Final
Volume 1 - Part 2 - Report of Findings

TNT Areas A and C Remedial Investigation
Former Plum Brook Ordnance Works
Sandusky, Ohio

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Revision 0

November 2001

200-1e
03.10_0005
G05OH001815_03.10_0005_a

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List of Acronyms

bgs	below ground surface
BNA	Base/Neutral Acids
D&M	Dames and Moore, Inc.
DNB	nitrobenzene
DNT	dinitrotoluene
Eh	oxidation-reduction potential
ft/ft	foot per foot
HTRW	hazardous toxic and radiologic waste
IT	IT Corporation
µg/L	micrograms per liter
mg/kg	milligrams per kilogram
MK	Morrison-Knudsen Ferguson Corporation
NASA	National Aeronautics and Space Administration
NB	nitrobenzene
NT	nitrotoluene
ODNR	Ohio Department of Natural Resources
PA	preliminary assessment
PAH	polynuclear aromatic hydrocarbons
PBOW	Plum Brook Ordnance Works
PCB	polychlorinated biphenyl
PRG	Preliminary Remediation Goals
QA/OC	quality assurance/quality control
RBC	risk-based concentration
RI	remedial investigation
SU	standard unit
SVOC	semivolatile organic compounds
TNB	trinitrobenzene
TNT	trinitroluene
TNTA	TNT Area A
TNTB	TNT Area B
TNTC	TNT Area C
VOC	volatile organic compound

1.0 Introduction

1.1 TNT Area A Physical Setting

The former TNT Area A (TNTA) is located in the northeastern part of PBOW (Figure 1-1) and occupies approximately 114 acres of land with Columbus Avenue bisecting the site as shown in Figure 1-2. National Aeronautics and Space Administration (NASA) constructed its administration building on the east side of Columbus Avenue in the central portion of former TNTA. The NASA Administration Building and associated parking areas cover two of the former trinitroluene (TNT) process buildings (Buildings 121 and 122) at TNTA. TNTA was used during World War II as a manufacturing facility for TNT and dinitrotoluene (DNT). During Plum Brook Ordnance Works (PBOW) operations, TNTA contained four TNT lines consisting of five buildings each and two DNT lines each consisting of one building (Figure 1-3). Wastewater from TNTA was routed to the Pentolite Road Red Water Ponds through underground flumes and sewer lines. Significant previous remediation activities have been performed in TNTA. Minimal above ground evidence of the former PBOW structures and features, other than abandoned railroad tracks, ditches, and aboveground water valves remain in the area.

1.1.1 TNT Area A Topography and Drainage

TNTA is relatively flat with a few low hummocks. Elevation at the site ranges from a low of 633 feet along the northern boundary of the site to 660 feet on the southern side of TNTA (Figure 1-3). Many of the buildings at the TNTA area were either placed on topographic highs or fill material used to raise the ground elevation. Surface water drains off the site to the north except in the vicinity of DNT Sweating and Graining House, Building 192 where surface water drains to the south. A topographic high (former railroad track) divides the location of Building 192 from the rest of TNTA. Surface water on the northern side of the site drains to ditches that are tributaries to Lindsey Ditch, which flows to the north of the site and eventually into Plum Brook. Surface water in the area of Building 192 flows south, turns east, and eventually drains into Lindsey Ditch.

1.1.2 TNT Area A Geology and Soils

The native overburden and the soil found at most of the boring locations at TNTA, consists predominantly of glacially derived silt overlying silty clay. The upper few feet of the silts and clays in the vicinity of TNTA have been grouped into the Hornell-Fries-Colwood Association. The Hornell-Fries-Colwood soils are described as moderately deep to deep, somewhat poorly to

very poorly drained soils formed in glacial till and lacustrine sediments over shale bedrock (Ohio Department of Natural Resources [ODNR], 1994; IT Corporation [IT], 1999). Soil also encountered during the top few feet of sampling and drilling activities was a sand fill or silty, clayey sand mixture. The source of the sand is unknown but is suspected to be from on-site. The sand may be the result of the demolition of sand/soil filled blast barricades at some of the building locations (i.e., Bi-Tri Houses, Fortifier Houses, and Wash Houses). This sand is believed to have been placed after building demolition or generated during razing activities and was used to cover the building foundations, which would have reduced demolition costs.

Underneath the overburden soil is a layer of Devonian age shale. As shown on Figure 1-4, the Plum Brook Shale (member of Olentangy Shale) is located in the northern part of the site. South of the Plum Brook Shale is the Prout Limestone, also a member of the Olentangy Shale. South of the Prout Limestone is the Ohio Shale. No differentiation was made between the Plum Brook Shale and the Prout Limestone (shale also) on the cross-sections because both are members of the Olentangy Shale (IT, 1999).

Cross-sections were drawn along lines shown on Figure 1-4. As shown on cross-sections A-A' (Figure 1-5) and B-B' (Figure 1-6), the depth of the overburden is approximately 4-5 feet in the southern portion of TNTA to depths greater than 10 feet in the north. The base of the overburden consists of weathered shale. This weathered shale horizon was found to range in thickness from 0.5 foot (ft) thick (southern area around Building 192) to depths as great as at least 8 feet thick (central-western side, Building 139). This thickness of the weathered zone at the site appears to be lithologically controlled.

1.1.3 TNT Area A Hydrogeology

1.1.3.1 Overburden

Five overburden monitoring wells are present in TNTA; MK-MW22, MK-MW23, MK-MW24, PB-TNTA-MW10, and PB-TNTA-MW11 (IT, 1999). Groundwater flow follows the topography and flows to the northwest. Static groundwater depths have ranged from 3.10 feet below ground surface (bgs) (monitoring well PB-TNTA-MW10 in February 1998) to 8.49 feet bgs (well MK-MW23 in August 1997) (IT, 1999).

Groundwater at TNTA in the overburden water-bearing zone during the direct-push soil sampling, was found near the soil/bedrock (shale) interface, as shown on cross-sections A-A' and B-B' (Figures 1-5 and 1-6). The overburden water-bearing zone water was usually found to

exhibit both low porosity and low permeability. The average hydraulic gradient calculated between overburden wells on four dates in the east-central portion of PBOW, ranged from 0.005 foot per foot (ft/ft) to 0.006 ft/ft. Flow direction was to the northeast. No hydraulic conductivity tests (slug tests or pump tests) have been performed in the vicinity of TNTA (IT, 1999).

1.1.3.2 Bedrock

Well PB-BED-MW17 was drilled into the Plum Brook Shale (Olentangy Shale) downgradient (north) of the TNTA site and PB-BED-MW18 monitors the Ohio Shale sidegradient (east) of the site. The piezometric surface of the groundwater in the shale bedrock across TNTA can be less than 5 feet below grade. Groundwater in the bedrock flows to the northeast with an average hydraulic gradient ranging from 0.002 to 0.004 ft/ft. Although no hydraulic conductivity tests (slug tests or pump tests) have been performed in bedrock wells near TNTA, conclusions from IT Site-Wide Monitoring report state that only little groundwater elevation differences occurred between the bedrock monitoring wells which were screened in the Ohio Shale and the Olentangy Shale (IT, 1999).

1.2 Summary of Previous Environmental Studies

1.2.1 Surface Water, Sediment, and Soil Investigations

Previous environmental investigations in TNTA included a 1991 preliminary assessment (PA) conducted by Science Applications International Corporation, a 1993 site inspection by Morrison-Knudsen Ferguson Corporation (MK) (MK, 1994), and a 1994 TNT areas site investigation by Dames and Moore (D&M) (D&M, 1997). The PA conducted by Science Applications International Corporation identified fourteen operable units that may have experienced environmental contamination during the operation of TNT manufacturing. TNTA was listed as a possible location.

In 1993, MK performed a site inspection of TNT manufacturing area A. Surface water, sediment, soil, and groundwater samples were collected and monitoring wells (MK-MW22, MK-MW23, and MK-MW24) were installed. Most of the environmental samples collected from TNTA were analyzed for volatile organic compounds (VOC), semivolatile organic compounds (SVOC), nitroaromatics, total metals, dissolved metals, pesticides, and polychlorinated hydrocarbons (PCB). Two collocated surface water and sediment samples were collected at locations identified as SW16/SD16 and SW17/SD17 (Figure 1-3). SW/SD16 was collected in the northeast corner of TNTA, immediately downstream of the convergence of Lindsey Ditch with a perimeter ditch running east-west along the north side of TNTA. SW17/SD17 was

collected in Lindsey Ditch, east of TNTA (MK, 1994). No organic compounds were detected in the surface water samples. As shown by Table 1-1, low levels of VOCs (acetone) were detected in both sediment samples. Sediment sample SD16 had concentrations of pesticide methoxychlor, 4,4-dichlorodiphenyltrichloroethane (DDT), and dieldrin. Several metals were detected in both the surface water and the sediment. No explosive residues were detected in the surface water or sediment samples. One surface soil sample (SS23) was collected in the upper 2 feet at the southwest corner of TNTA, south of a rail road spur (Figure 1-7). Table 1-2 compares Region 9 Preliminary Remediation Goals (PRG) and established PBOW background concentrations to analytical results. Toluene was detected in the soil sample at a concentration of 0.0009 milligrams per kilogram (mg/kg). No explosive residues were detected. Magnesium and bis(2-ethylhexyl)phthalate were detected at concentrations of 761 and 0.075 ppm, respectively. Three other surface soil samples were collected in TNTA (MK04SB14, MK04SB15, and MK04SB16) from the upper 2 feet in the borings from monitoring wells MK-22, MK-23, and MK-24. No nitroaromatics were detected in the soil (Table 1-2) (MK, 1994).

In 1994, D&M conducted a site investigation of TNTA. Activities included monitoring well installation (TNTA-MW10, TNTA-MW11, BED-MW17, and BED-MW18), and groundwater and soil sampling. A total of 36 soil samples were collected from 28 borings within TNTA (Figure 1-7). Each sample was analyzed for nitroaromatics and metals. Boring locations were placed in and around former buildings that were associated with the TNT production lines. In addition, 1 soil boring was installed in a ditch north of Maintenance Road. A wide range of nitroaromatic compounds was detected, including concentrations of TNT at 580 mg/kg (near Wastewater Settling Tanks, Building 187) and 53 mg/kg (near Fortifier House, Building 143). One soil boring (TNTA-S22-0.0/2.0) near Mono House, Building 141, exhibited 2,4-DNT and 2,6-DNT concentrations of 45 and 47 mg/kg, respectively. Maximum metal concentrations above established PBOW background values include chromium at 53 ppm (Wash House, Building 136), lead at 1809 ppm and copper at 489 ppm, both at the Bi-Tri House, Building 142 (Table 1-2) (D&M, 1997).

1.2.2 Groundwater Investigations

1.2.2.1 Overburden Water-Bearing Zone

MK installed three overburden wells at TNTA in July 1993 at locations shown in Figure 1-3. Monitoring well MK-MW22 is located downgradient, MK-MW23 is located side gradient (East side), and MK-MW24 is located upgradient of TNTA. Groundwater samples collected from the monitoring wells were analyzed for VOCs, SVOCs, nitroaromatics, pesticides, PCBs, and

dissolved and total metals. No VOCs, pesticides, PCBs, or nitroaromatics were detected. Groundwater from MK-MW22 and MK-MW23 was not analyzed for pesticides, PCBs, dissolved, or total metals because an adequate volume of groundwater could not be collected. Dissolved and total metals from MK-MW-24 compared to risk-based concentration (RBC) values are shown on Table 1-3. One SVOC, (bis[2-ethylhexy]) phthalate), was detected above the RBC value at a concentration of 22 micro-grams per liter (µg/L).

