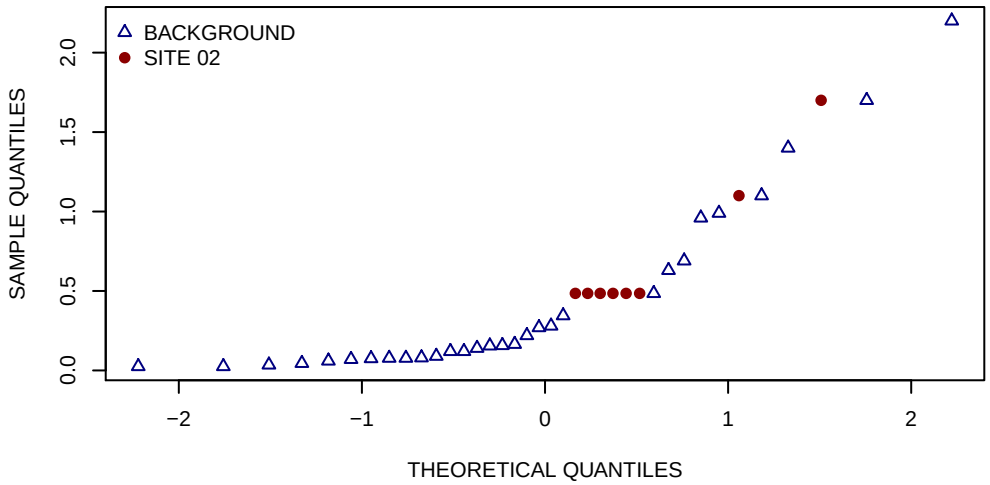
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

LEAD GROUNDWATER UPPER SAND/TRANSITION WELLS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 12 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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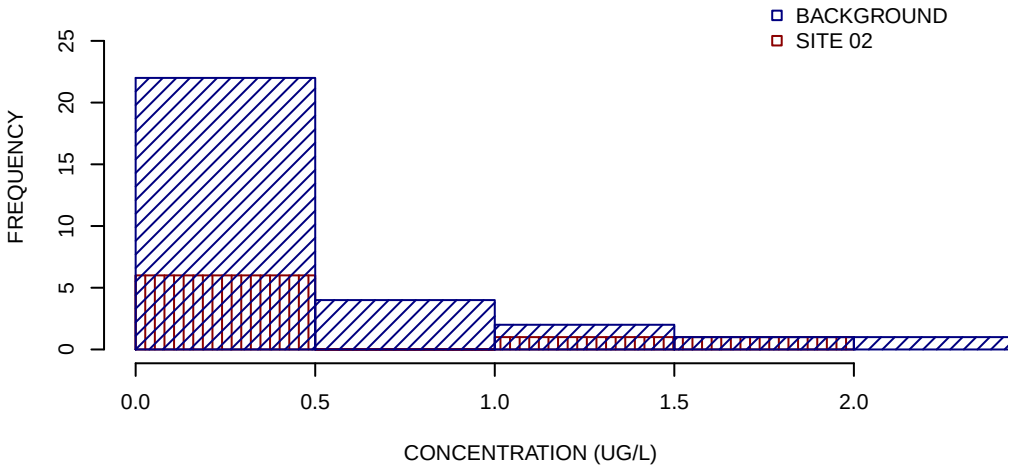


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	0.025	0.48
25TH PERCENTILE	0.077	0.48
MEDIAN	0.16	0.48
MEAN	0.43	0.71
75TH PERCENTILE	0.59	0.64
MAXIMUM	2.2	1.7

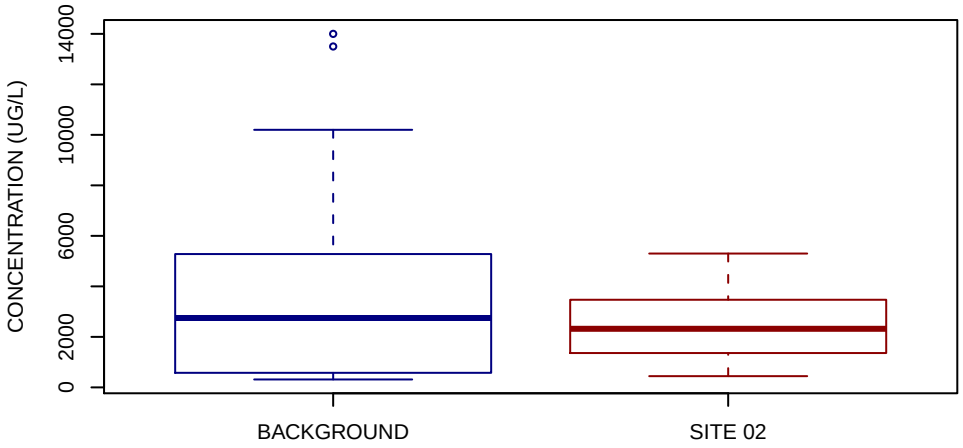
UNITS ARE UG/L

1/2 DETECTION LIMIT USED FOR NON−DETECTS

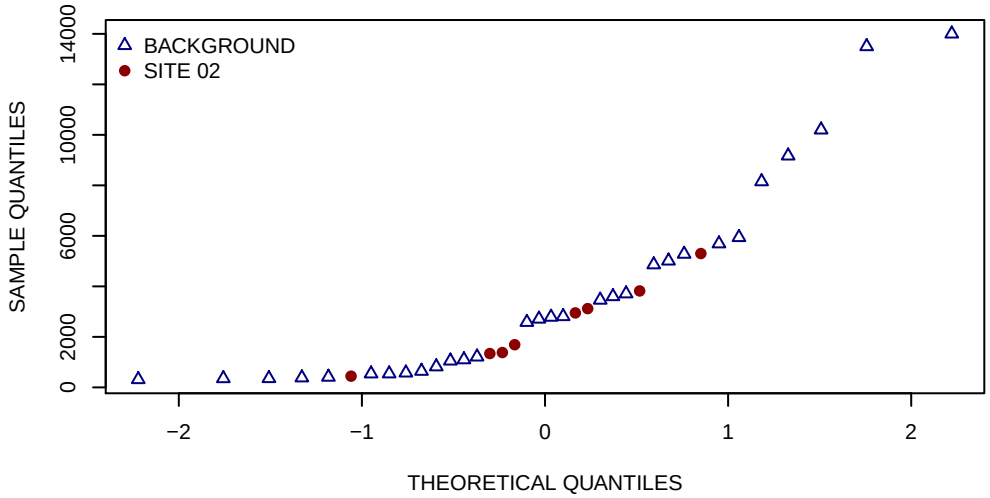
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

MAGNESIUM GROUNDWATER UPPER SAND/TRANSITION WELLS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 13 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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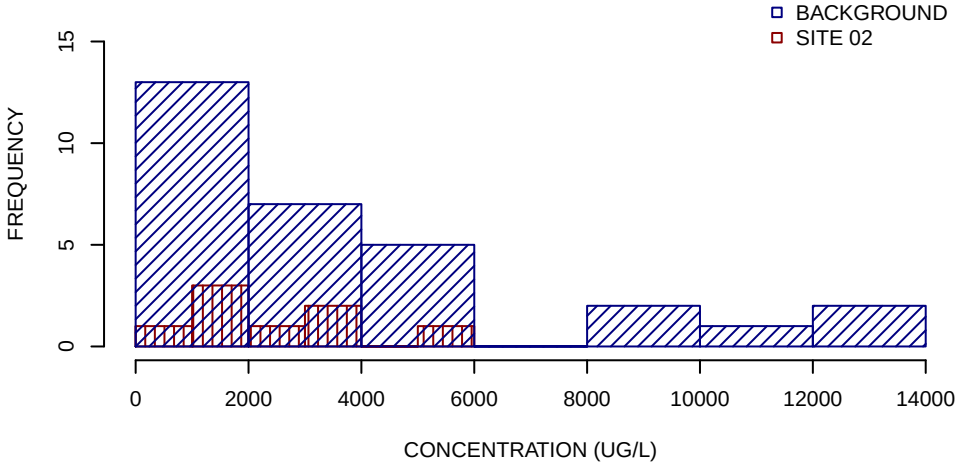


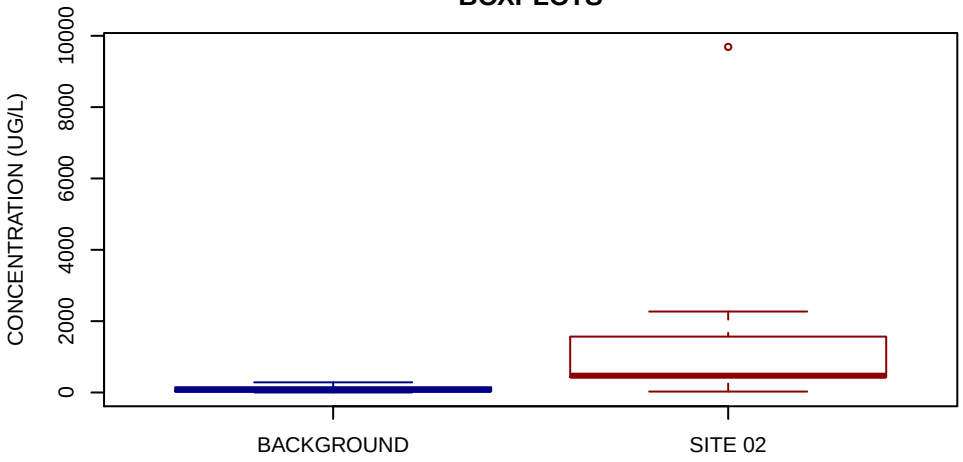
SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	310	440
25TH PERCENTILE	590	1400
MEDIAN	2700	2300
MEAN	3700	2500
75TH PERCENTILE	5200	3300
MAXIMUM	14000	5300

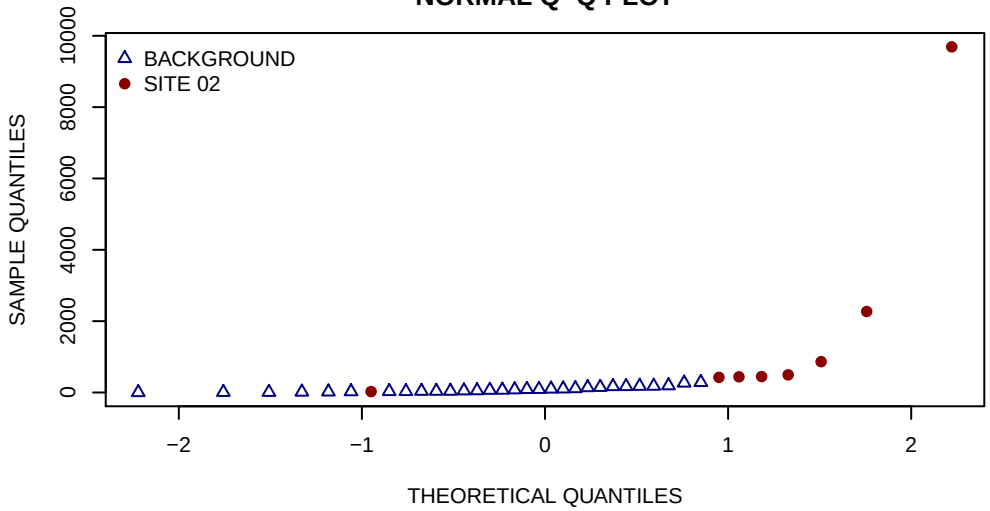
UNITS ARE UG/L
1/2 DETECTION LIMIT USED FOR NON−DETECTS
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