In December 1994, D&M drilled and installed two new overburden wells (PB-TNTA-MW10 and PB-TNTA-MW11). Overburden monitoring well PB-TNTA-MW10 is located immediately downgradient of the Wash House for line 3 (Building 136) and PB-TNTA-MW11 is located downgradient of Wash House, Building 146 (Figure 1-7). Groundwater samples were collected from the monitoring wells and analyzed for nitroaromatics, nitrates, and total and dissolved concentrations of 14 metals which consisted of the 13 priority pollutant metals plus manganese. (D&M, 1997).

Explosive compounds were detected in the shallow groundwater aquifer at monitoring well PB-TNTA-MW10 and MK-MW23. Monitoring well TNTA-MW10 exhibited 4 explosive residues with three (2,4,6-trinitrotoluene, 4A-2,6-DNT, and 2A-4,6-DNT) exceeding PRGs levels. The highest nitroaromatic concentration was 31 µg/L of 2A-4,6-DNT. A concentration of 13 µg/L of 3 nitrotoluene was also detected in well MK-MW23 (Table 1-3). A total of 8 metals (antimony, arsenic, beryllium, copper, lead, manganese, nickel, and zinc) were detected in the TNTA groundwater but only arsenic, lead, and manganese were above the PRG levels (D&M, 1997).

IT conducted a site-wide groundwater investigation at PBOW in 1996 (IT, 1997) and again in 1997 (IT, 1998). Both investigations included collection of groundwater samples from overburden wells in TNTA (MK-MW22, 23, 24 and PB-TNTA-MW10, 11). All wells were analyzed for VOCs, SVOCs, nitroaromatics, PCBs, total and dissolved metals, cyanide, and water quality parameters. From the overburden wells, only MK-MW22 had explosive concentrations in groundwater exceeding PRG levels: 4A-2,6-DNT was detected exceeding the PRG in the 1994 sampling event. All the overburden wells had groundwater samples with concentrations of dissolved manganese exceeding the respective screening level. In addition, one groundwater sample from MK-MW23, a downgradient well, had a concentration of bis(2-ethylhexyl)phthalate exceeding the respective PRG (Table 1-3) (IT, 1999).

1.2.2.2 Bedrock Water-Bearing Zone

As part of the site investigation by D&M in 1994, two bedrock wells (PB-BED-MW17 and PB-BED-MW-18) were installed in the TNTA. Bedrock monitoring well PB-BED-MW17 is located approximately 600 feet north (downgradient) of the Wastewater Settling Basins (Building 187) and PB-BED-MW18 is located on the eastern side of TNTA, approximately 90 feet north of Change House (Building 117) (Figure 1-7). Groundwater samples were collected from the monitoring wells and analyzed for nitroaromatics, VOCs, base/neutral acids (BNA), nitrates, and total and dissolved concentrations of 14 metals which consisted of the 13 priority pollutant metals plus manganese (D&M, 1997).

The only nitroaromatic compound detected in the bedrock monitoring wells was 3,4-DNT at 2.2 µg/L (Table 1-3). Benzene was the only VOC detected in bedrock wells above the PRG of 0.41. In bedrock well PB-BED-MW17, groundwater was found with a benzene concentration of 33 and 14 µg/L in BED-MW18. Only two BNA compounds (2-methyl-naphthalene and naphthalene) were above the PRGs in bedrock wells. Nitrates were detected in both wells but at concentrations below the allowable PRG levels. A total of 5 metals (antimony, arsenic, copper, manganese, and zinc) were detected in the TNTA bedrock groundwater but only arsenic exceeded the PRGs (D&M, 1997).

IT again sampled the bedrock monitoring wells for the site-wide groundwater investigations of 1997 (IT, 1997) and 1998 (IT, 1998) (Table 1-3). No nitroaromatics were detected above the PRG screening levels in either bedrock well. During 1997, both bedrock wells exhibited the concentration of benzene above the PRG level and cyanide also exceeded the limit in well PB-BED-MW17. In the groundwater samples collected during 1998, arsenic, naphthalene, and lead exceeded the PRG limit in well PB-BED-MW17 and benzene and naphthalene exceeded the limit in well PB-BED-MW18 (IT, 1999).

2.0 Investigation Results

This section presents the analytical results from screening and confirmation samples for TNTA. Analytical data are presented sequentially by building number at the DNT process buildings, the Wastewater Settling Tanks, at each TNT process line, at on-site TNTA surface water and sediment sampling locations, and at the off-site Plum Brook surface water and sediment collection location. All screening and soil confirmation sample location data are presented in Table 2-1 while surface and subsurface sample locations are shown in Figure 2-1. A complete summary of detected analytes in confirmation soil samples is shown in Table 2-2. Table 2-3 presents a complete summary of groundwater analytical detections and Figure 2-2 shows groundwater sampling locations. Nitroaromatic screening results of soil compared with nitroaromatic fixed-based laboratory data are presented in Tables 2-4 through Table 2-29. On-site and off-site surface water and sediment confirmation results are presented in Tables 2-30 and 2-31 while locations are shown in Figure 2-2. Groundwater quality measurements were recorded for oxidation-reduction potential (Eh), pH, conductivity, turbidity, dissolved oxygen, and temperature but only the turbidity and pH values are presented.

Photodocumentation of foundation excavation and/or soil sampling activities at each of the former building locations is presented in Appendix A. Field observations during photography noted that the catch box basins associated with Wash House buildings were dominated by small woody type trees rather than the typical low grassy areas with older vegetation. Miscellaneous TNT manufacturing equipment, debris, and waste uncovered during foundation excavation is also shown in several photographs. Appendix B presents hazardous and toxic radiological waste (HTRW) boring logs prepared during the direct-push collection of subsurface soil samples. In addition, construction diagrams for temporary piezometerare also included in Appendix B. On most of the borings, HTRW drill logs were completed during the screening sample collection. Because the confirmation sample boring was advanced within 12 inches of the screening borehole, only one HTRW boring log was created. Not all piezometer borehole depths on the well construction diagram match associated HTRW borelog total depths due to advancement of geoprobe drilling past soil sample collection depths. Since groundwater is typically found immediately above the soil/bedrock interface, the geoprobe drilling was usually advanced until probe refusal (bedrock). Land survey data of TNTA soil boring locations along with surface water, sediment, groundwater, and former building foundation locations are presented in Appendix C.

2.1 DNT Process Buildings

2.1.1 Building 182, DNT Sweating and Graining House

Approximately 1 ft of fill was observed during excavation of the building foundation and up to 2.5 feet of fill was observed during soil sampling around the building. Ten screening surface soil and two subsurface screening samples were collected adjacent to Building 182 and former tank foundation areas (Table 2-4, Figure 2-3). Large cobbles and compacted soil (possibly the former parking area) were encountered during collection of samples AA0092, AA0093, AA0094, and AA0097. To collect the additional planned surface screening samples AA095, AA096, and AA098 through AA0101, direct-push sample collection had to be used. One subsurface boring was advanced near sample location AA0094 (which presented elevated DNT concentrations in the same relative location as Building 192) and screening soil samples were collected at 4 to 6 and 6 to 7 feet bgs. To verify screening results, confirmation surface and subsurface soil samples were collected near sample location AA0094. To investigate groundwater quality, a temporary piezometer (GW09) was installed with the direct-push drill rig near sample AA0094 to a total depth of 7 feet (refusal).

2.1.1.1 Screening Results

DNT was detected in samples AA094, AA095, AA096, AA097, AA098, and AA099 at concentrations ranging from 0.14 to 1.65 mg/kg. 1,3,5-Trinitrobenzene (TNB) and 4A-2,6-DNT were also detected in samples AA095 and AA098 at concentrations of 0.35 and 0.32, respectively.

Two subsurface soil samples (AA0397 and AA0398) were collected near sample location AA0094 to delineate the vertical extent of soul contamination. Nitroaromatics were detected at both the 4 to 6 feet bgs (AA0397) and 6 to 7 feet bgs (AA0398) soil sample intervals. Six different explosive compounds were detected at the 4 to 6 feet interval bgs sample; however, only total DNT at 103 mg/kg exceeded the PRG. Three nitroaromatics were detected in the 6 to 7 feet bgs interval. Total DNT, detected at 51.1 mg/kg, was the only explosive to exceed the PRG.

2.1.1.2 Confirmation Results

2.1.1.2.1 Surface Soil

One surface soil sample (AA0437) along with a field split sample (AA0439) were collected from soil near sample location AA0094 at a depth of 2 to 3 feet bgs to confirm that nitroaromatics

were not present in the surface soils. The confirmation sample was analyzed for nitroaromatic compounds, VOCs, SVOCs, PCBs, and inorganics (Table 2-2).

Nitroaromatics. Nitroaromatics were not detected in the confirmation sample.

VOCs. Two VOCs, acetone and methylene chloride, were detected at concentrations below PRGs. Acetone was detected at 0.0579 mg/kg and methylene chloride at 0.007 mg/kg.

SVOCs. Both the nitroaromatic, 2, 4-DNT(0.803 mg/kg) and 2,6-DNT (0.108 mg/kg), were detected under the SVOC analyses in sample AA0437. Only 2,4-DNT was above its PRG of 0.72 mg/kg.

PCBs. One PCB (Aroclor-1260) was detected at a concentration of 0.048 mg/kg below its PRG of 0.22 mg/kg.

Inorganics. A total of twenty inorganics were detected in the surface soil sample. Only arsenic was detected above its PRG (0.39 mg/kg) at a concentration of 10.9 mg/kg. The detection of arsenic, however, was below the established PBOW background concentration of 36.5 mg/kg.

2.1.1.2.2 Subsurface Soil

One subsurface soil sample (AA0465; 5 to 7 feet bgs), collected near screening sample AA0094, was submitted for analysis of nitroaromatic compounds, VOCs, SVOCs, PCBs, and inorganics.

Nitroaromatics. Total DNT and 2-nitrotoluene (NT) were detected in the subsurface sample. 2-NT was detected at 0.245 mg/kg (below its PRG of 370 mg/kg), while DNT was detected at 76.2 mg/kg above its PRG of 0.72 mg/kg.

VOCs. Two VOCs, acetone (0.023 mg/kg) and methylene chloride (0.004 mg/kg), were detected but at concentrations well below their PRGs.

SVOCs. Five SVOCs were detected in the subsurface soil sample. Both 2,4-DNT (17.5 mg/kg) and 2,6-DNT (10.1 mg/kg) were detected in sample AA0465 at concentrations above the PRG of 0.72 mg/kg. The polynuclear aromatic hydrocarbons (PAH) 2-methylnaphthalene (1.15 mg/kg), naphthalene (0.652 mg/kg), and phenanthrene (0.45 mg/kg) were detected. Of these PAHs, only

naphthalene has an established PRG (0.56 mg/kg), which was exceeded in this confirmation sample.

PCBs. PCBs were not detected in the confirmation sample.

Inorganics. A total of 21 inorganics were detected. Two inorganics, arsenic (23.2 mg/kg), and iron (38,400 mg/kg) were above their PRGs of 0.39 mg/kg and 23,000 mg/kg, respectively. However, both of these inorganics were below the PBOW background concentrations of 36.6 mg/kg (arsenic) and 234,000 mg/kg (iron).

2.1.1.2.3 Groundwater

Groundwater was encountered above the bedrock/soil interface at approximately 7 feet, but due to an insufficient yield, a groundwater sample and the corresponding water quality measurements could not be collected.