MANGANESE GROUNDWATER UPPER SAND/TRANSITION WELLS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 14 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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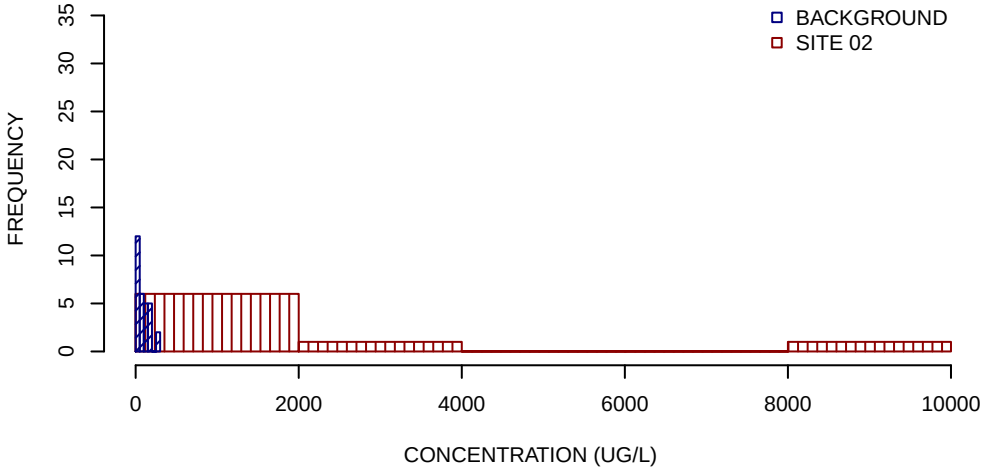


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	1.3	26
25TH PERCENTILE	33	440
MEDIAN	74	470
MEAN	93	1800
75TH PERCENTILE	150	1200
MAXIMUM	280	9700

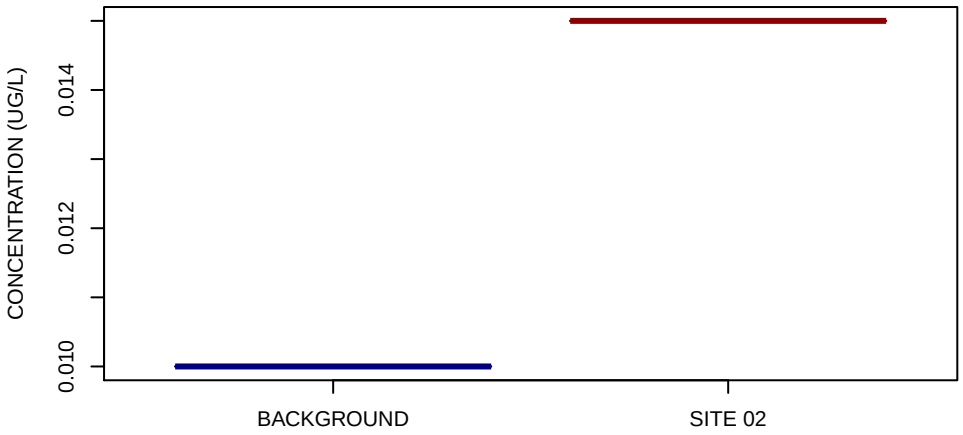
UNITS ARE UG/L

1/2 DETECTION LIMIT USED FOR NON−DETECTS

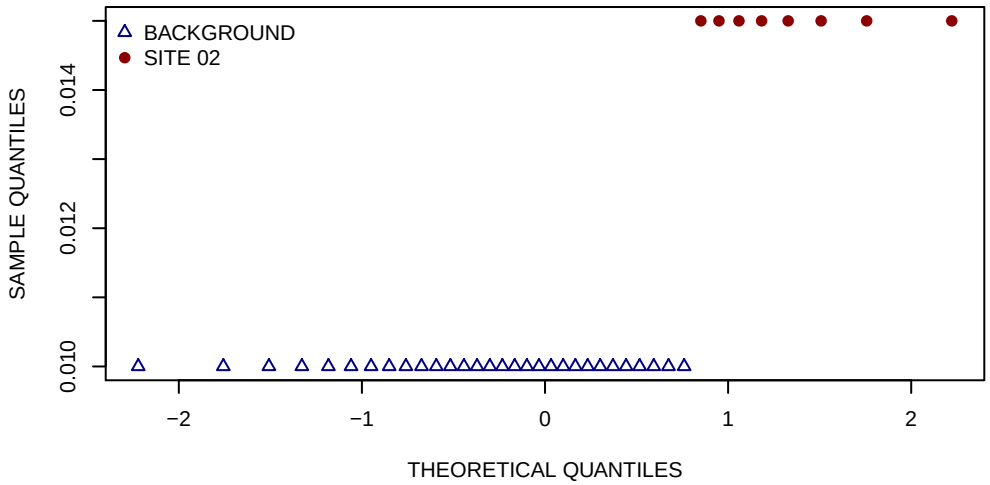
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

MERCURY GROUNDWATER UPPER SAND/TRANSITION WELLS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 15 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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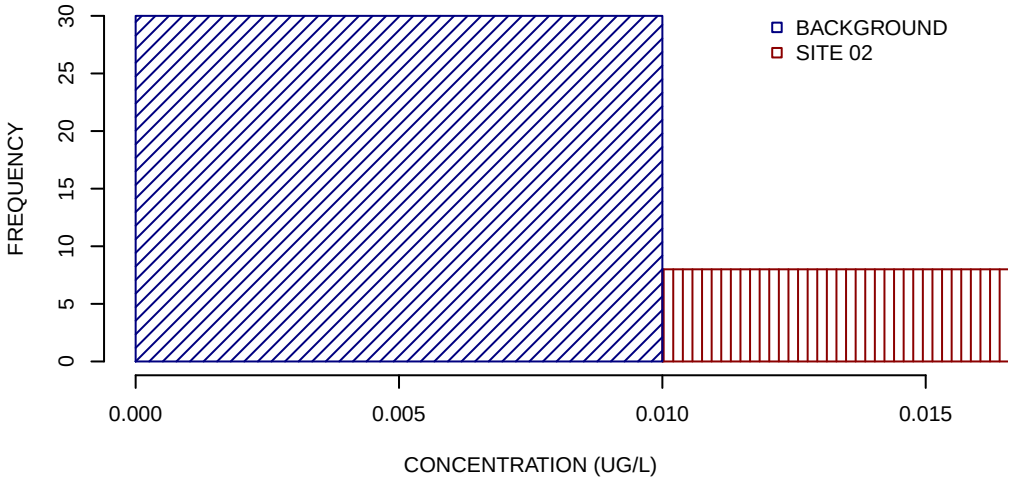


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	0.01	0.015
25TH PERCENTILE	0.01	0.015
MEDIAN	0.01	0.015
MEAN	0.01	0.015
75TH PERCENTILE	0.01	0.015
MAXIMUM	0.01	0.015

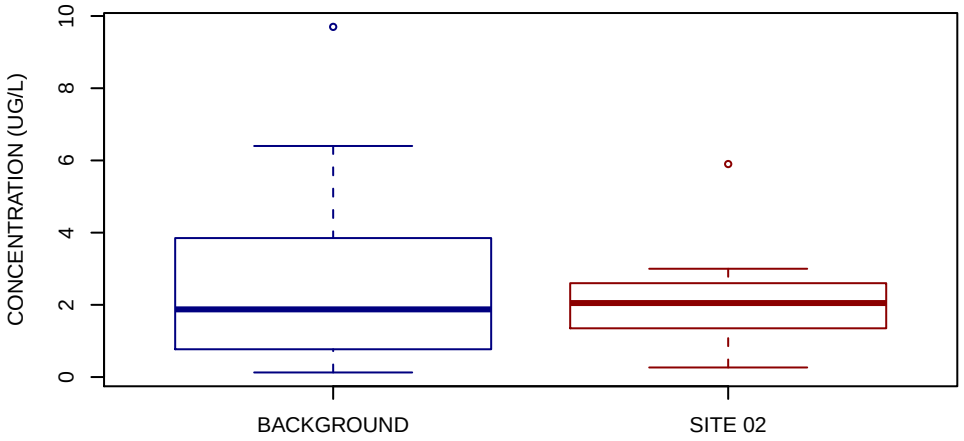
UNITS ARE UG/L

1/2 DETECTION LIMIT USED FOR NON−DETECTS

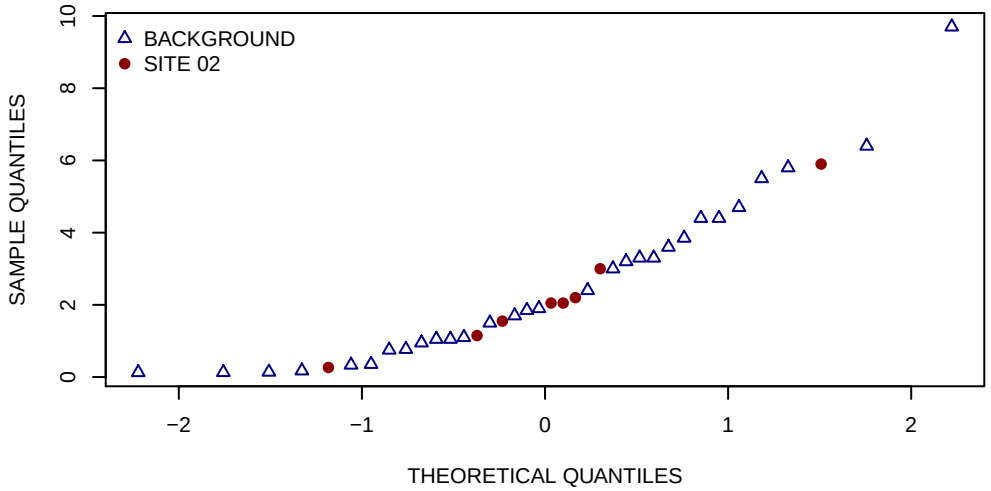
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

NICKEL GROUNDWATER UPPER SAND/TRANSITION WELLS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 16 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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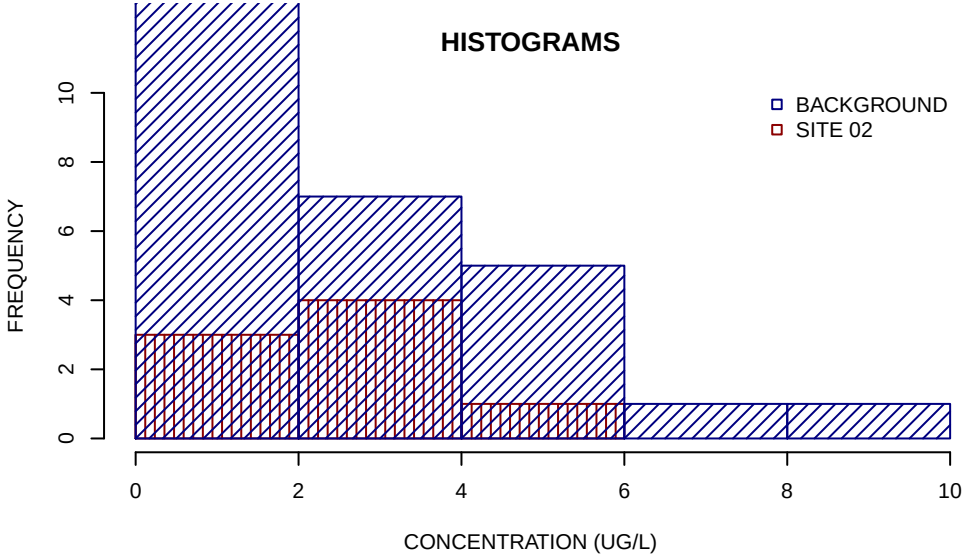


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	0.13	0.27
25TH PERCENTILE	0.81	1.4
MEDIAN	1.9	2
MEAN	2.6	2.3
75TH PERCENTILE	3.8	2.4
MAXIMUM	9.7	5.9

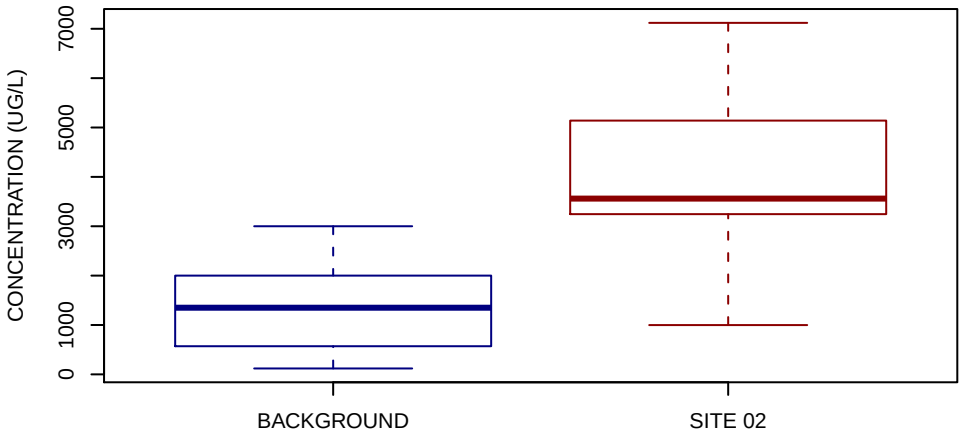
UNITS ARE UG/L

1/2 DETECTION LIMIT USED FOR NON−DETECTS

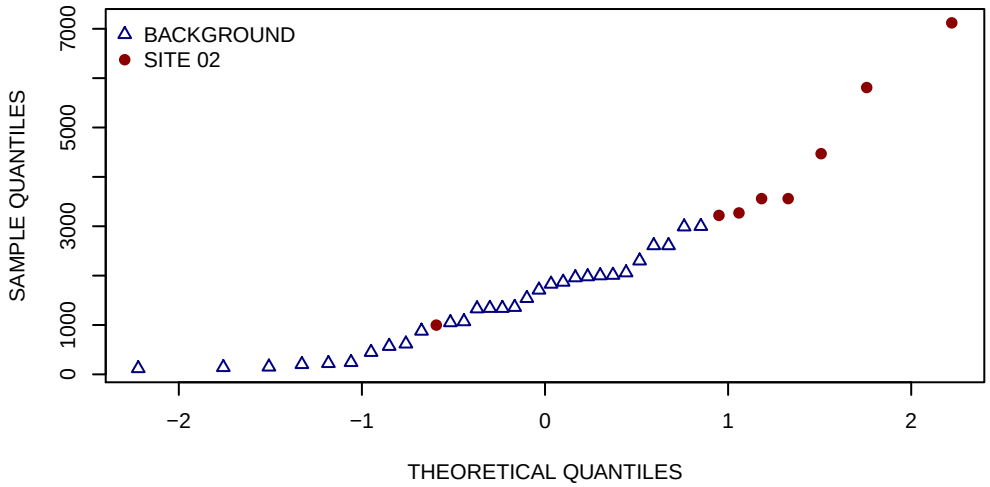
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

POTASSIUM GROUNDWATER UPPER SAND/TRANSITION WELLS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 17 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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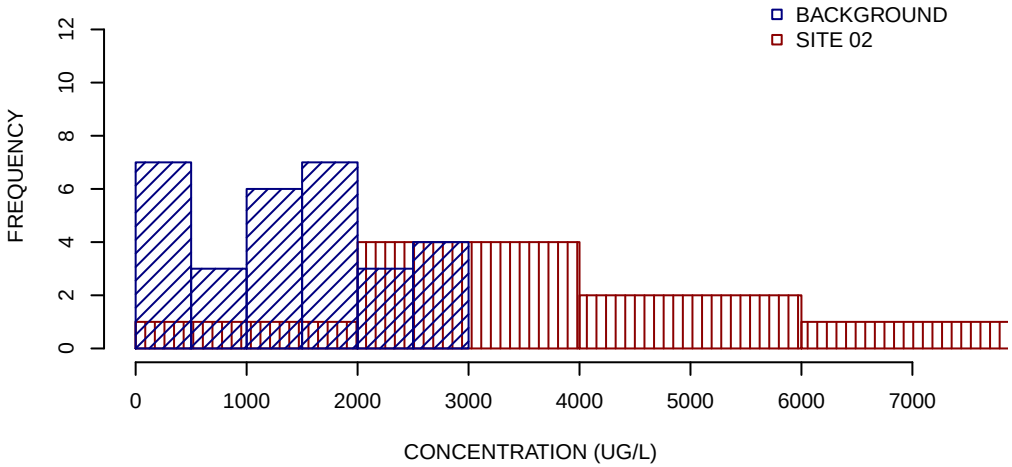


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	120	1000
25TH PERCENTILE	580	3300
MEDIAN	1400	3600
MEAN	1400	4000
75TH PERCENTILE	2000	4800
MAXIMUM	3000	7100

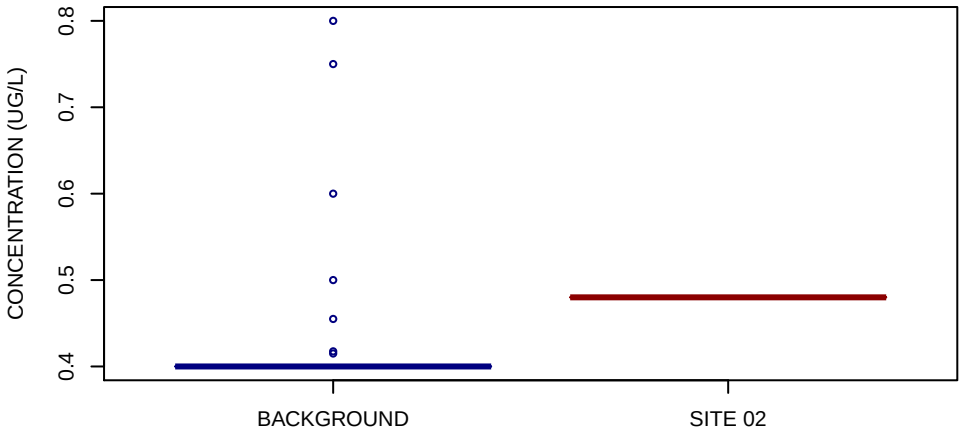
UNITS ARE UG/L

1/2 DETECTION LIMIT USED FOR NON−DETECTS

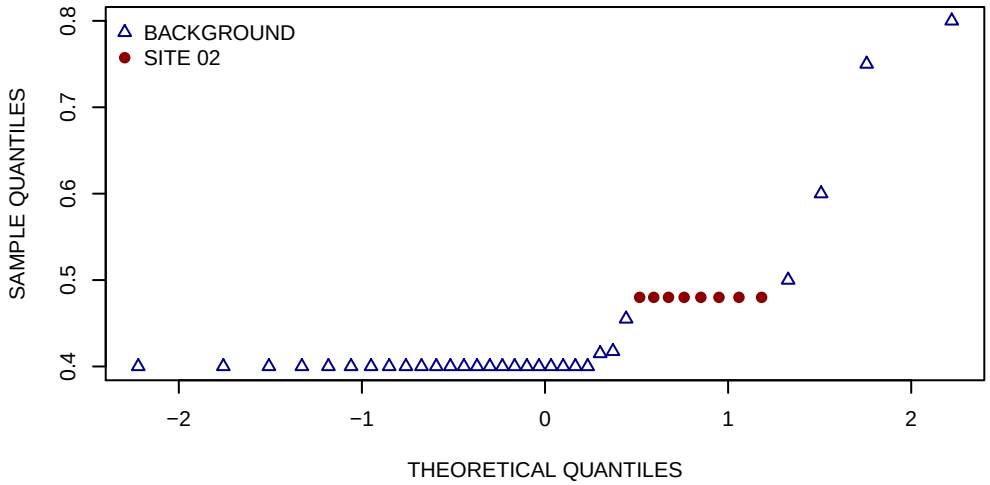
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