2.1.2 Building 185, DNT Nitrating Building

No utilities, concrete foundation, or other remains of Building 185 could be located during the building foundation identification with the backhoe. Sand was the major soil type encountered during foundation excavation activities and was present at depths of up to 10 feet bgs.

Nine initial surface screening soil samples (AA0133 through AA0141) were collected around the former building location. Based upon a historical figure of the site, one subsurface boring was advanced at the location of the former Drowning Tank, and two subsurface screening soil samples (AA0399 and AA0400) were collected (Table 2-5 and Figure 2-4).

Surface soil confirmation samples were not collected from around the assumed building location because no contamination was evident from screening results. To confirm subsurface screening results from the boring near the Drowning Tank, two subsurface confirmation samples (AA0478 and AA0479) were also collected. In addition, to investigate groundwater quality, a groundwater sample was collected from an open borehole at the same location as samples AA0478 and AA0479.

2.1.2.1 Screening Results

No nitroaromatics were detected in the nine surface soil samples. Subsurface screening samples AA0399 and AA0400 were collected at the location of the former drowning tank and exhibited nitroaromatics at depths of 4 to 6 feet and 8 to 10 feet bgs, respectively. 2A-4,6-DNT was

detected in sample AA0399 (0.28 mg/kg). Three nitroaromatics were found in sample AA0400, 2-NT and 2,4,6-TNT were detected at 0.24 and 0.13 mg/kg, respectively. Neither the 2-NT or TNT concentrations exceeded the established PRGs. Total DNT also was detected at 27.3 mg/kg in sample AA0400 exceeding the PRG of 0.72 mg/kg.

2.1.2.2 Confirmation Results

2.1.2.2.1 Subsurface Soil

Two subsurface soil samples (AA0478, 4 to 6 feet bgs; AA0479, 8 to 9 feet bgs), collected from a boring near samples AA0399 and AA0400, were submitted for analysis of nitroaromatic compounds, VOCs, SVOCs, PCBs, and inorganics. A summary of analytes detected in the confirmation soil sample is presented in Table 2-2.

Nitroaromatics. Total DNT was detected in both samples. In the 4 to 6 feet bgs interval, total DNT was detected at 0.252 mg/kg. In the 8 to 9 feet interval, total DNT was reported at 1.54 mg/kg exceeding the PRG of 0.72 mg/kg. TNT was also detected in the 8 to 9 feet soil interim at 0.159 mg/kg.

VOCs. Two VOCs were detected in the 4 to 6 feet interval below the PRG level (methylene chloride and toluene) while four VOCs (methylene chloride, toluene, o-xylene, and m,p-xylenes) were detected in the 8 to 9 feet interval. All VOCs detected were at concentrations below their respective PRGs.

SVOCs. Two SVOCs were detected in the subsurface soil. 2,4-DNT was found at 0.222 mg/kg in the 4 to 6 feet interval and 2,6-DNT was found at 0.342 mg/kg at the 8 to 9 feet interval. Both concentrations were below the PRGs.

PCBs. PCBs were not detected in either sample.

Inorganics. A total of 19 inorganics were detected in the soil samples. Arsenic was the only metal that exceeded the 0.39 mg/kg PRG with concentrations of 3.23 mg/kg at 4 to 6 feet and 3.66 mg/kg at 8 to 9 feet. Both of these arsenic concentrations are below the PBOW background values.

2.1.2.2.2 Groundwater

Groundwater was encountered at a depth of 8 feet bgs at the location of AA0478 and AA0479. The boring was advanced to a total depth of 10 feet bgs. Weathered shale bedrock was encountered at approximately 9.4 feet bgs, with refusal at 10 feet. Because a sufficient volume of groundwater was present in the borehole (GW10), no piezometer was installed. Groundwater sample AA3010 was collected from the boring, along with quality assurance/quality control (QA/QC) samples and a field split sample (AA3012) using hydropunch sampling. The groundwater samples were submitted for analysis of nitroaromatic compounds, VOCs, SVOCs, PCBs, and inorganics. Inorganics from these samples were filtered. Turbidity was not measured for this sample. The pH value was slightly acidic (6.45 standard unit [SU]).

Nitroaromatics. Four nitroaromatics (total DNT, TNT, 3-NT, and 4-NT) were detected in the groundwater sample, but only DNT (13,800 µg/L) and TNT (50.9 µg/L) exceeded PRGs.

VOCs. Two VOCs, chloromethane and methylene chloride were detected in the groundwater sample below the associated PRGs.

SVOCs. Two nitroaromatics (2,4-DNT and 2,6-DNT) were reported under the SVOC analysis. 2,4-DNT was detected at 5,750 µg/L and 2,6-DNT was detected at 5,610 µg/L, both of which exceeded the PRG of 0.099 µg/L.

PCBs. PCBs were not detected in the groundwater confirmation sample.

Inorganics. Fourteen analytes were detected in the filtered groundwater sample, compared to 16 inorganics in the unfiltered groundwater sample, the differences between the two samples being chromium and vanadium. Manganese was the only metal to exceed its PRG value of 880 µg/L. Manganese values exceeded in both the filtered sample (2,060 µg/L) and the unfiltered sample (1,900 µg/L).

2.1.3 Building 192, DNT Sweating and Graining House

Approximately 1.5 feet of fill was observed during both the foundation excavation and soil sampling at this site. Ten samples (AA0066 through AA0072, and AA0159 through AA0161) were initially collected in areas adjacent to the building (Table 2-6 and Figure 2-5).

To confirm D&M historical sampling results and further define the horizontal extent of contamination, 16 delineation samples (AA0271 through AA0280 and AA0354 through AA0359) were collected. One subsurface screening sample (AA0385) was collected near sample AA0279 to determine depth of TNT, DNT, and 4A-2,6-DNT contamination. To verify screening results of borings AA0276 and AA0279, confirmation surface soil samples AA0449 and AA0450 were collected near these borings. No subsurface confirmation samples were collected. To investigate the groundwater, one temporary piezometer (GW07) was installed to a depth of 4 feet and a groundwater sample (AA3007) collected.

2.1.3.1 Screening Results

DNT was detected in 20 of the 27 surface and subsurface screening samples. Concentrations of DNT above the PRG level of 0.72 mg/kg were found in eight samples at concentrations ranging from 0.74 mg/kg in sample AA0161 to 1,027 mg/kg in AA0279.

Three screening samples from borings AA0272, AA0276, and AA0278 were collected at the historical borings drilled by D&M (TNTA-S24, TNTA-S25 and TNTA-S26) to confirm contamination. No nitroaromatic compounds were detected in sample AA0272. Analytical results from AA0276 and AA0278 detected total DNT and above PRGs (0.885 and 4.14, respectively) and 4A-2,6 DNT at concentrations below PRGs. Delineation points around historical boring TNTA-S26 detected 10 nitroaromatic compounds. In sample AA0277, nitroaromatics exceeding PRGs were TNT (138 mg/kg), DNT (996 mg/kg), and 4A-2,6-DNT (192 mg/kg). In sample AA0279, nitroaromatics exceeding PRGs were TNT (666 mg/kg), DNT (1,027 mg/kg), and 4A-2,6-DNT (933 mg/kg). In sample AA0280, DNT (54.9 mg/kg), and 4A-2,6-DNT (25.9 mg/kg) exceeded PRGs.

Bedrock was encountered at a shallow depth in all subsurface boring attempts (approximately 4 feet bgs) so only one subsurface screening soil sample was able to be collected. Boring A-385/386 was installed near boring AA0279 and the sample was collected at a depth of 2 to 4 feet bgs. Analytical results above the PRGs were TNT (798 mg/kg), 4A-2,6-DNT (758 mg/kg), and DNT (1,953 mg/kg).

2.1.3.2 Confirmation Results

2.1.3.2.1 Surface Soil

To confirm screening conclusions, two surface soil samples (AA0449 and AA0450) were submitted to the laboratory for analysis of nitroaromatic compounds, VOCs, SVOCs, PCBs, and

inorganics. Sample AA0449 was collected from a depth of 1.5 to 2.5 feet bgs near sample AA0276 (sample at the location of D&M boring TNTA-S25) and sample AA0450 was collected from a depth of 2 to 3 feet bgs near boring AA0279 (delineation sample for D&M boring TNTA-S26) (Table 2-2).

Nitroaromatics. Total DNT was the only nitroaromatic detected and it was detected in both samples. Total DNT was found at 0.411 mg/kg (below PRG) at a depth of 1.5 to 2.5 feet in sample AA0449 and at 199 mg/kg (above PRG) at a depth of 2 to 3 feet in sample AA0450.

VOCs. Two VOCs were detected in the 1.5 to 2.5 feet interval below the PRG level (acetone and methylene chloride) while three VOCs (acetone, methylene chloride, and toluene) were detected at the 2 to 3 feet interval, also below the PRG limit.

SVOCs. Two nitroaromatics were reported under the SVOC analysis in each surface soil sample. 2,4-DNT and 2,6-DNT were both below the PRG limit in AA0449 but above the limit in sample AA0450. In sample AA0450, 2,4 DNT was detected at 80.9 mg/kg and 2,6-DNT was 3,201 mg/kg, both of which greatly exceed the PRGs.

PCBs. One PCB, Aroclor-1260, was detected in both samples but at a concentration below the PRG limit.

Inorganics. A total of nineteen inorganics were detected in both soil samples. In sample AA0450 arsenic (1.17 mg/kg) was above the PRG level but below the PBOW background level. The concentration of lead (142 mg/kg) was detected above the established PBOW background concentration of 48.6 mg/kg.

2.1.3.2.2 Groundwater

Groundwater was encountered at a depth of 3.8 feet bgs in boring located at AA0476 and AA0477. The total depth of the boring was 4 feet bgs with refusal on shale bedrock. A temporary piezometer was installed to a total depth of 4 feet bgs. A groundwater sample (AA3007) was collected and submitted for analysis of nitroaromatic compounds, VOCs, SVOCs, PCBs, and total inorganics (Table 2-3). Water quality measurements were not recorded for this sample due to the small volume of water collected.

Nitroaromatics. Four nitroaromatics (2A-4,6-DNT, 4A-2,6-DNT, total DNT, and TNT) were detected in the groundwater sample but total DNT (0.526 μg/L) was the only nitroaromatic above its PRG of 0.099 μg/L.

VOCs. Two VOCs, carbon disulfide, and methylene chloride were detected in the groundwater sample below the associated PRG limit.

SVOCs. One SVOC, di-n-butyl phthalate (1.79 μg/L) was detected in the groundwater sample but was below the PRG of 3,600 μg/L.

PCBs. PCBs were not detected in the groundwater confirmation sample.

Inorganics. A total of fifteen inorganics were detected in the groundwater sample. Iron and manganese were reported at 15,400 and 2,560 μg/L, respectively. Both of these detections exceeded their respective PRGs.

2.1.4 Building 195, DNT Nitrating Building

Up to approximately 1 ft of fill was observed during the excavation of the building foundation and up to 2 feet of fill was observed during the soil sampling. Seven surface screening samples (AA0009 through AA0015) were initially collected around the foundation of this building and were followed by 10 delineation samples (AA0243 through AA0252) (Table 2-7 and Figure 2-6).

Only one subsurface screening sample was able to be collected (AA0387, 4 to 6 feet bgs) due to direct-push rod refusal at approximately 7 feet.

2.1.4.1 Screening Results

A total of 9 surface screening samples had reportable concentrations of nitroaromatics. Of these 9 samples, only sample AA0012 and AA0015 contained nitroaromatics that exceeded the PRG limit. In sample AA0012, total DNT was detected at 514 mg/kg. In sample AA0015, total DNT was detected at 0.87 mg/kg.