SELENIUM GROUNDWATER UPPER SAND/TRANSITION WELLS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 18 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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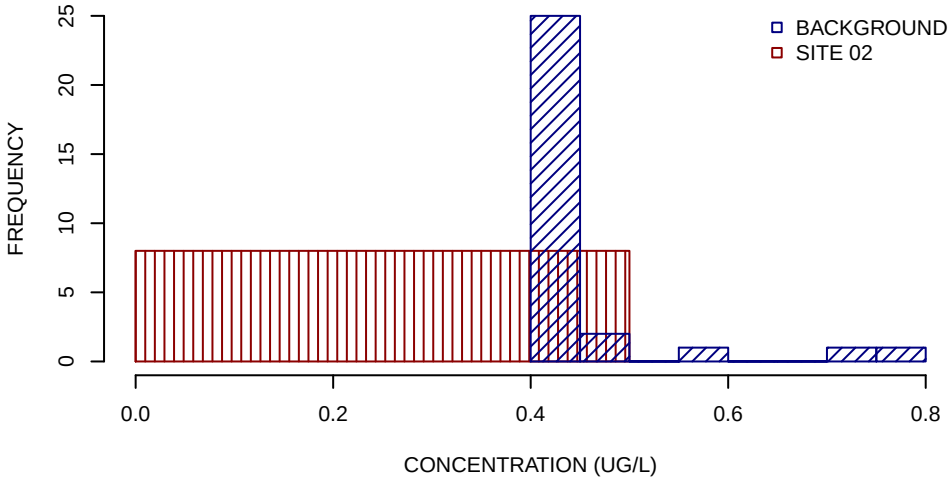


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	0.4	0.48
25TH PERCENTILE	0.4	0.48
MEDIAN	0.4	0.48
MEAN	0.44	0.48
75TH PERCENTILE	0.4	0.48
MAXIMUM	0.8	0.48

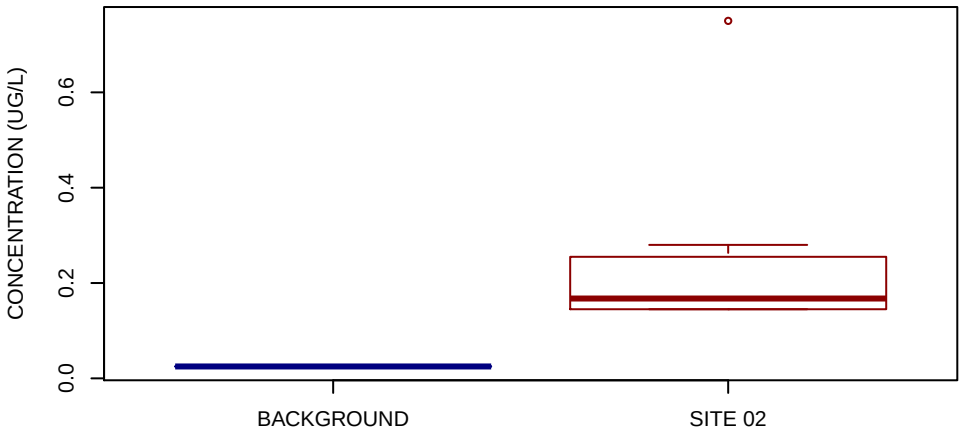
UNITS ARE UG/L

1/2 DETECTION LIMIT USED FOR NON−DETECTS

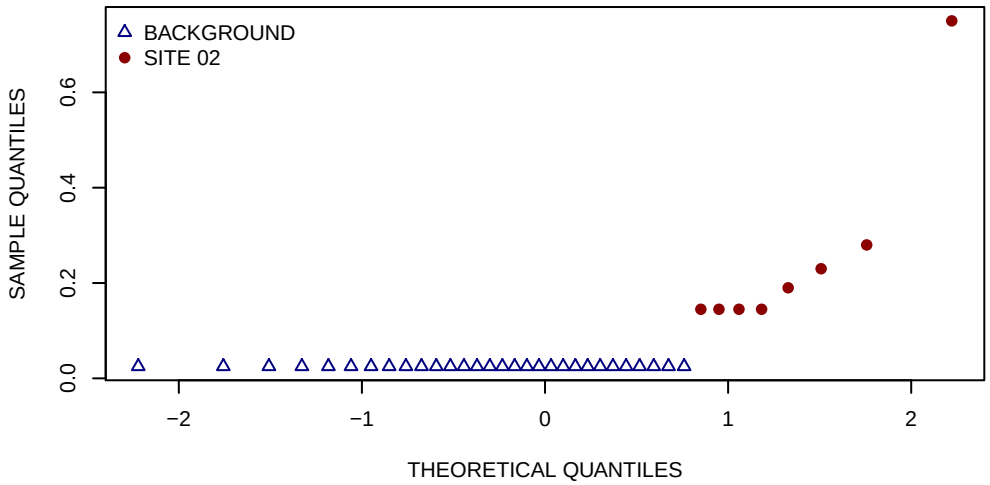
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

SILVER GROUNDWATER UPPER SAND/TRANSITION WELLS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 19 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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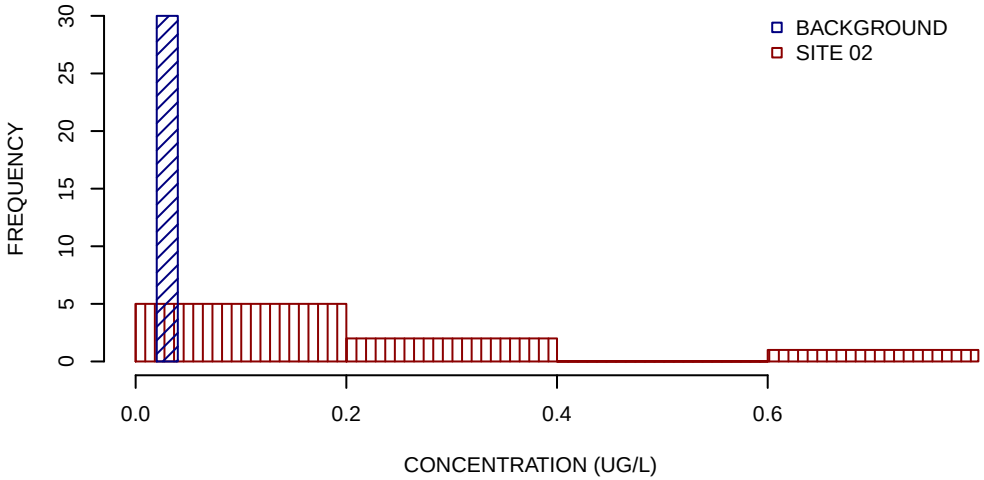


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	0.025	0.14
25TH PERCENTILE	0.025	0.14
MEDIAN	0.025	0.17
MEAN	0.025	0.25
75TH PERCENTILE	0.025	0.24
MAXIMUM	0.025	0.75

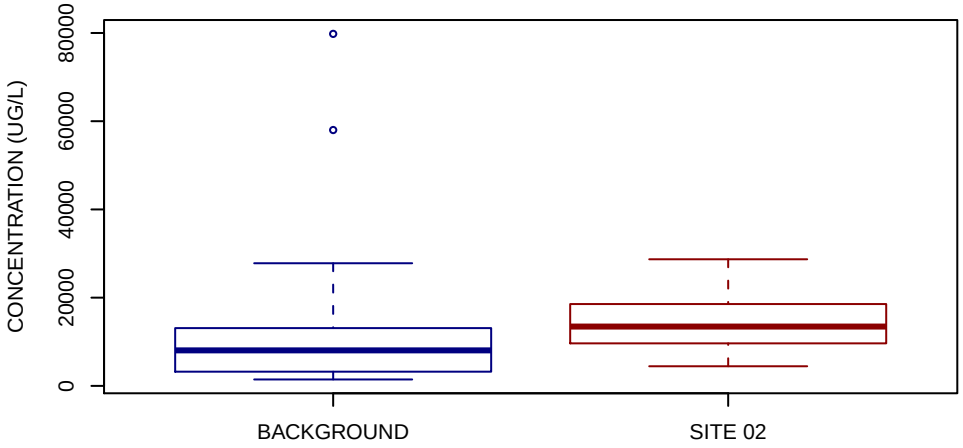
UNITS ARE UG/L

1/2 DETECTION LIMIT USED FOR NON−DETECTS

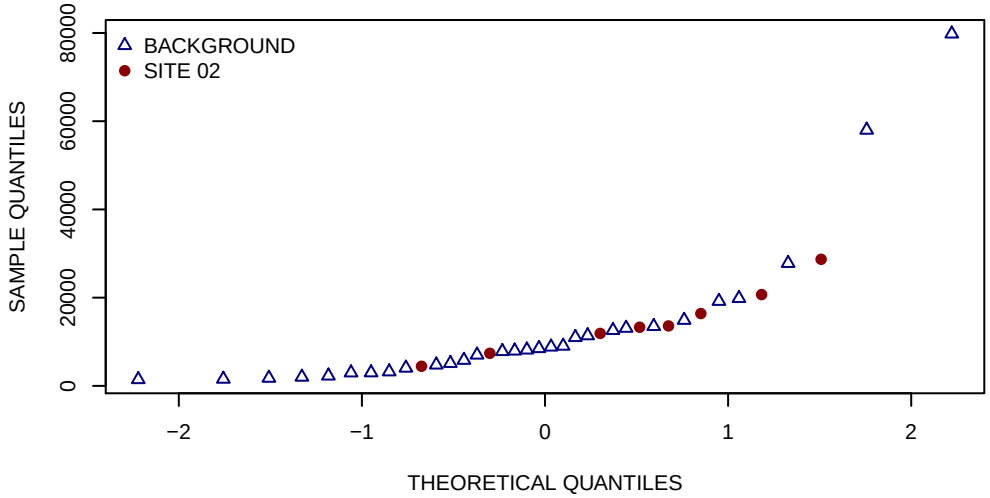
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

SODIUM GROUNDWATER UPPER SAND/TRANSITION WELLS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 20 OF 23

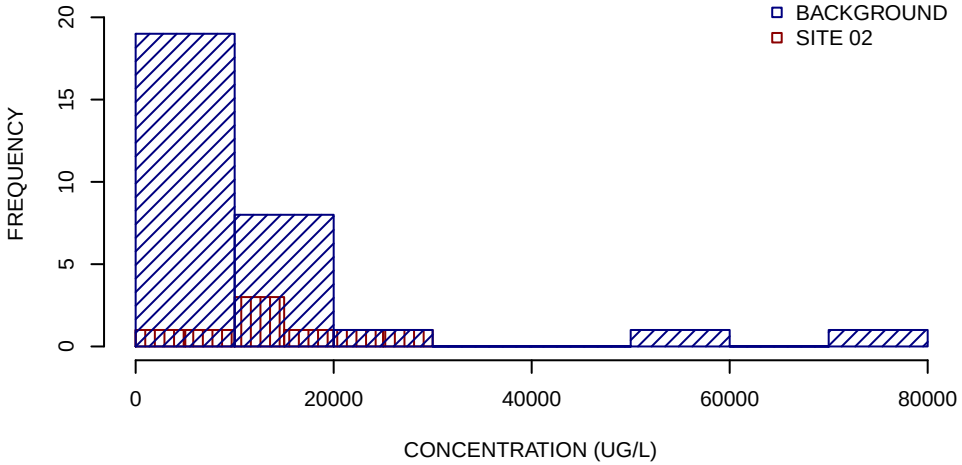
BOXPLOTS



NORMAL Q−Q PLOT



HISTOGRAMS



SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	1500	4400
25TH PERCENTILE	3400	11000
MEDIAN	8100	13000
MEAN	13000	15000
75TH PERCENTILE	13000	17000
MAXIMUM	80000	29000

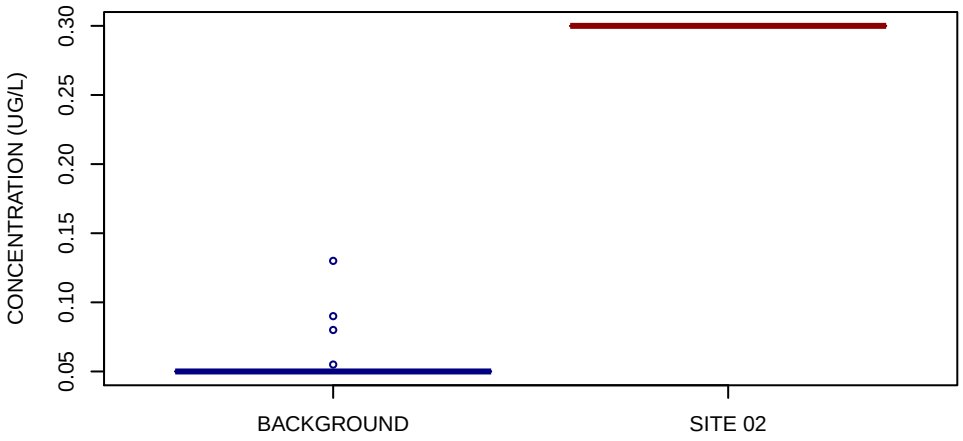
UNITS ARE UG/L

1/2 DETECTION LIMIT USED FOR NON−DETECTS

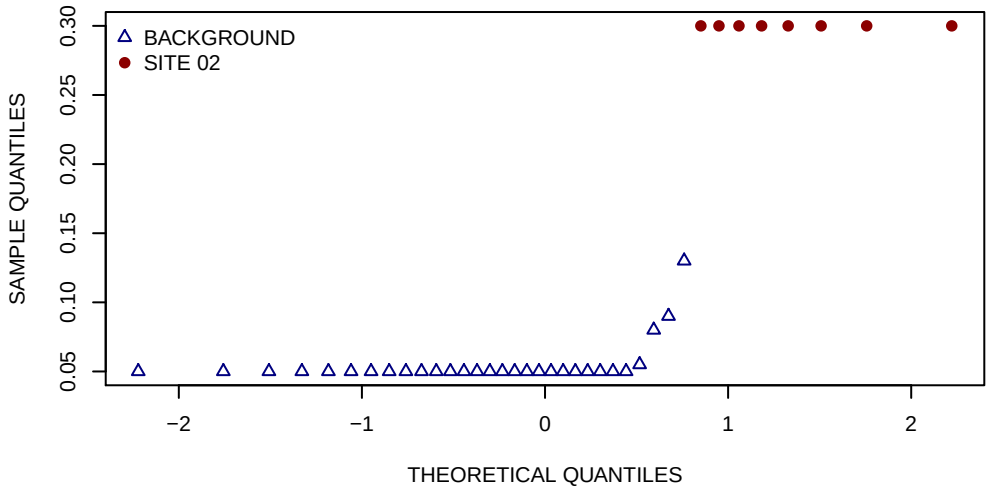
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

THALLIUM GROUNDWATER UPPER SAND/TRANSITION WELLS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 21 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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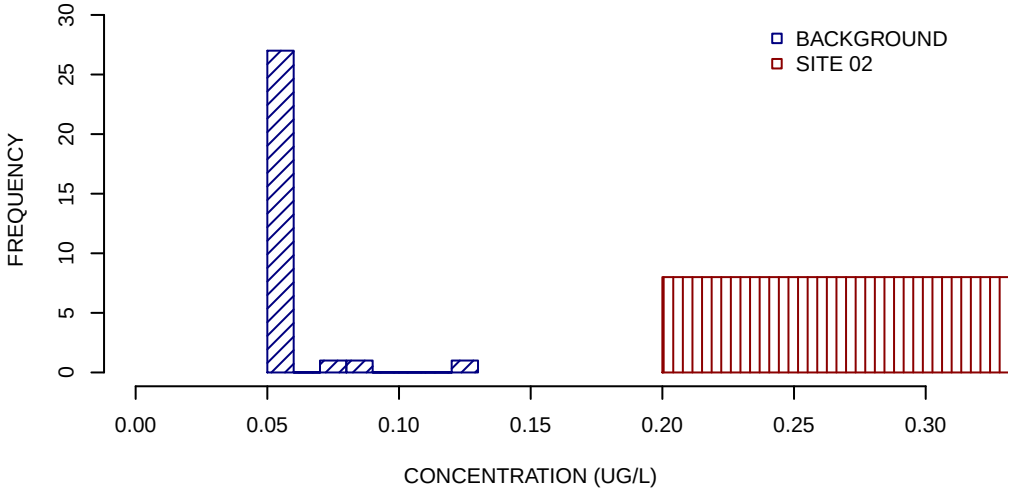


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	0.05	0.3
25TH PERCENTILE	0.05	0.3
MEDIAN	0.05	0.3
MEAN	0.055	0.3
75TH PERCENTILE	0.05	0.3
MAXIMUM	0.13	0.3

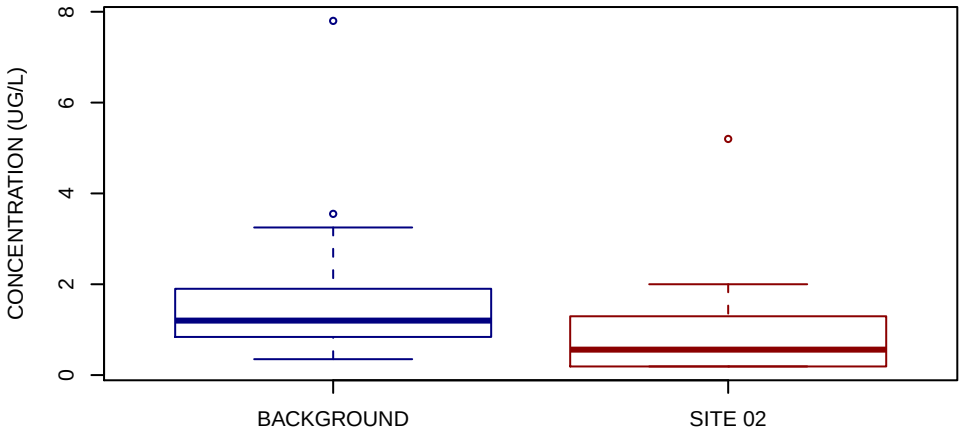
UNITS ARE UG/L

1/2 DETECTION LIMIT USED FOR NON−DETECTS

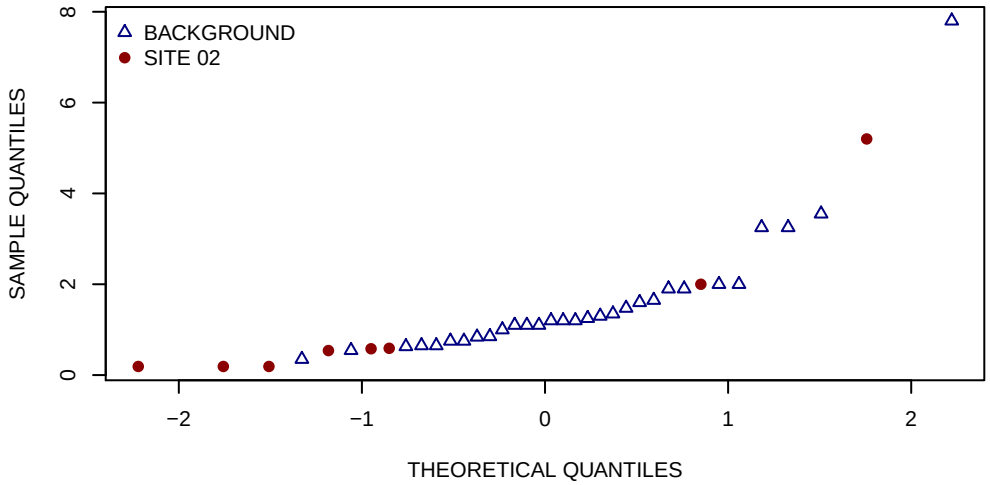
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

VANADIUM GROUNDWATER UPPER SAND/TRANSITION WELLS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 22 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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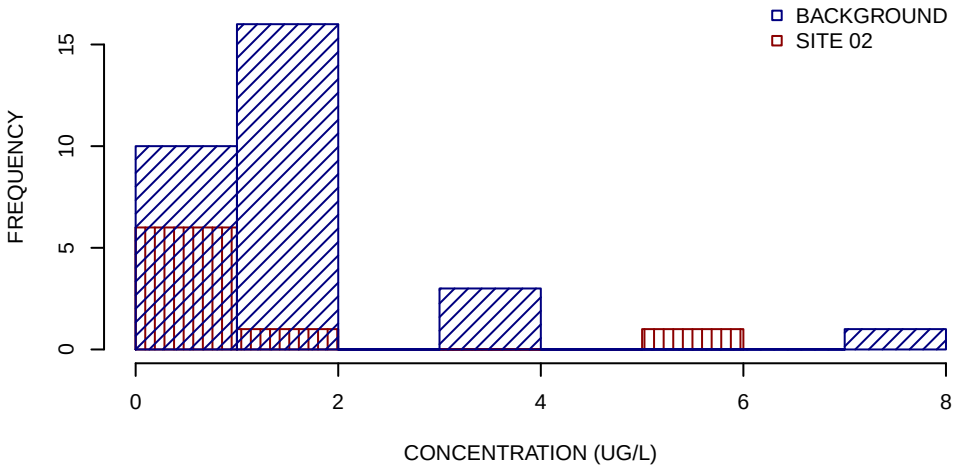


SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	0.35	0.19
25TH PERCENTILE	0.84	0.19
MEDIAN	1.2	0.56
MEAN	1.6	1.2
75TH PERCENTILE	1.8	0.94
MAXIMUM	7.8	5.2