The subsurface soil sample (AA0378), collected from 4 to 6 feet bgs, showed detections of 1,3,5-TNB, TNT, 4A-2,6-DNT, 4-NT, and DNT. Of these explosive compounds, TNT (229 mg/kg), 4A-2,6-DNT (221 mg/kg), and DNT (197 mg/kg) exceeded the PRG.

2.1.4.2 Confirmation Results

2.1.4.2.1 Surface Soil

To confirm screening conclusions, one surface soil confirmation sample (AA0426), along with two QA/QC samples were collected near boring AA0012. The samples were submitted to the laboratory for analysis of nitroaromatic, VOCs, SVOCs, PCBs, and inorganics.

Nitroaromatics. Six nitroaromatics (DNT, nitrobenzene [NB], 3-NT, 4-NT, 1,3,5-TNB, and TNT) were detected in the 2 to 3 feet bgs sample but only DNT and TNT exceeded the PRGs. Total DNT was found at 2,708 mg/kg (above the 0.72 mg/kg PRG) and TNT was found at 259 mg/kg (above the 16 mg/kg PRG).

VOCs. Two VOCs, acetone and methylene chloride were detected in the soil sample at concentrations below PRGs.

SVOCs. Both nitroaromatics 2,4-DNT (8,912 mg/kg) and 2,6-DNT (10,274 mg/kg), were found as SVOC parameters in sample AA0426. Both analytes were above the PRG level of 0.72 mg/kg.

PCBs. One PCB (Aroclor-1260) was detected at a concentration of 0.357 mg/kg above the PRG of 0.22 mg/kg.

Inorganics. A total of eighteen inorganics were detected in the surface soil sample but only arsenic (14.4 mg/kg) and iron (25,300 mg/kg) exceeded the PRGs. The PBOW background value for arsenic and iron was not exceeded. Lead, at a concentration of 65.9 mg/kg, was found to be greater than the PBOW background value of 48.6 mg/kg.

2.1.4.2.2 Subsurface Soil

One subsurface confirmation sample (AA0460 at 4 to 6 feet bgs) was also collected near sample AA0012. The sample was submitted to the laboratory for analysis of nitroaromatic compounds, VOCs, SVOCs, PCBs, and inorganics.

Nitroaromatics. Two nitroaromatics (total DNT and TNT) were detected in the subsurface sample. Total DNT was found at 195 mg/kg and TNT was found at 104 mg/kg, both exceeding the PRGs.

VOCs. Three VOCs, acetone, carbon disulfide, and methylene chloride were detected in the soil sample, but all were below PRGs.

SVOCs. Both nitroaromatics 2,4-DNT (47.7mg/kg) and 2,6-DNT (96.9 mg/kg) were reported under the SVOC analysis in sample AA0460. Both analytes were above the PRG level of 0.72 mg/kg.

PCBs. PCBs were not detected in the subsurface soil sample.

Inorganics. A total of eighteen inorganics were detected in the subsurface soil sample with arsenic (20.3 mg/kg) and iron (44,800 mg/kg) exceeding allowable PRG levels. As compared to PBOW background values, neither exceeded the established concentration.

2.2 Wastewater Settling Tanks

2.2.1 Building 187, Wastewater Settling Tanks

Approximately 0.5 ft of fill was observed during excavation of the foundation walls for the Settling Tank. During sampling, approximately 0.5 to 2.0 feet was observed. Eleven surface screening samples (AA0147 through AA0157) were collected from the Settling Tank area. In addition, one sample (AA0158) was collected from the drainage ditch where historical D&M boring TNTA-S32 was completed (Table 2-8 and Figure 2-7).

2.2.1.1 Screening Results

Five nitroaromatic compounds were detected in four surface screening samples (AA0148, AA0149, AA0151, and AA0153). These nitroaromatics were also detected at low levels (i.e., less than 1 mg/kg and below the associated PRG).

2.2.1.2 Confirmation Results

No confirmation soil samples were collected at this location due to limited contamination detected in the field screening.

2.3 Process Line 1 Analytical Results

2.3.1 Building 111, Mono House

Approximately 0.5 ft of fill was observed during excavation of the building foundation. Four samples (AA0108 through AA0111) were collected during Phase I of the soil investigation from 0.5 to 1.5 feet bgs (Table 2-9, Figure 2-8).

Three additional samples (AA0305, AA0306, AA0307) were collected as delineation samples from locations near boring AA0111, sample AA0405 was collected downgradient of the Drowning Tank, and sample AA0406 was collected at the former drowning tank location. Surface soil screening sample AA0314 was collected at a depth of 0 to 1 feet bgs in boring AA0111 to investigate if DNT contamination was present above collected sample AA0111 (1 to 2 feet).

Due to the fact that DNT was detected above the PRG in both the 0 to 1 ft and 1 to 2 feet samples at boring AA0111, one boring was advanced near AA0111 and two subsurface screening samples (AA0361, 4 to 6 feet bgs; AA0362, 8 to 10 feet bgs) were collected.

For confirmation of screening results, one surface soil (AA0441) and two subsurface soil (AA0468 and AA0469) confirmation samples were collected along with two QA/QC samples. A groundwater sample (AA3001) was collected from this boring. To investigate the groundwater, one temporary piezometer (GW01) was installed near the confirmation boring to a total depth of 9.4 feet.

2.3.1.1 Screening Results

Five explosive compounds (1,3,5-TNB, 2A-4,6-DNT, 4A-2,6-DNT, DNT, and TNT) were detected during the Phase I screening analysis in three of the four samples collected. However, only DNT exceeded the PRG of 0.72 mg/kg with a concentration of 1.24 mg/kg in sample AA0111.

Delineation sample AA0305 had reportable concentrations of nitroaromatics (TNT, DNT, 2A-4,6-DNT and 4A-2,6-DNT) but only DNT at a concentration of 0.74 mg/kg marginally exceeded the PRG. Screening samples AA0405 and AA0406, collected at the location of the former Drowning Tank, detected five nitroaromatics. Sample AA0406 exhibited DNT at a concentration of 2.65 mg/kg above the PRG level.

Subsurface screening sample AA0361 (collected 4 to 6 feet bgs at surface sample AA0111) detected eight different nitroaromatics but only total DNT (12 mg/kg) exceeded the PRG. Subsurface screening sample AA0362 (collected 8 to 10 feet bgs) had only 2-NT and 4-NT reported at concentrations below PRGs.

2.3.1.2 Confirmation Results

2.3.1.2.1 Surface Soil

One surface soil confirmation sample (AA0441) was collected near boring AA0111 at a depth of 1 to 2 feet bgs. A summary of analytes detected is presented in Table 2-2.

Nitroaromatics. No nitroaromatics were detected in the surface soil sample.

VOCs. Three VOCs, acetone (0.058 mg/kg), 2-butanone (0.010 mg/kg), and methylene chloride (0.004 mg/kg) were detected in the soil sample but at concentrations below PRG levels.

SVOCs. SVOCs were not detected in the surface soil sample.

PCBs. One PCB (Aroclor-1260) was detected at a concentration of 0.133 mg/kg, below the PRG of 0.22 mg/kg.

Inorganics. A total of twenty inorganics were detected in the surface soil sample but only arsenic (4.11 mg/kg) exceeded the PRGs. Lead exhibited a concentration of 122 mg/kg exceeding the established PBOW background concentration of 48.6 mg/kg.

2.3.1.2.2 Subsurface Soil

Two subsurface confirmation samples (AA0468, 4 to 6 feet bgs; AA0469, 8 to 10 feet bgs) were collected near sample AA0111.

Nitroaromatics. Seven nitroaromatics were detected in the 4 to 6 feet sample (AA0468), however, only total DNT was detected above the PRG at a concentration of 3.14 mg/kg. In sample AA0469, collected 8 to 10 feet bgs, three nitroaromatics were detected but at concentrations below their respective PRGs.

VOCs. Two VOCs, methylene chloride, and toluene were detected in the 4 to 6 ft subsurface sample (AA0468). Four VOCs (acetone, carbon disulfide, methylene chloride, and toluene) were found in the 8 to 10 ft sample (AA0469). Concentrations of VOCs from both intervals were below their respective PRGs.

SVOCs. Three SVOCs (bis[2-ethylhexyl]phthalate, 2,4-DNT, and 2,6-DNT) were detected in the 4 to 6 ft soil sample but at concentrations below PRG levels. No SVOCs were detected in sample AA0469 from the 8 to 10 feet bgs.

PCBs. One PCB (Aroclor-1260) was detected in sample AA0468 at a concentration of 0.013 mg/kg below the PRG. No PCBs were detected in sample AA0469.

Inorganics. A total of eighteen inorganics were detected in the subsurface soil sample AA0468 and 18 inorganics were detected in sample AA0469. Arsenic was the only metal to exceed the PRG limit of 0.39 mg/kg with concentrations of 4.23 mg/kg in sample AA0468 and 3.27 mg/kg in sample AA0469. Neither of the samples exceeded the PBOW background value of 36.5 mg/kg.

2.3.1.2.3 Groundwater

A groundwater sample (AA3001) was collected from the temporary piezometer GW01 at the same location as subsurface samples AA0468 and AA0469). Groundwater was encountered in the boring at 6 feet bgs and the piezometer was installed to a total depth of 9.4 feet. The groundwater sample was not filtered nor could water quality measurements be recorded, due to the small volume of water collected from the piezometer.

Nitroaromatics. Four nitroaromatics (DNT and 3-NT isomers) were detected in the groundwater sample with DNT (14.5 µg/L), 2-NT (129 µg/L), and 4-NT (86.3 µg/L) reported at concentrations above the PRGs.

VOCs. Seven VOCs, benzene, carbon disulfide, ethylbenzene, methylene chloride, toluene, and two xylene isomers were detected in the groundwater. Benzene (4.81 µg/L) and toluene (1,350 µg/L) were above PRG limits of 0.41 µg/L and 720 µg/L respectively.

SVOCs. Both nitroaromatics 2,4-DNT (957 µg/L) and 2,6-DNT (377 µg/L) were found as SVOC parameters in groundwater sample AA3001. Both analytes were above the PRG level of 0.099 µg/L.

PCBs. PCBs were not detected in the groundwater confirmation sample.

Inorganics. A total of nineteen inorganics were detected in the groundwater sample with five exceeding PRG limits. Aluminum was found at 48,600 µg/L, arsenic at 52.7 µg/L, iron at 78,700 µg/L, lead at 566 µg/L, and manganese was recorded at 7,050 µg/L.

2.3.2 Building 112, Bi-Tri House

Approximately 0.8 to 3 feet of fill was observed during excavation of the building foundation and during subsequent soil sampling around the building. Ten samples (AA0123 through AA0132) were collected during Phase I of the soil investigation from depths between 1.5 and 4 feet bgs).

Based on the initial findings, delineation screening samples (AA0253 through AA0259, AA0407 through AA0409, AA0487, and AA0488) were collected approximately 10 feet from samples exceeding PRGs. In addition, three 0 to 1 ft soil samples (AA0323, AA0324, and AA0325) were collected from sample locations AA0123, AA0126, and AA0128 to investigate soil quality at the current ground surface (Table 2-10, Figure 2-9).

Because both DNT and TNT were above the PRGs in the surface soil samples at AA0128 (boring north of former drowning tank), one boring was advanced and two subsurface soil samples (AA0363, 4 to 6 feet bgs; AA0364, 8 to 10 feet bgs) were collected.