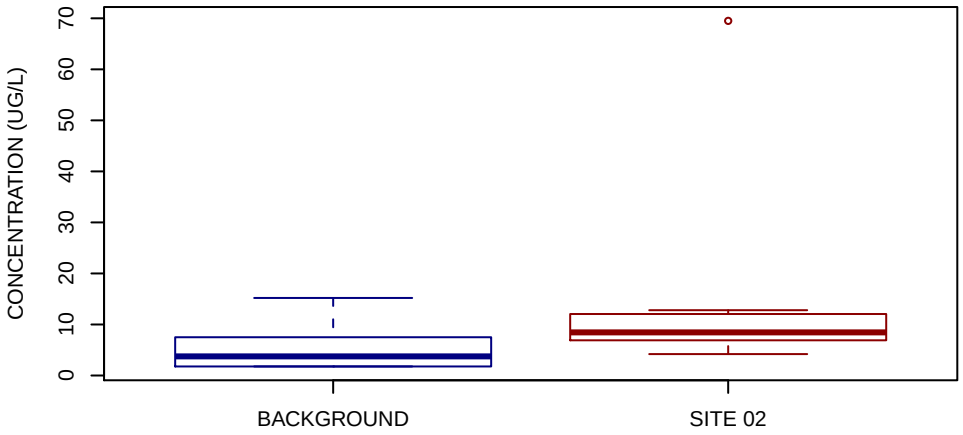
UNITS ARE UG/L

1/2 DETECTION LIMIT USED FOR NON−DETECTS

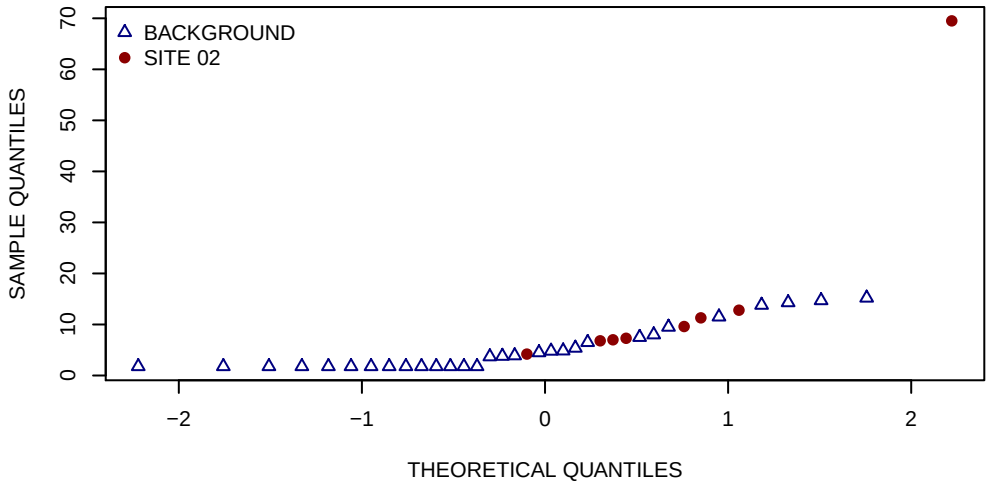
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

ZINC GROUNDWATER UPPER SAND/TRANSITION WELLS GRAPHICAL DISPLAYS
SITE 02
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE
FIGURE 23 OF 23

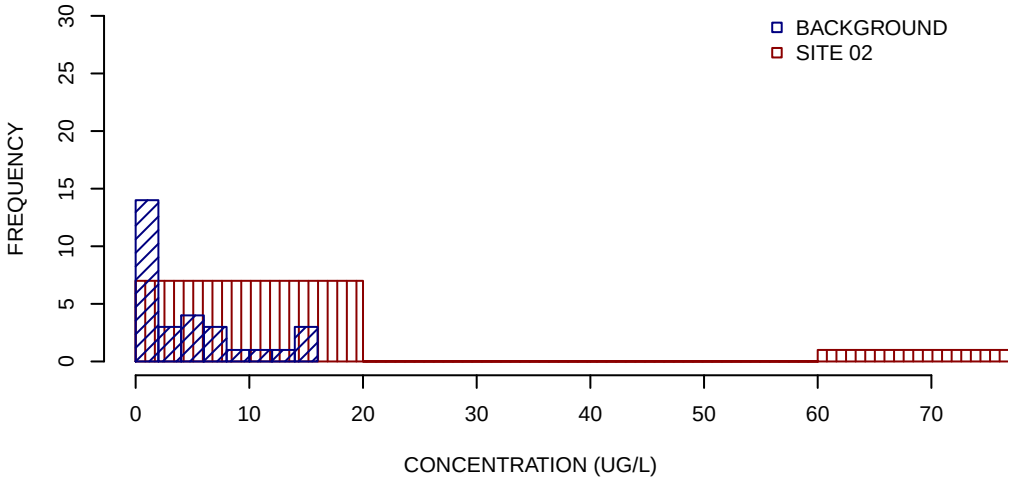
BOXPLOTS



NORMAL Q−Q PLOT



HISTOGRAMS



SUMMARY STATISTICS

	BACKGROUND	SITE 02
MINIMUM	1.8	4.2
25TH PERCENTILE	1.8	7
MEDIAN	3.8	8.4
MEAN	5.2	16
75TH PERCENTILE	7.2	12
MAXIMUM	15	70

UNITS ARE UG/L

1/2 DETECTION LIMIT USED FOR NON−DETECTS

SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

APPENDIX F

RESPONSES TO REGULATORY COMMENTS

Responses to United States Environmental Protection Agency Comments
September 15, 2009
Draft Site Investigation Report for Site 2
Naval Air Station Brunswick
Brunswick, Maine
July 2009

Comments:

1. *Thank you for the opportunity to review the above referenced document. The draft Site 2 Site Investigation (SI) Report details the results of a field investigation program that was designed to: 1) evaluate whether the Site 2 landfill material area extended north beyond the current landfill footprint and 2) delineate the nature and extent of landfill waste and any impacts the waste is having on environmental media quality.*

Response: No response required.

2. *EPA concurs with the report's primary conclusion that the waste materials found as part of this investigation are consistent with the types of waste historically disposed within Site 2 – Orion Street Landfill-South. The waste material, visually identified by the completion of several test pits at geophysical investigation anomalies, included scrap metal, broken concrete and asphalt, incinerator ash and other domestic trash. The thickness of this waste material ranges from 4 to 8 feet where present and exists at or near the land surface. This material is situated several feel above the measured water table across the study area. EPA also concurs with the report's conclusion that Site 2 and the site investigation area to the north does not contribute contamination to Mere Brook. Manganese and sodium exceed screening criteria in 3 monitoring wells; elevated levels of manganese and other trace elements that are pH- and/or redox-sensitive (e.g., arsenic, iron) are likely naturally occurring and their mobility is related to reducing conditions.*

Response: No response required.

3. *Along with report's identification of waste material, contaminants typically associated with these materials and that were detected in surface and subsurface soils, included metals and PAHs. Some of these contaminants slightly exceeded risk-based minimum screening criteria. For this reason the report recommends that the area of fill and debris delineated in Figure 3-2 be included into the Site 2 landfill area definition and that the area be managed consistent with the September 1998 Site 2 Record of Decision (ROD). EPA concurs with this recommendation but the Agency also believes it will require limited follow-up maintenance and monitoring activities at the newly delineated landfill area as well as a modification to Site 2 institutional controls to more accurately define their objectives and boundaries and which are necessary to protect human health and the environment. Review/modification of Site 2 institutional controls is especially needed due to the planned closure of NAS Brunswick and the eventual transfer of base property out of the Navy hands.*

Response: The Navy will work with project stakeholders to identify and implement maintenance and monitoring activities and institutional controls sufficient to protect human health and the environment for Site 2 as part of the NAS Brunswick closure and property transfer processes.

4. *EPA believes the following actions should be taken by the Navy to ensure that the newly delineated landfill area is consistent with the maintenance and monitoring of Site 2 and that the institutional controls for this site remain effective after the NAS Brunswick closes and the property is transferred:*

   Removal of Surface Debris and Final Grading – *The 1998 Site 2 remedy required the removal of surface debris. In 1999, the Navy completed the removal of surface debris across Site 2 followed by the placement of a soil cover on the landfill where none existed. The soil cover was placed to prevent direct contact with the material remaining in the landfill. The Navy should complete a similar effort of surface debris removal and cover material placement where practicable to prevent direct*

contact with the landfill materials. As was reported in the Site 2 Investigation Report, incinerator ash and debris existed at or near the surface on portions of the newly delineated fill area.

Response: The Navy will propose remedial actions consistent with 1998 Site 2 Record of Decision (ROD) and other actions necessary to protect human health and the environment.

5. ***Revise Site 2 Long-term Monitoring Plan –*** *Revision of the current Site 2 LTMP should be considered to include some of the monitoring wells newly installed as part of this investigation. Adding these wells to a revised LTMP would be prudent and appropriate considering additional Site 2 Landfill waste materials have been identified as part of this investigation. At a minimum EPA recommended that MW-2-301, 302, and 303 be considered for addition to long-term monitoring, as these are within the area containing fill and debris; also, MW-2-304 and 310 are directly down-gradient of this area. The Navy should also consider for long-term monitoring an additional background well – e.g., MW-2-307 or 308, both of which are cross-gradient and at some distance from the landfill area. As part of the Site 2 LTMP revision process. EPA recommends that the frequency of sampling and reporting also be re-evaluated to identify any potential savings in time and money while still providing the Navy and regulators sufficient data to assess remedy performance.*

Response: The Navy will work with project stakeholders to update the current long-term groundwater monitoring plan for Site 2 based on the new site conceptual model developed as a result of this investigation and evaluation of chemical trends, existing wells, etc.

6. ***Refine Land Use Control / Institutional Control (LUC/IC) Performance Objectives and LUC/IC Boundaries -*** *The 1998 Site 2 ROD required the establishment of institutional controls in the form of maintenance of an existing fence, installation of warning signs, and land use control documented in the NAS Brunswick Operations Instructions which serves to screen environmental areas from inappropriate construction of development activities while the base is an active installation. The NAS Brunswick Operations Instructions were revised in March 2008 and delineated land use and ground water use restriction zones associated with all NAS Brunswick IRP areas of concern and MMRP study areas. Due to the impending closure of NAS Brunswick and the redefined Site 2 landfill area delineation based on the results of this site investigation report, EPA recommends that the following actions be taken by the Navy to ensure that any institutional controls necessary to protect human health and the environment as well to protect the future integrity of Site 2:*

   Refine LUC/IC objectives due to the NAS Brunswick Closure: *The 1998 Site 2 ROD states that the objectives of the institutional controls are to: 1) prevent disturbance of buried wastes and 2) prevent the extraction and use of Site 2 ground water. It also states that in the event of NAS Brunswick closure, the base closure process will become the mechanism under such restrictions will be developed and implemented. While these two objectives are key to the long-term protectiveness of the current remedy, it is necessary to refine and expand these objectives in order to more effectively ensure continued remedy protectiveness after this property is transferred. EPA proposes the following refined and expanded LUC/IC objectives for Site 2 based on the current site conceptual model:*

   - *Site 2 Contaminated Soils and Debris*
     - *Eliminate unacceptable exposures due to land uses inconsistent with Site 2 remedial objectives.*
     - *Protect integrity of remedy (no digging into landfill or other activities that lead to erosion).*
     - *Protect workers from exposure to contaminated soil and debris.*

   - *Site 2 Ground Water*
     - *Protect against unacceptable human exposure to contaminated ground water.*
     - *Prohibit undesirable influences on contaminated ground water being managed by implementation of the Site 2 remedy.*

- *Prevent Interference to Remedy Implementation*
    - *Reserve continued access to site for monitoring and remediation.*

Response: The Navy will work with project stakeholders to modify the IC objectives as needed to ensure continued remedy protectiveness The Navy will likely propose an ESD(Explanation of Significant Difference) to document any updates to the existing LUC/ICs.