To confirm screening results and TNT detections, two surface soil confirmation samples along with QA/QC samples and a split sample (AA0444) were collected from Building 112. In addition, one soil boring was advanced near AA0128 and two subsurface soil samples were collected. A temporary piezometer (GW02) was installed near sample AA0128 to a total depth of 14.9 feet and ground sample AA3002 was collected.

2.3.2.1 Screening Results

Of the 32 samples collected at Building 112, 26 detected nitroaromatic compounds and eight of the 26 contained explosive compounds at concentrations exceeding PRGs. Three surface

screening samples (AA0123, AA0126, and AA0128) were collected at depths of 1.5 to 4 feet and each exceeded PRGs. The highest concentration of nitroaromatics was detected in sample AA0128 with TNT detected at a concentration of 1,298 mg/kg and total DNT detected at a concentrations of 865 mg/kg. Samples AA0126 and AA0128 are located in close proximity to the former Drowning Tank.

Delineation samples AA0254, AA0255, and AA0409 located east of the former Drowning Tank, had nitroaromatics detected at concentrations above PRGs. In sample AA0254, TNT (284 mg/kg), 2A-4,6-DNT (3.64 mg/kg) and 4A-2,6-DNT (4.81 mg/kg) exceeded PRGs. In samples AA0255 and AA0409, only TNT exceeded the PRG at concentrations of 20.1 mg/kg and 29.3 mg/kg, respectively.

Surface soil sample AA0325, collected 0 to 1 foot bgs near AA0128, showed nitroaromatics above the PRG levels in TNT (558 mg/kg), 2A-4,6-DNT (12.4 mg/kg), 4A-2,6-DNT (12.6 mg/kg), and DNT (15.6 mg/kg).

Subsurface soil samples collected from a boring north of the former drowning tank (samples AA0363 from 4 to 6 feet bgs and AA0364 from 8 to 10 feet bgs), each detected at least six nitroaromatics; however, only TNT (64.4 mg/kg) exceeded the PRG in the 4 to 6 ft sample.

2.3.2.2 Confirmation Results

2.3.2.2.1 Surface Soil

Sample AA0442 was collected near boring AA0123 at a depth of 2 to 3 feet. Surface soil sample AA0445, also near boring AA0128, was collected from a depth of 1.5 to 2.5 feet. A summary of analytes detected is presented in Table 2-2.

Nitroaromatics. Nitroaromatics were not detected in the surface soil sample AA0442. In sample AA0445, three nitroaromatics (2A-4,6-DNT, 4A-2,6-DNT, and TNT) were detected but at concentrations below PRGs.

VOCs. Three VOCs, acetone, carbon disulfide, and methylene chloride were detected in surface soil sample AA0442 and two VOCs were detected in sample AA0445. All concentrations were below PRG values.

SVOCs. SVOCs were not detected in either surface soil sample.

PCBs. One PCB (Aroclor-1260) was above the PRG value (0.22 mg/kg) in sample AA0442 at a concentration of 0.507 mg/kg. Aroclor-1260 was also detected in sample AA0445 but was below the PRG.

Inorganics. A total of nineteen inorganics were detected in surface soil sample AA0442 and seventeen inorganics were detected in sample AA0445. Arsenic was above the PRG value in both samples with a concentration of 3.71 mg/kg in sample AA0442 and 2.21 mg/kg in AA0445. The PBOW background value for arsenic was not exceeded in either sample. Lead, at a concentration of 115 mg/kg, exceeded the PBOW background value of 48.6 mg/kg in sample AA0442.

2.3.2.2.2 Subsurface Soil

One soil boring was advanced near AA0128 and two subsurface confirmation samples (AA0470 and AA0471) were collected at 4 to 6 ft and 8 to 10 ft bgs, respectively.

Nitroaromatics. Seven nitroaromatics were detected in the subsurface soil sample AA0470 and eight in sample AA0471. Only one nitroaromatic in both samples (4A-2,6-DNT) exceeded the PRG.

VOCs. Three VOCs, acetone, carbon disulfide, and methylene chloride were detected in each subsurface sample. All reported concentrations were below their respective PRGs.

SVOCs. Only two SVOCs (2,4-DNT and 2,6-DNT) were detected in the subsurface soil samples, both in sample AA0471. Only 2,4-DNT was found to be above the PRG reported at a concentration of 0.831 mg/kg.

PCBs. One PCB (Aroclor-1260) was detected in subsurface sample AA0470 at a concentration of 0.0448 mg/kg below the PRG of 0.22 mg/kg.

Inorganics. A total of eighteen inorganics were detected in sample AA0470 and seventeen were detected in sample AA0471. Arsenic was above the PRG level in both samples with concentrations of 2.34 mg/kg in AA0470 and 7.59 mg/kg in AA0471. Both samples were below the established background concentration for arsenic of 36.5 mg/kg.

2.3.2.2.3 Groundwater

A temporary piezometer (GW02) was installed at the location of AA0128, and a groundwater sample (AA3002) was collected to determine if site activities had impacted the groundwater. The temporary piezometer was installed to a depth of 14.9 feet. The groundwater sample was submitted for the analysis of nitroaromatics, VOCs, SVOCs, PCBs, and total and dissolved inorganics. The turbidity measurement of the sample was 0 NTU and pH value was 7.40 SUs.

Nitroaromatics. Four nitroaromatics (2A-4,6-DNT, 4A-2,6-DNT, 1,3,5-TNB, and TNT) were detected in the groundwater sample. Three of these, 2A-4,6-DNT (16.1 µg/L), 4A-2,6-DNT (28.9 µg/L), and TNT (137 µg/L) exceeded their respective PRGs.

VOCs. Methylene chloride was the only VOC detected but it was at a concentration below the PRG.

SVOCs. Only one SVOC (2,4-DNT at 3.29 µg/L) was detected in the groundwater sample, exceeding the PRG of 0.099 µg/L.

PCBs. PCBs were not detected in the groundwater sample.

Inorganics. Ten filtered analytes were detected in the groundwater sample compared to 17 non-filtered inorganics. Arsenic, beryllium, cobalt, lead, nickel, vanadium, and zinc were detected in the non-filtered sample but not in the filtered sample. Arsenic, iron, lead, and manganese exceeded allowable PRG limits in only the unfiltered groundwater sample. Arsenic was detected at a concentration of 30.6 µg/L, iron at 67,100 µg/L, lead at 63.7 µg/L, and manganese at 1,910 µg/L.

2.3.3 Building 113, Fortifier House

Approximately 2.5 to 3 feet of fill was observed around this foundation during excavation and sampling. Six surface soil samples (AA0117 through AA0122) were collected during Phase I of the soil investigation. Sampling depths ranged from 1 to 4 feet. Based on the analytical results of the screening samples (detection of TNT), one additional surface soil (0 to 1 ft) sample (AA0322) was collected from the location of boring AA0121 (Table 2-11, Figure 2-10).

Based on the surface soil detection of TNT in sample AA0121 northeast of the former drowning tank, one boring was advanced and two subsurface samples (AA0365, 4 to 6 feet bgs; and AA0366, 8 to 10 feet bgs) were collected.

2.3.3.1 Screening Results

Nitroaromatics were detected in two of the samples (AA0120 and AA0121) at concentrations below PRGs. In sample AA0120, 2A-4,6-DNT and 4A-2,6-DNT were detected at concentrations below 1 mg/kg. In sample AA0121, 2A-4,6-DNT, 4A-2,6-DNT, 3-NT and TNT were detected. Only 4A-2,6-DNT and TNT exceeded 1 mg/kg (1.05 mg/kg and 10.4 mg/kg, respectively).

No reportable concentrations of nitroaromatics were detected in surface soil sample AA0322. Subsurface soil samples AA0365 and AA0366 had detections of nitroaromatics below the PRGs. In sample AA0365, four nitroaromatics (2A-4,6-DNT, 4A-2,6-DNT, DNT, and TNT) were detected. Two nitroaromatics (DNT and TNT) were detected in sample AA0366.

2.3.3.2 Confirmation Results

No confirmation soil samples were collected at this location due to lack of contamination.

2.3.4 Building 116, Wash House

Approximately 0.1 to 1 ft of fill was observed around this foundation during excavation and sampling. Fourteen surface soil screening samples (AA0189 through AA0202) were collected during Phase I of the soil investigation. Sampling depths ranged from 0.0 to 1 ft (Table 2-12, Figure 2-11).

To further define the wash house perimeter and determine if nitroaromatic contamination was present, two additional surface screening soil samples (AA0410 and AA0411) were collected.

Based on the detection of TNT in surface soil sample AA0201 and similar locations of nitroaromatic detections at other wash houses, one boring was advanced and two subsurface screening samples (AA0403 and AA0404) were collected for screening analysis.

For confirmation of screening results, one surface soil confirmation sample (AA0446) was collected near boring AA0196 and two subsurface soil confirmation samples (AA0472 and AA0473) were collected near sample AA0201. In addition, one temporary piezometer (GW04)

was installed to a total depth of 17.6 feet and groundwater sample (AA3004) was collected to determine the groundwater quality. The location of the subsurface samples and the groundwater sample were based on the screening results from this building and other Wash Houses at the TNT areas.

2.3.4.1 Screening Results

Four different nitroaromatic compounds (NB, TNT, 2A-4,6-DNT, and 4A-2,6-DNT) were detected in 7 surface soil screening samples but none of the results were above PRG values. Concentrations above 1 mg/kg were TNT in sample AA0201 (1.3 mg/kg), 2A-4,6-DNT in AA0196 (1.06 mg/kg), and 2A-4,6-DNT in AA0410 (1.11 mg/kg).

Nitroaromatic compounds TNT, DNT, 2A-4,6-DNT, and 4A-2,6-DNT were detected in the two subsurface screening samples. Subsurface sample AA0403 (4 to 6 feet) exhibited no nitroaromatics above PRG values but 2A-4,6-DNT (12.5 mg/kg) and 4A-2,6-DNT (7.13 mg/kg) exceeded the PRG in the sample (AA0404) collected from 8 to 10 feet bgs.

2.3.4.2 Confirmation Results

2.3.4.2.1 Surface Soil

One surface soil confirmation sample (AA0446) was collected near sample AA0196 from a depth of 1 to 2 feet. A summary of analytes detected is presented in Table 2-2.

Nitroaromatics. Only total DNT was detected at 0.188 mg/kg and it was below the PRG.

VOCs. Three VOCs, acetone, carbon disulfide, and methylene chloride were detected in the surface soil sample; however, the concentrations detected were at least two orders of magnitude below their respective PRGs.

SVOCs. Benzo(a)pyrene was the only SVOC detected at a concentration of 0.042 mg/kg below the associated PRG.

PCBs. One PCB (Aroclor-1260 at 0.009 mg/kg) was detected at a concentration below the PRG.

Inorganics. A total of eighteen inorganics were detected in the surface soil sample. Arsenic was detected at a concentration of 8.59 mg/kg above the PRG of 0.39 mg/kg but below the PBOW background value of 36.5 mg/kg.

2.3.4.2.2 Subsurface Soil

Because the 8 to 10 feet interval in screening sample AA0404 exhibited nitroaromatics compounds above PRG limits, confirmation soil samples AA0472, 4 to 6 feet bgs; AA0473, 8 to 10 feet bgs were collected from a boring near AA0201.

Nitroaromatics. Three nitroaromatics were detected sample AA0472 (2A-4.6-DNT, 4A-A2,6-DNT, and TNT) and two nitroaromatics were detected in sample AA0473 (DNT and TNT). All concentrations reported were less than 0.50 mg/kg and were also below PRGs.