7. ***Implementation to Achieve LUC/IC Objectives:*** *While not intended to be a comprehensive list of LUC/IC mechanisms that would act as a layering strategy to ensure the long-term success of the LUC/IC objective identified above, EPA provides the following real property/legal, governmental/administrative, site control, and other mechanisms that could be relied on for Site 2 and other NAS Brunswick, IRP sites:*

    - *Deed Restrictive Covenants*
        - *Restrictions prohibiting installation of wells (other than for investigations).*
        - *Restrictions prohibiting extraction of ground water, injecting water into the ground, applying surface water, altering surface water discharge/recharge outside Site 2 area of ground water contamination that causes the migration of contaminated ground water beyond the Site 2 area of ground water contamination.*
        - *Restriction prohibiting use of Site 2 for occupied residential, commerical or industrial buildings.*
        - *Grantee covenants requiring Health & Safety Plan compliance by workers should subsurface construction activities need to take place where there is a potential to come in contact with contaminated soils and debris.*
        - *Grantee covenants not to disturb, move, damage, mar, tamper with, obstruct, or impede any monitoring wells.*

    - *Government /Administrative Mechanisms*
        - *Local Redevelopment Authority (LRA)/Navy land alteration review/approval process.*
        - *Registration of LUC/IC boundaries with DigSafe.*
        - *Recordation of LUC/ICs under the State of Maine Unified Environmental Covenant Act.*
        - *Zoning ordnances.*

    - *Other Mechanisms*
        - *Site Inspections.*
        - *Annual LUC/IC Notification and reinforcement letters to future landowners.*

EPA believes modification to the Site 2 LUC/IC objectives and implementing actions could be accomplished by the modification of the current Site 2 ROD or a decision document could be prepared to address all IRP sites that rely on LUC/ICs as a remedial component to ensure long-term remedy protectiveness. EPA looks forward to discussing this issue further with the Navy and MEDEP to develop a path forward on this issue.

Response: The Navy looks forward to discussing potential LUC/IC mechanisms with EPA and MEDEP, to identify and implement an overall approach that addresses Site 2 and other NAS Brunswick IRP sites. The Navy will likely propose an ESD(Explanation of Significant Difference) to document any updates to the existing LUC/ICs.

Responses to Maine Department of Environmental Protection Comments
October 7, 2009 and Follow-on Comments February 23, 2011
Draft Site Investigation Report for Site 2
Naval Air Station Brunswick
Brunswick, Maine
July 2009

General Comments:

1. *Overall the investigation appears to have addressed many of the data gaps regarding the area north of Site 2 and MEDEP in general agrees with EPA's comment letter dated September 15, 2009. However in order to establish protective institutional controls the western boundary of the Site 2 must be determined.*

Response: The Navy will work with EPA and MEDEP to identify and address data gaps that are necessary to be filled to support delineation of the boundaries of the IC area as a component of any supplemental remedial activities that may be implemented. The Navy hopes to initiate a field program during the 2011 field season to collect data necessary to support a defined IC boundary necessary for long term management of the site.

2. *The Maine Remedial Action Guidelines (1997) were developed as clean up numbers for single contaminate therefore are not conservative enough to be used as screening numbers. Please remove the reference to the RAGs as a comparison for screening unless the draft 2009 RAGs which includes both soil direct contact and soil leaching-to-groundwater values in Appendix 3.*

Response: The Navy will update the report to include comparison with the analytical results to applicable criteria including ME RAGs and background concentrations. Because the study area is in a Business and Technology District and a natural district according to the Master Plan developed by Brunswick Local Redevelopment Authority (BLRA), applicable criteria will include ME RAG "Outdoor Commercial Worker" and "Park User" scenarios.

MEDEP Follow-on Comment: *The construction/excavation worker criteria need to be included where they are more restrictive than the outdoor commercial worker criteria, to address the potential exposure during construction or excavation on the site.*

Response: Tables 3-1 and 3-2 were revised to include construction/excavation worker criteria. These criteria were not exceeded.

3. *MEDEP supports the proposed revisions to the Site 2 LTMP described in the USEPA comment letter dated September 15, 2009 along with MW-02-309. Stakeholders should discuss revisions to the LTM for implementation in the Spring 2010 round.*

Response: Revisions to the LTM program are planned and will be addressed outside of the Site 2 Site Investigation Report as part of the ongoing LTM program.

4. *Please add the sample collection field forms as an appendix to the report.*

Response: Agreed.

5. *Currently, the site conceptual model does not address why the elevated metals seen at the seeps are not found at significant concentrations in the groundwater upgradient. The metals may be dissolving locally from soils near the discharge zones, perhaps related to seasonal flooding of the seep areas in the spring melt. As we move toward deciding on what to do with this parcel this will need to be discussed. (No response required.)*

Response: Comment noted.

6. *In the final report please include the photographs which best show the test pits and the debris found.*

Response: Agreed.

Specific Comments:

7. *Section 1.1, Objectives and Scope, para 1: "The objectives of the investigation …and to delineate the boundaries of the landfill…"*

   Since the western boundary of the landfill is in question this sentence should be revised to "delineate the northern boundary of the landfill".

Response: Please refer to the responses to General Comments 1 and 2.

8. *Section 1.2.2, Site History:*

   The reference cited for the historical information in this section is ECC 2007; this information came from the draft final Remedial Investigation Report (E.C. Jordan 1990). Please revise.

Response: Agreed.

9. *Section 1.2.3, Previous Site Investigation and Data Gaps, para. 7: "It was also determined that the source of high metals concentrations in Mere Brook could not be from Sites 1 & 3 because they were both capped landfills …"*

   The statement is not supported by the seep data from Sites 1&3 long-term monitoring (LTM), that show that seeps along the northern bank are still contributing contamination to Mere Brook, including several of the same metals that are elevated at Site 2. Please remove this sentence from the text.

Response: Agreed.

10. *Section 2.6, Water Level Measurements, para. 1, Table 2-4 and Figure 3-3: Water levels were only collected from the new wells installed for this investigation. One of the objectives of the workplan was to "Collect additional groundwater elevation data to establish the hydraulic gradient at Site 2." Please revise the text and add a note explaining why the LTM wells were omitted. The missing data limit somewhat the interpretation to the south, and missed an opportunity for vertical gradient measurement at MW-02-309 and MW-02-241. It also affects the cross section C-C' that is missing the elevation data from MW-02-243 that would support a flowpath interpretation to the seep discharge. A future round is warranted that includes all the new wells and existing LTM wells as planned, or it can be incorporated into the LTM for Spring 2010. Based on the topography at the site it is likely a significant portion of the groundwater flow through the main portion of the landfill is to the southeast toward the un-named drainage that flows to Mere Brook. If additional investigation is completed in the future, 1-2 gauging piezometers are needed to determine if the well pair at MW-02-241 and MW-02-309 is adequately monitoring flow in that direction.*

Response: The LTM wells were omitted because those data were collected as part of the LTMP. Revisions to the LTM program will be addressed outside of this Site 2 Investigation Report.

MEDEP Follow-on Comment: *It is regrettable that the opportunity to collect site-wide groundwater data and elevations from the Site Investigation (SI) wells and the monitoring wells as it limits the interpretation of the data and development of the conceptual site model. Since the data from the SI and the Long Term Monitoring Program (LTMP) are not collected at the same time and are therefore not necessarily comparable, particularly water elevation data. (The LTM samples were collected 9/16/08, the SI samples were collected 10/20/08.) The lack of data from the existing wells makes it difficult to assess vertical gradients near Mere Brook, an important issue when interpreting whether the detections at the seeps are*

related to groundwater discharge from Site 2. However if the stakeholders determine that a comprehensive round is needed then it could be combined with a future monitoring round.

Response: The groundwater flow map (Figure 3-3) shows groundwater is flowing beneath the Area North of Site 2 toward the seeps along the west bank of Mere Brook. The seeps intersect the water table. Mere Brook is likely to be the discharge area for shallow groundwater flow from the Area North of Site 2.

11. *Section 3.1.1 Suspected Ash, and Table 2-1, Appendix C-1: Although ash was not as evident at TP-02-01, MEDEP's field notes and photos suggest that it may not have been initially identified. TP-02-01 was the first location completed, and after examining the ash at the locations to the southeast, it is possible that the layers identified as black organic material may in fact be minor ash layers. The charcoal and debris in the fill support the potential presence of ash at this location, please note it as a possibility in the text.*

Response: The text in this section will revise to indicate the possibility of ash at TP-02.

12. *Section 3.1.2 Hydrogeology, para. 4: Lateral hydraulic gradients at Site 2 are an order of magnitude higher than at other sites on the base, and are twice as high in the area where waste is buried as they are in the north. This is a relatively large difference given the gradient range, and may not be insignificant in terms of flushing of the Site 2 waste. (No response necessary.)*

Response: Comment noted.

13. *Section 3.2.1 Soil, and throughout the document: The comparisons to regulatory criteria need to be revised to reflect criteria appropriate for screening evaluations, and figures, discussion and conclusions modified, as needed. The 1997 Maine RAGs are remedial guidelines and need to be adjusted when multiple contaminants are present. The 2009 USEPA Mid-Atlantic Risk Based Concentration Tables and/or the 2009 Maine Remedial Action Guideline are more appropriate for screening evaluations, as the earlier RAGs were not conservative enough. Please revise the text and tables, as necessary.*

Response: Please see the Response to General Comment 2.

14. *Section 3.2.1, Soil, para 5: "Chromium exceeded the Maine RAGs residential screening criteria (38 mg/kg) in one sample…"*

    The criteria cited is not the residential "screening" number but is the leaching to groundwater guideline. See comment 2 above.

Response: Please see the Response to General Comment 2.

15. *Section 3.2.3, Long Term Monitoring Results-Leachate Seeps para. 4: "Naturally-occurring iron and manganese are commonly in reduced forms in low ORP groundwater, …"*

    The second part of this sentence appears to have missing text, please revise for clarity. The Risk-Based Ecological Screening Values (RBESV) are more important here for evaluating risks posed by the leachate seeps, where biota in the wetland are more likely to be at risk. Please revise.

Response: The text will be modified to clarify the discussion.

16. *Section 3.2.3, Long Term Monitoring Results-Surface Water:*

    a.) MEDEP reviewed data for SW-04 and SW-07 from most of the sample rounds since 2000, and for these locations the relative concentrations of aluminum, barium, lead, manganese, chromium and mercury vary year to year, with either the upstream or downstream location having higher values. In part this is likely due to SW-04 (and SW-07) being impacted to some degree by discharging

groundwater from the Landfills 1&3 side of the brook. The data for SW-15 and SW-16 are more applicable for upgradient consideration therefore please revise this sub-section comparing to SW-15 and SW-16.

Response: A comparison to the most recent data from SW-15 and SW-16 will be performed as requested.

b) "Aluminum, barium, lead and manganese were above the RBESVs for the samples collected in September (ECC 2008b) but were below the groundwater criteria discussed in Section 3.2.2."

Applying the groundwater criteria to surface water is not appropriate. The Ambient Water Quality Criteria (AWQC) which is included in the Risk Based Ecological Screening Values is the appropriate criteria please remove the reference to the groundwater criteria from this statement.

Response: The reference to groundwater criteria will be removed.

17. *Section 3.3.1, Contaminant Source Areas, para 3: "As discussed in Section 3.2.1, arsenic concentrations in soil sample exceeded residential screening criteria (0.39 mg/kg) at every location sampled but did not exceed the Maine RAGs at any location."*

    See general comment 2 above.

Response: Please see the Response to General Comment 2.

18. *Section 3.3.2, Geologic/Hydrogeologic Controls….*

    a.) para 1: Contaminant migration at the Site is controlled by various geologic and hydrogeologic factors as shown on Figure 3-8."

    Please check this figure and confirm that is correctly referenced. Revise as necessary.

Response: The text will be revised to reflect the more general nature of the information presented in Figure 3-8.

b.) para 2: "Additionally, the highest dissolved iron concentration …"

Please revise the text to indicate that MW-02-305 and MW-02-310 had relatively low ORP values, but neither were as low as MW-02-309 based on Table 2-5. If the text is breaking the wells into subsets and comparing ORP values, please clarify the text. MEDEP agrees that the inorganic detections are strongly influenced by pH and oxidizing/reducing conditions in different portions of the site.

Response: This paragraph will be revised to clarify the discussion, as requested.

c.) ME18 table – Please add the turbidity data for the leachate seeps to the table or text, excessive turbidity has been an issue in historic sample events.

Response: Agreed.

d.) last sentence: The data since 2000 indicate that relative concentrations at SW-04 and SW-07 vary over time, and also indicate SW-04 is still impacted by groundwater discharges from Sites 1&3. This makes it a poor indicator of Site 2's relative impact on the stream. Please compare to the data from SW-15 and SW-16, which are sampled as part of the Sites 1&3 LTM. The data for locations SW-07 and SW-08 farther downstream do not indicate impacts from either landfill persist very far from the discharge points.

Response: This paragraph will be revised to address this comment.

19. *Section 4 Conclusions and Recommendations, para 2: The data collected in this investigation were focused on the area to the north of the defined landfill, rather than on the entire site, so conclusions for the entire site are not as well supported as for the area to the north. Therefore the conclusions must be more narrowly focused to the area north of Site 2.*

Response: This paragraph will be revised to focus on the area north of Site 2.

20. *Section 4.0, Conclusions:*

a.) Item # 8: The word "collected" appears to be misplaced, please revise the text.

Response: Agreed.

b.) Item # 11: "Under reducing conditions (low ORP values) Mn^{+4} reduces to the more soluble than Mn^{+2} state and as a result is commonly elevated in dissolved concentration."

MEDEP suggests the sentence be reworded as "Under reducing conditions (low ORP values) Mn^{+4} reduces to the more soluble Mn^{+2} state, and as a result is commonly present at elevated concentrations in the dissolved phase." Please revise as needed.

Response: This item will be revised as requested.

c.) Item # 12:

1.) Based on the variable data from round to round the report would benefit from a summary of data from more than a single round of LTM data.

Response: LTMP data trends were considered during development of the Site 02 Investigation Report. The Navy is supportive of future discussions with Stakeholders on LTMP trends in relation to further development of the Site 02 conceptual model.

2.) "Highest concentrations of inorganics were detected in leachate seep and leachate sediment samples collected from upstream …"

Based on MEDEP's review the highest seep concentrations of aluminum and chromium and other inorganics were found at LT-202, not LT-203, please revise or specify to which metals the statement refers.

Response: This item will be revised as necessary to accurately reflect the data.

3.) "Manganese is the only metal …"

Aluminum also exceeded drinking water and RBESV criteria in both the groundwater and seep samples, respectively, please revise.

Response: The text will be revised as appropriate.

d.) Item # 13: MEDEP assumes there needs to be a follow-on sentence that notes that the oxidation (and often precipitation) of iron and manganese oxides results in much lower concentrations of these elements in surface water than is found at the seeps. Other trace metals may be incorporated into the oxidized particulates, reducing their concentrations in surface water also. Please revise for clarity.

Response: The text will be revised as appropriate.

e.) <u>Item # 11 & Item #15:</u> "Since sodium and manganese are the only contaminants dissolved in groundwater exceeding screening criteria…."

This conclusion does not account for the longer term data available for the site groundwater. MEDEP summarized data from the last 5 Long Term Monitoring (LTM) rounds (Spring 2007 through Spring 2009) and found that several other elements exceeding the RBESV criteria in the leachate seeps also exceeded drinking water criteria in at least one round including arsenic, aluminum, nickel and cadmium. Please revise the report to include recent LTM data or indicate that the evaluation of additional data will support any future site decisions.

Addition of some of the RI well locations to the LTM program will enable stakeholders to assess whether the data from the 2008 sampling is consistent with the LTM data. Specific revisions should be agreed upon in time for the Spring 2010 LTM.

Response: The Navy is supportive of future discussions with Stakeholders on LTMP trends in relation to further development of the Site 02 conceptual model to support future decision making. Revisions to the LTM program will be addressed separately from the Site 2 Investigation Report.

MEDEP Follow-on Comment: *This conclusion is limited by the lack of data from the existing LTMP monitoring wells and the consideration of only a single round of data. The detections of additional inorganics as stated in MEDEP's comment suggests that the site is at least a partial contributor, however final conclusions need to be supported by water elevation and chemical data from new and existing locations.*

Response: This issue can be addressed in the optimization of the Site 2 LTMP.

f.) <u>Item #16:</u> "Aluminum, barium, lead, sodium, and manganese concentrations are similar…."

The surface water sample point names are reversed, please revise. Also please compare to the upstream surface water locations SW-15 and SW-16, which best represent Mere Brook chemistry prior to any influence from the landfills.

Response: Agreed.

21. *<u>Section 4.0, Recommendations:</u> The recommendations are generally acceptable however MEDEP suggests the following additions:*

- *The recent investigation confirms that the landfill extends north of the current defined boundary. The nature of the waste in the central portion of the landfill remains unconfirmed, and may need to be assessed pending decisions on future use of the property;*

Response: Part one of the suggested bullet is consistent with conclusion #1 in the report. Also, see the response to General Comment 1.

- *The extent of Site 2 to the west is still unknown since the geophysical work that was proposed in the 1990 RI was not performed due to the tree cover therefore the western boundary of Site 2 needs to be established;*

Response: Refer to the Response to General Comment 1.

- *And confirmation that groundwater flow through the central landfill is adequately monitored by MW-02-309 and MW-02-241 is also warranted.*

Response: The current well network should provide sufficient data to monitor groundwater flow from the Site 2 landfill. The Navy is supportive, however, of future discussions with Stakeholders regarding further development of the Site 02 conceptual model.

MEDEP Follow-on Comment: *Based on the groundwater flow depicted on Figure 3-3, it appears groundwater migrating through the southern portion of the landfill is not monitored. MEDEP supports addition of a monitoring location to bound the southern portion of the landfill and confirm groundwater elevations, if waste extends to that area.*

Response: Please see the Response to Follow-on Comment 20.

22. *Table 2-5, Field Parameters:* *The units for the specific conductivity need to be revised to mS/cm, or the values need to be corrected, please revise.*

Response: Agreed.

23. *Table 2-6, Hydraulic Conductivity:* *The values for MW-2-309 and MW-2-310 are switched, please revise as needed.*

Response: This table will be corrected as necessary in the final report.

24. *Table 3-1, Soil Data:* *The regulatory criteria need to be revised to appropriate screening values, as noted above.*

Response: Please see the Response to General Comment 2.

25. *Table 3-3, table and footnote*: *The table should be revised to include the December 2008 MEGs and the footnote changed to reflect the same.*

Response: This table will be revised as requested to include the October 2010 MEGs.

26. *Figure 3-1A and Figure 3-1C, Cross-section B-B':*

    a.) MW-213 and MW-243 need to be added to the figures, please revise.

Response: The approximate locations of these wells can be added to the figures for reference however, these wells were not gauged or monitored as part of the Site 2 Investigation as per the Work Plan. Therefore, additional data (i.e. water level gauging) can not be incorporated into this report to support conclusions from these locations. To the extent possible, stratigraphic information for these locations will be shown on the final figures.

    b.) The groundwater elevation data do not indicate that there is an upward gradient at MW-2-304, or that groundwater from the vicinity of this well is discharging at seep LT-201. Elevation data from MW-243 would make this cross-section more useful for interpretation of the discharge to the seeps, when elevation data are collected from the new and existing wells. It is possible the seep discharge is from the perched water observed at TP-02-08.

Response: As discussed in the response above to Comment #26, this well was not gauged as part of the Site 2 Investigation as per the Work Plan.

MEDEP Follow-on Comment: *Additional consideration of the water elevation data and implications for the groundwater discharging at the leachate seeps with be needed when this investigation is incorporated into the LTMP.*

Response: Please see the Response to Follow-on Comment 20.

27. *Figure 3-4 through 3-7: Please add the units of the results somewhere on the figure and see general comment 2 above regarding the RAGs.*

Response: Please see the General Comment 2 Response. The units of the results will be added to Figures 3-4 through 3-7, as requested.

28. *Figure 3-5 and Figure 3-6: The figures would provide a better visualization of pesticide and metal distribution across the site if they showed both the detections and exceedances, with exceedances bolded or otherwise indicated. The figure would also be readily comparable to background data when it is available. Please add detect values to the figures for the compounds shown.*

Response: These figures are intended to show locations where analytes exceed screening critieria rather than show the distribution of analytes across the study area. For each of the parameters only the concentrations which exceed screening criteria were included. The figures would become very challenging to read if all the data were included and as a resultare proposed to remain unchanged.

29. *Figure 3-7, Groundwater Metal Exceedances: The regulatory criteria used for comparison are listed incorrectly in the inset text box, please revise as needed to groundwater criteria.*

Response: Figure 3-7 will be revised in the final document. The regulatory criteria used for comparison will be current MEGs and MCLs.