VOCs. Two VOCs, acetone, and methylene chloride were detected in sample AA0472 and three VOCs (benzene, methylene chloride, and toluene) were detected in sample AA0473. Concentrations of VOCs in both samples were below PRG values.

SVOCs. No SVOCs were detected in either subsurface sample.

PCBs. No PCBs were detected in either subsurface sample.

Inorganics. A total of eighteen inorganics were detected in the subsurface soil sample AA0472 and 17 inorganics were detected in sample AA0473. Arsenic was the only metal to exceed the PRG limit of 0.39 mg/kg with concentrations of 3.03 mg/kg in sample AA0472 and 7.31 mg/kg in sample AA0473. Neither sample exceeded the PBOW background value of 36.5 mg/kg.

2.3.4.2.3 Groundwater

Groundwater was encountered in subsurface screening boring near AA0201 at 3 feet. However, during confirmation sample collection of samples AA0472 and AA0473 at this location, only a perched water zone was encountered. The perched water was found at a depth of 3.5 feet and direct-push rod advancement continued to a total depth of 19.5 feet. A temporary piezometer (GW04) was installed into the borehole and a groundwater sample (AA3004) was collected to determine if site activities had impacted the groundwater. The groundwater sample was submitted for the analysis of nitroaromatics, VOCs, SVOCs, PCBs, and total and dissolved

inorganics. The turbidity measurement of the sample was recorded at >999 NTU with a pH value of 7.53 SUs.

Nitroaromatics. Four nitroaromatics (4A-2,6-DNT, 2A-4,6-DNT, 2-NT, and TNT) were detected in the groundwater sample. 2A-4,6-DNT was detected at a concentration of 139 µg/L, 4A-2,6-DNT was detected at 201 µg/L, and TNT was detected at a concentration of 157 µg/L, all of which exceeded PRGs. In addition, 12-NT was detected but at a concentration (0.599 µg/L) below PRGs.

VOCs. One VOC, methylene chloride, was detected in the groundwater sample but was below the PRG limit of 4.3 µg/L.

SVOCs. One SVOC, di-n-butyl phthalate (11.6 µg/L) was detected in the groundwater sample but was below the PRG limit of 3,600 µg/L.

PCBs. No PCBs were detected in the groundwater confirmation sample.

Inorganics. A total of nineteen inorganics were detected in the groundwater sample. Arsenic (8.04 µg/L), iron (22,800 µg/L), lead (50.5 µg/L), and manganese (1,430 µg/L) were above the associated PRG level.

2.3.5 Building 119, Acid and Fume Recovery

Approximately 1 ft of fill was observed during excavation of the building foundation and up to 2.5 feet of fill was observed during soil sampling around the building. Six surface soil samples (AA0102 through AA0107) were collected during Phase I of the soil investigation. Sampling depths ranged from 2 to 2.5 feet bgs (Table 2-13, Figure 2-12).

Based on the analytical findings, ten additional soil samples (AA0281 through AA0290) were collected to delineate the DNT contamination reported in the initial sampling results. In addition, five surface soil (0 to1 ft) samples (AA0315, AA0316, AA0317, AA0318, and AA0412) were collected from the locations exceeding the PRG for DNT (i.e., AA0103, AA0105, AA0106, AA0107, and AA0288).

For further delineation of the horizontal contamination, ten screening samples AA0413 through AA0417 and AA0482 through AA0486 were collected around delineation borings.

Based on the detection of DNT in surface soil sample AA0105 and the probability of deeper DNT nitroaromatic contamination, one boring was installed and two subsurface samples (AA0367, 4 to 6 feet bgs; AA0368, 8 to 9 feet bgs) were collected.

To confirm screening analytical results and verify DNT detections in samples, one surface soil confirmation sample (AA0440) and one subsurface soil sample (AA0466, 4 to 6 feet bgs) were collected from a boring near sample AA0105. Also, during confirmation soil sample collection, one temporary piezometer (GW05) was installed to a total depth of 7 feet, a groundwater sample (AA3003) was collected near this boring.

2.3.5.1 Screening Results

Five of the six initial samples collected had detectable concentrations of nitroaromatics with four samples (AA0103, AA0105, AA0106, and AA0107) exceeding the PRG of 0.72 mg/kg for DNT. Total DNT in these four samples ranged in concentration from 0.856 to 21 mg/kg. Six other nitroaromatics were also detected in these samples but at concentrations below PRGs.
Of the ten delineation samples, AA0284, AA0285, AA0288, AA0415, and AA0416 exhibited DNT concentrations greater than the PRG. Total DNT concentrations ranged from 1.21 to 8.14 mg/kg. Total DNT also exceeded the PRG in one surface (0 to 1 ft bgs) soil sample (AA0315 at 4.21 mg/kg).

Ten nitroaromatics were detected in subsurface sample AA0367 (collected 4 to 6 feet bgs) with 5 (2A-4,6-DNT, 4A-2,6-DNT, o-nitrotoluene, p-nitrotoluene, and DNT) exceeding the PRG limits. Total DNT was found at a concentration of 689 mg/kg. Nitroaromatic concentrations decreased with depth with nine nitroaromatic contaminants detected in sample AA0368 (8 to 9 feet bgs). Four nitroaromatics (2A-4,6-DNT, 4A-2,6-DNT, o-nitrotoluene, and DNT) exceeded PRGs with Total DNT being the highest concentration detected at 258 mg/kg.

2.3.5.2 Confirmation Results

2.3.5.2.1 Surface Soil

To confirm screening analytical results and the nitroaromatic detections (seven nitroaromatics detected with DNT exceeding the PRG limit), one surface soil confirmation sample (AA0440) was collected near boring AA0105 from a depth of 2 to 3 feet. A summary of analytes detected is presented in Table 2-2.

Nitroaromatics. Six nitroaromatics were detected in the 2 to 3 feet bgs sample but only 4A-2,6-DNT, DNT, and TNT were above the PRGs. 4A-2,6-DNT was detected at a concentration of 9.91 mg/kg, total DNT at 275 mg/kg, and 2,4,6-TNT at 21mg/kg.

VOCs. Two VOCs, acetone, and methylene chloride were detected but at concentrations below their PRG limit.

SVOCs. One nitroaromatic (2,6-DNT) in sample AA0440 was detected in the SVOC analysis at a concentration of 61.8 mg/kg, above the PRG of 0.72 mg/kg.

PCBs. One PCB (Aroclor-1260) was detected above the PRG limit at a concentration of 5.55 mg/kg in sample AA0440.

Inorganics. A total of twenty inorganics were detected in the surface soil sample but only arsenic (5.89 mg/kg) exceeded the PRG. Only lead (1,660 mg/kg) in sample AA0440 exceeded the established PBOW background concentration.

2.3.5.2.2 Subsurface Soil

One subsurface soil sample (AA0466, 4 to 6 feet bgs) was collected from a boring near AA0105. Due to auger refusal at 7 feet bgs, a deeper sample could not be collected.

Nitroaromatics. Seven nitroaromatics were detected in the 4 to 6 ft sample (sample AA0466), five of which (2A-4,6-DNT, 4A-2,6-DNT, total DNT, 2-NT, and 4-NT) exceeded the PRGs. 2A-4,6-DNT was detected at a concentration of 33.6 mg/kg, 4A-2,6-DNT at 10.6 mg/kg, total DNT at 356 mg/kg, 2-NT at 582 mg/kg, and 4-NT at 484 mg/kg.

VOCs. Two VOCs, acetone (0.044 mg/kg), and methylene chloride (0.003 mg/kg) were detected the subsurface sample but were below PRGs.

SVOCs. Both nitroaromatics, 2,4-DNT (30.2 mg/kg) and 2,6-DNT (5.01 mg/kg), were reported in the SVOC analysis in sample AA0466. Both analytes were above the PRG level of 0.72 mg/kg.

PCBs. One PCB (Aroclor-1260 at 0.113 mg/kg) was detected in the subsurface sample but was below the PRG.

Inorganics. A total of twenty inorganics were detected in the subsurface soil sample AA0466 and two inorganics were above allowable standards. Arsenic was above the PRG unit (0.39 mg/kg) with a concentration of 12.6 mg/kg and lead was above background limits (48.6 mg/kg) with a concentration of 257 mg/kg.

2.3.5.2.3 Groundwater

Groundwater was not encountered in the subsurface soil screening boring completed near AA0105 but a temporary piezometer (GW03) was installed during confirmation soil sample collection to a total depth of 7 feet. Groundwater sample AA3003 was collected to determine if site activities had impacted the groundwater. The sample was analyzed for nitroaromatics, VOCs, SVOCs PCBs, and total inorganics. The turbidity measurement of the sample was recorded at 415 NTU with a pH value of 7.43 SUs.

Nitroaromatics. Six nitroaromatics (1,3- nitrobenzene [DNB], total DNT, NB, and 3-NT isomers) were detected in the groundwater sample. Five nitroaromatics DNT (771 µg/L), NB (5.37 µg/L), 2-NT (2510 µg/L), 3-NT (190 µg/L), and 4-NT (1880 µg/L) were above PRG values.

VOCs. Three VOCs, disulfide (0.79 µg/L), methylene chloride (0.94 µg/L), and toluene (5.24 µg/L) were detected below PRGs.

SVOCs. Both 2,4-DNT (218 µg/L) and 2,6-DNT (50.8 µg/L) were reported in the SVOC analysis in groundwater sample AA3003 along with di-n-butyl phthalate (10.1 µg/L). Both nitroaromatic analytes were above the PRG level of 0.099 µg/L, while di-n-butyl phthalate was below the PRG of 3600 µg/L.

PCBs. One PCB (Aroclor-1260) was detected in the groundwater sample at a concentration of 0.239 µg/L above the PRG of 0.034 µg/L.

Inorganics. A total of twenty inorganics were detected in the unfiltered groundwater sample with four exceeding PRGs. Arsenic was detected at a concentration of 16 µg/L, iron at 22,500 µg/L, lead at 1,010 µg/L, and manganese was recorded at 1,480 µg/L.

2.4 Process Line 2 Analytical Results

2.4.1 Building 121, Mono House

The present NASA administration building is constructed over the location of the former Building 121. The foundation of the structure and other building remains are believed to have been removed during construction.

2.4.1.1 Screening Results

No screening samples were collected for this site.

2.4.1.2 Confirmation Results

No confirmation samples were collected for this site.

2.4.2 Building 122, Bi-Tri House

The location of Building 122 is approximately 70 feet northeast of the NASA administration building in the mown lawn. No excavation was conducted to identify the former building foundation because of its close proximity to the NASA building and location of underground utilities. This interpretation is based on the excavations completed at Building 185 (DNT Nitrating Building). At Building 185, the foundation could not be located and is suspected to have been removed during construction activities.

Eight surface soil-screening samples (AA0168 through AA0175) were collected from a depth of 0 to 1 ft bgs at the estimated location of this former building (Table 2-14, Figure 2-13).

2.4.2.1 Screening Results

From the eight screening samples, only one nitroaromatic (nitrobenzene at 0.16 mg/kg) was detected in one sample from the building.

2.4.2.2 Confirmation Results

No confirmation soil samples were collected at this location due to lack of contamination.

2.4.3 Building 123, Fortifier House

Excavation of the building foundation could not be completed at this site due to the presence of underground utilities (communication lines for United States Coast Guard antenna). It is likely

that the foundation for this building was also removed during construction of the NASA Engineering Building. This interpretation is based on the excavations completed at Building 185 (DNT Nitrating Building). At Building 185, the foundation could not be located and is suspected to have been removed during construction activities.

Six surface soil samples (AA0162 through AA0167) from 0 to 1 ft bgs were collected at Building 123 (Table 2-15, Figure 2-14).

2.4.3.1 Screening Results

Nitroaromatics were detected in five of the samples. Detected concentrations only exceeded 1 mg/kg in one sample (AA0167) and for 2A-4,6-DNT (1.69 mg/kg) and 4A-2,6-DNT (1.01 mg/kg).

2.4.3.2 Confirmation Results

No confirmation soil samples were collected at this location due to lack of contamination.

2.4.4 Building 126, Wash House

Fill material at this building ranged from 0 to 3 feet during excavation and sampling. Fourteen soil samples (AA0203 through AA0216) were collected during Phase I of the soil investigation. Sampling depths ranged from 0.0 to 3 ft.

Based on the analytical findings, fifteen additional soil samples (AA0260 through AA0270, AA0419, and AA0421 through AA0423) were collected to delineate the contamination. In addition, three surface soil (0 to 1 ft) samples (AA0418, AA0420, and AA0424) were collected from the locations exceeding the PRG limit (Table 2-16, Figure 2-15).

Based on the detection of TNT at two surface soil sampling localities (AA0261 and AA0263), one soil boring was installed near each surface sample and a total of four subsurface samples were collected. Near soil sample AA0261, subsurface soil samples AA0369; 4 to 6 feet bgs and AA0370; 8 to 10 feet bgs were collected. Likewise, near soil boring AA0263; subsurface soil sample AA0371; 4 to 6 feet bgs and AA0372; 8 to 10 feet bgs were collected.

To confirm the screening analytical detections of TNT and other nitroaromatics, two surface soil confirmation samples (AA0447 near boring AA0261 and AA0448 near boring AA0263) were collected. Two subsurface soil confirmation samples were collected from a boring completed

near AA0261 (AA0474, 4 to 6 feet bgs; AA0475, 8 to 10 feet bgs). In addition, one groundwater sample (AA3006) was collected from a temporary piezometer (GW06) along with associated QA/QC samples from this location.

2.4.4.1 Screening Results

Seven samples (AA0203, AA0205, AA0207, AA0208, AA0210, AA0212 and AA0213) had detections of one or more nitroaromatics. However, only samples AA0203 and AA0205 had nitroaromatics exceeding 1 mg/kg. In sample AA0203, 2,4,6-TNT was detected at 1.44 mg/kg, 2A-4,6-DNT was detected at 0.89 mg/kg and 4A-2,6-DNT was detected at 0.74 mg/kg. In sample AA0205 collected from 0.5 ft to 1.5 feet bgs, TNT (51.9 mg/kg), 2A-4,6-DNT (1.02 mg/kg), 4A-2,6-DNT (1.04 mg/kg), and 1,3,5-TNB (0.18 mg/kg) were detected. Only TNT in sample AA0205 exceeded PRGs.

Based on the detection of TNT at a concentration above PRGs in sample AA0205, three additional delineation screening samples (AA0268, AA0269, and AA0270) were collected in close (i.e., 10 feet) proximity to this sample. In addition, the presence of heavy vegetation at the building led to the initial sample locations potentially being collected too far from the building foundation. To compensate for this, seven samples (AA0261 through AA0267) were collected around the Wash House and Catch Basin to ensure complete coverage of the site. Nitroaromatics were detected in all the delineation samples (AA0260 through AA0270) except AA0260 and AA0266. In sample AA0261, TNT (170 mg/kg), 2A-4,6-DNT (4.97 mg/kg) and 4A-2,6-DNT (5.11 mg/kg) exceeded PRGs. In sample AA0263 at the Catch Box, TNT (150 mg/kg), DNT (1.34 mg/kg, 2A-4,6-DNT (19.6 mg/kg), and 4A-2,6-DNT (6.76 mg/kg) exceeded PRGs. In AA0267, TNT (62.9 mg/kg) and 2A-4,6-DNT (11.1 mg/kg) exceeded PRGs. TNT, detected at 24.3 mg/kg, was the only nitroaromatic to exceed PRGs in sample AA0268.

All three surface soil samples (0 to 1 ft bgs) AA0418, AA0420, and AA0424 exhibited nitroaromatics, but only AA0418 showed concentrations above PRG levels for 2,4,6-TNT (785 mg/kg), 2A-4,6-DNT (14.2 mg/kg), 4A-2,6-DNT (20.7 mg/kg), and total DNT (1.33 mg/kg). Also, the additional delineation samples AA0419, AA0421 through AA0423 detected nitroaromatics but none were above the PRG limits.

Nitroaromatics were detected in both subsurface samples at boring AA0261. TNT exceeded the PRG limit in Samples AA0369 and AA0370 with concentrations of 28.2 mg/kg (4 to 6 feet bgs), and 62.3 mg/kg (8 to 10 feet bgs), respectively. Subsurface samples AA371 and AA372 at

sample AA0263 detected only TNT (10.4 mg/kg in the 8 to 10 ft sample) at a concentration below the PRG.

2.4.4.2 Confirmation Results

2.4.4.2.1 Surface Soil

Sample AA0447 (1.5 to 2.5 feet) was collected near sample AA0261 and surface soil sample AA0448 (2 to 3 feet) was collected near sample AA0263. A summary of analytes detected is presented in Table 2-2.

Nitroaromatics. Five nitroaromatics (both amino-DNT isomers, total DNT, NB, and TNT) were detected in one or both of the samples. Only TNT, detected at 62.8 mg/kg in sample AA0447, exceeded the PRG.

VOCs. Four VOCs, acetone, carbon disulfide, methylene chloride, and toluene were detected in the surface soil samples. All concentrations were at least two orders of magnitude below the associated PRG level.

SVOCs. Two nitroaromatics were detected as SVOCs in the surface soil sample AA0447. No SVOCs were detected in sample AA0448. Both 2,4-DNT (0.48 mg/kg) and 2,6-DNT (0.062 mg/kg) detected in AA0447 were below PRG levels.

PCBs. One PCB (Aroclor-1260) was detected in both of the soil samples. Aroclor-1260 was above the PRG limit (0.22 mg/kg) with a concentration of 0.346 mg/kg.

Inorganics. A total of eighteen inorganics were detected in surface soil sample AA0447 and nineteen inorganics were detected in sample AA0448. Arsenic (6.01 mg/kg) exceeded the PRG level in both samples with a concentration of 6.01 mg/kg in AA0447 and 5.42 mg/kg in sample AA0448. PBOW background concentrations were not exceeded.

2.4.4.2.2 Subsurface Soil

Two subsurface soil samples were collected from a boring advanced near sample AA0261 (AA0474; 4 to 6 feet bgs and AA0475; 8 to 10 feet bgs).

Nitroaromatics. TNT was detected in both samples. At the 4 to 6 feet interval, the concentration of TNT was 4.81 mg/kg in sample AA0474, below the PRG limit of 16 mg/kg. In sample AA0475, collected at the 8 to 10 foot interval, the concentration was 259 mg/kg above the PRG level.

VOCs. Four VOCs were detected in the 4 to 6 feet interval below the PRG level (acetone, benzene, methylene chloride, and toluene) while one VOC (methylene chloride) was detected in the 8 to 10 feet interval, also below the PRG limit.

SVOCs. No SVOCs were detected in either subsurface soil sample.

PCBs. No PCBs were detected in either sample.

Inorganics. A total of seventeen inorganics were detected in the 4 to 6-ft sample and eighteen inorganics were detected in the 8 to 10-ft sample (antimony was detected in the 8 to 10 ft sample but not the in the 4 to 6 interval). Arsenic and iron exceeded the PRGs in both samples. Arsenic was detected in the 4 to 6 interval at a concentration of 5.29 mg/kg and in the 8 to 10 interval at a concentration of 7.97 mg/kg. Iron was detected in the 4 to 6 feet interval at 28,600 mg/kg and in the 8 to 10 feet interval at a concentration of 23,000 mg/kg. Neither arsenic nor iron exceeded the PBOW background concentrations.

2.4.4.2.3 Groundwater

Groundwater was encountered in the subsurface screening boring near AA0261 at 4 feet bgs but was not encountered during confirmation subsurface sampling. Bedrock also was not detected. A temporary piezometer (GW06) was installed to a depth of 14.9 feet and a groundwater sample (AA3006) was collected. The sample was analyzed for nitroaromatics, VOCs, SVOCs, PCBs, and total and dissolved inorganics. The turbidity measurement of the sample was recorded at 81 NTU with a pH value of 7.51 SUs.

Nitroaromatics. Six nitroaromatics (2A-4,6-DNT, 4A-2,6-DNT, 1,3-DNB, DNT, 1,3,5-TNB, and TNT) were detected in the groundwater sample. Four nitroaromatics 2A-4,6-DNT (217 µg/L), 4A-2,6-DNT (230 µg/L), total DNT (24.6 µg/L), and 2,4,6-TNT (32,400 µg/L) were above the PRG.

VOCs. Two VOCs, acetone and methylene chloride were detected in the groundwater sample but were at least one order of magnitude below PRGs.

SVOCs. One nitroaromatic, 2,4-DNT (3.92 μg/L) was found as an SVOC parameter in groundwater sample AA3006. The concentration of 2,4-DNT was above the PRG limit of 0.099 μg/L.

PCBs. No PCBs were detected in the groundwater sample.

Inorganics. Thirteen filtered analytes were detected in the groundwater sample compared to 20 non-filtered inorganics. Arsenic, beryllium, cadmium, chromium, mercury, nickel, and vanadium were detected in the non-filtered sample but not in the filtered sample. Arsenic (8.8 μg/L), iron (28,700 μg/L), lead (320 μg/L), and manganese (1,540 μg/L) exceeded allowable PRG limits in the unfiltered groundwater sample and manganese (1,540 μg/L) exceeded the PRG limit in the filtered sample.

2.4.5 Building 128, Nailing House

Less than 0.5 ft of fill was observed during excavation of the building foundation. Five surface soil samples (AA0142 through AA0146) were collected during Phase I of the soil investigation (Table 2-17, Figure 2-16).

2.4.5.1 Screening Results

The nitroaromatics 2,4,6-TNT, 2A-4,6-DNT, and 4A-2,6-DNT were detected in samples AA0145 and AA0146 at concentrations up to 1.5 mg/kg. These detections were below the PRGs.

2.4.5.2 Confirmation Results

No confirmation soil samples were collected at this location due to lack of contamination.

2.4.6 Building 129, Acid and Fume Recovery

Approximately 1 ft of fill was observed during excavation of the building foundation and up to 3.6 feet of fill was observed during soil sampling around the building. Five samples (AA0112 through AA0116) were collected during Phase I of the soil investigation from depths between 1 and 4.6 feet bgs (Table 2-18, Figure 2-17).

In addition, six screening samples (AA0301 through AA0304, AA0343, and AA0344) were collected to delineate the DNT contamination detected in AA0116. Also, one sample (AA0313; 0 to 1 ft bgs) was collected at AA0116 and another (AA0342, 0 to 1 ft bgs) at AA0303.

Based upon surface soil screening results in AA0303, a soil boring was advanced in the borehole to determine DNT contamination at depth. Two subsurface screening soil samples (AA0373, 4 to 6 feet bgs, and AA0374, 8 to 10 feet bgs) were collected.

To confirm screening analytical results of DNT, one surface soil confirmation sample (AA0452 near boring AA0303) was collected.

2.4.6.1 Screening Results

Nitroaromatics were detected in two initial screening samples (AA0114 and AA0116). Total DNT was the only nitroaromatic detected at concentrations above PRG values at 1.08 mg/kg in AA0116. In delineation sampling, only total DNT exceeded PRGs in sample AA0303 at a concentration of 27.7 mg/kg.

No nitroaromatics were detected in the 4 to 6 ft subsurface sample (AA0373) at boring AA0303 and only one nitroaromatic (2-NT at 0.225 mg/kg) below the PRG, was detected in the 8 to 10-ft sample AA0374.

2.4.6.2 Confirmation Results

2.4.6.2.1 Surface Soil

Sample AA0452 was collected as a surface confirmation sample near screening sample AA0303. A summary of analytes detected is presented in Table 2-2.

Nitroaromatics. No nitroaromatics were detected in the surface soil sample.

VOCs. Three VOCs, acetone, methylene chloride, and toluene were detected in the surface soil sample but at concentrations three orders of magnitude below PRG values.

SVOCs. Two SVOCs (both PAHs) were detected in the soil. Benzo(a)anthracene (0.0386 mg/kg) and phenanthrene (0.0516 mg/kg) were detected at concentrations below PRG limits.

PCBs. One PCB (Aroclor-1260 at 0.0486 mg/kg) was detected but was at a concentration below the PRG level.

Inorganics. A total of seventeen inorganics were detected in the surface soil sample but only arsenic, at a concentration of 3.44 mg/kg, exceeded the PRG of 0.39 mg/kg. The PBOW background concentration for arsenic (36.5 mg/kg) was not exceeded.

2.5 Process Line 3 Analytical Results

2.5.1 Building 131, Mono House

Approximately 0.8 ft of fill was observed during excavation of the building foundation and up to 1.5 feet of fill was observed during soil sampling around the building. Four samples (AA0061 through AA0064) were collected during Phase I of the soil investigation from depths between 0.4 feet and 2.5 feet bgs followed by collection of two additional surface soil screening samples (AA0345 through AA0346) to delineate possible DNT contamination (Table 2-19, Figure 2-18).

Based on the detection of DNT in surface soil sample AA0062, one boring was advanced and two subsurface screening samples (AA0389, 4 to 6 feet bgs; AA0390, 8 to 10 feet bgs) were collected.

To determine the presence of soil contamination below the former Drowning Tank, one boring was advanced near AA0062 and two subsurface soil samples (AA0461 and AA0462) were collected. To investigate the groundwater, one temporary piezometer (GW08) was installed to a total depth of 7.6 feet and a groundwater sample AA3008 was collected.

2.5.1.1 Screening Results

Nitroaromatics were not detected in any surface soil-screening sample but eight different nitroaromatics were detected in the subsurface samples. Nitroaromatics m-nitrotoluene, p-nitrotoluene, o-nitrotoluene, 2A-4,6-DNT, 4A-2,6-DNT, DNT, and TNT were detected in both samples but only total DNT exceeded the PRG limit. In sample AA0389 (4 to 6 feet bgs), DNT was found at 7.06 mg/kg and in AA0390 (8 to 10 feet bgs) DNT was reported at 118 mg/kg.

2.5.1.2 Confirmation Results

2.5.1.2.1 Subsurface Soil

Two confirmation subsurface soil samples were collected from a boring advanced near AA0062 (AA0461 4 to 6 feet bgs; AA0462, 6-8 feet bgs) to confirm DNT detections in screening samples AA0389 and AA0390.

Nitroaromatics. Six nitroaromatics were detected in the 4 to 6 ft sample and seven nitroaromatics were detected in the 6 to 8 ft sample. Only total DNT (3.43 mg/kg) was detected above the PRG level in the 4 to 6 feet interval. Nitroaromatics above PRG levels in the 6 to 8 ft sample included 2A-4,6-DNT (9.49 mg/kg), 4A-2,6-DNT (9.44 mg/kg), and DNT (61.8 mg/kg).

VOCs. Four VOCs (acetone, carbon disulfide, methylene chloride, and toluene) were detected in the 4 to 6 feet interval but below PRG values. Three VOCs (acetone, methylene chloride, and toluene) were detected in the 6 to 8 feet interval but were also below the PRG limits.

SVOCs. Both nitroaromatics 2,4-DNT and 2,6-DNT were reported under the SVOC analysis in samples AA0461 and AA0462. Both analytes were above the PRG levels of 0.72 mg/kg with concentrations of 1.73 mg/kg (2,4 DNT), and 1.5 mg/kg (2,6-DNT) at the 4 to 6 feet interval (AA0461), and 15.2 mg/kg (2,4-DNT) and 7.29 mg/kg (2,6-DNT) at the 6-8 feet interval (AA0462).

PCBs. One PCB (Aroclor-1260) was detected in both the subsurface soil samples. Aroclor-1260 was detected at a concentration of 0.108 mg/kg in the 4 to 6 ft sample, (below the PRG of 0.22 mg/kg) and was also detected in 6 to 8 feet interval, above the PRG, at a concentration of 0.251 mg/kg.

Inorganics. A total of nineteen inorganics were detected in the 4 to 6 ft subsurface sample (AA0461). Only arsenic was detected above the PRG (0.39 mg/kg) at a concentration of 4.09 mg/kg. Two inorganics exceeded the PRGs in sample AA0462 (6 to 8 feet). Arsenic exceeded the PRG with a concentration of 10.4 mg/kg and lead exceeded the PBOW background level with a concentration of 108 mg/kg.

2.5.1.2.2 Groundwater

Groundwater was not encountered in the subsurface screening samples AA0389 and AA0390 but was encountered during confirmation subsurface sampling. Bedrock was not encountered in any site borings but shale fragments were detected. After collection of subsurface confirmation samples AA0461 and AA0462, a temporary piezometer (GW08) was installed into the borehole to a depth of 7.6 feet. A groundwater sample (AA3008) was collected to determine if site activities had impacted the groundwater. Inorganics of this sample were not filtered and water quality measurements were not recorded due to the small volume of water collected.

Nitroaromatics. Four nitroaromatics (DNT and 3-NT isomers) were detected in the groundwater sample. Two nitroaromatics total DNT (30.9 µg/L) and 2-NT (115 µg/L) were above the PRG limits of 0.099 and 61 µg/L, respectively.

VOCs. Two VOCs, methylene chloride, and toluene were detected in the groundwater sample but at concentrations below PRG limits.

SVOCs. Two nitroaromatics, 2,4-DNT (15.6 µg/L) and 2,6-DNT (11.8 µg/L) were detected as SVOCs in groundwater sample AA3008. The concentration of both 2,4-DNT and 2,6-DNT were above the PRG limits of 0.099 µg/L. Di-n-butyl phthalate was also detected 1.8 µg/L but this concentration was below the allowable PRG.

PCBs. No PCBs were detected in the groundwater sample.

Inorganics. A total of nineteen inorganics were detected in the unfiltered groundwater sample with four exceeding PRG limits. Arsenic was found at a concentration of 19 µg/L, iron at 32,000 µg/L, lead at 451 µg/L, and manganese was recorded at 1,460 µg/L.

2.5.2 Building 132, Bi-Tri House

Approximately 2.0 ft of fill was observed during excavation of the building foundation and up to 2.5 ft of fill was observed during soil sampling around the building. Nine samples (AA0046 through AA0054) were collected during Phase I of the soil investigation from depths between 2.0 ft and 3.5 ft bgs (Table 2-20, Figure 2-19).

Based on the detections of nitroaromatics in sample AA0052, a surface soil (AA0320) sample (0-1 feet bgs) was collected at that location.

A boring was advanced at the location of the former drowning tank and two subsurface samples AA0391 (4 to 6 feet bgs) and AA0392 (8 to 10 feet bgs) were collected.

2.5.2.1 Screening Results

Six of the nine (AA0046 through AA0054) surface soil screening samples had detectable concentrations of nitroaromatics; however, only samples AA0052 and AA0054 had concentrations of nitroaromatics exceeding 1 mg/kg. In sample AA0052, 1,3,5-TNB (0.13 mg/kg), 2,4,6-TNT (5.04 mg/kg), total DNT (0.38 mg/kg), 2A-4,6-DNT (1.65 mg/kg), and 4A-2,6-DNT (1.18 mg/kg) were detected. In sample AA0054, 2,4,6-TNT (4.08 mg/kg), total DNT (0.48 mg/kg), 2A-4,6-DNT (1. 57 mg/kg), and 4A-2,6-DNT (1.07 mg/kg) were detected.

In sample AA0320, TNT, DNT, 2A-4,6-DNT and 4A-2,6-DNT were detected at concentrations below PRGs.

Nitroaromatics were detected in AA0391 (2A-4,6-DNT, 4A-2,6-DNT, DNT, and TNT) but all were below 1 mg/kg. No nitroaromatics were detected in sample AA0392.

2.5.2.2 Confirmation Results

No confirmation soil samples were collected at this location due to lack of contamination.

2.5.3 Building 133, Fortifier House

Approximately 3 feet of fill was observed during excavation of the building foundation and during soil sampling around the building. Four samples (AA0042 through AA0045) were collected during Phase I of the soil investigation from depths between 3 feet and 4 feet bgs. Because sample AA0045 was collected at a depth of 3 to 4 feet bgs, one surface soil sample AA0319 (0 to 1 ft bgs) was also collected at sample location AA0045 (Table 2-21, Figure 2-20).

Two additional surface soil-screening samples (AA0347 and AA0348) were collected in the vicinity of the former Drowning Tank, to delineate possible DNT contamination.

A boring was advanced at the location of the former drowning tank and two subsurface samples (AA0393, 4 to 6 feet bgs; AA0394, 8 to 10 feet bgs) were collected.

2.5.3.1 Screening Results

Nitroaromatics were detected in initial screening sample AA0045 at concentrations below 0.20 mg/kg. Surface soil sample AA0319, detected 2,4,6-TNT at a concentration of 0.22 mg/kg and 4A-2,6-DNT 0.13 mg/kg.

Delineation sample AA0347 detected nitrobenzene at a concentration of 0.19 mg/kg. Surface screening sample AA0348 detected nitroaromatics 2,4,6-TNT (18.8 mg/kg), 2A-4,6-DNT (5.52 mg/kg), and 4A-2,6-DNT (4.78 mg/kg) above the PRG limits.

No nitroaromatics were detected in the subsurface screening samples.

2.5.3.2 Confirmation Results

No confirmation soil samples were collected at this location.

2.5.4 Building 136, Wash House

Up to approximately 1.5 feet of fill was observed during soil sampling around the building. Thirteen samples (AA0176 through AA0188) were collected during Phase I of the soil investigation from depths between 0.0 and 2.5 feet bgs (Table 2-22, Figure 2-21).

During further reconnaissance, there was some uncertainty in terms of the location of this building. To compensate for this uncertainty, an additional nine samples (AA0333 through AA0341) were collected.

Although nitroaromatics were not detected were found in the initial surface samples, based upon the locality of detections of nitroaromatics at other wash houses, one subsurface boring was advanced near boring AA0337 and two subsurface screening samples were collected (AA0395, 4 to 6 feet bgs; AA0396 8 to 10 feet bgs).

One surface confirmation sample AA0453 was collected near boring location AA0334, to confirm screening analytical results.

2.5.4.1 Screening Results

Nitroaromatics were detected in only four samples (AA0179, AA0186, AA0334, and AA0338) at concentrations below 0.3 mg/kg.

2.5.4.2 Confirmation Results

One surface soil confirmation sample was collected from Building 136. Sample AA0453 was collected near boring AA0334 (Table 2-2).

Nitroaromatics. No nitroaromatics were detected in the surface soil sample.

VOCs. Two VOCs, acetone, and methylene chloride were detected in the sample but were below PRG limits.

SVOCs. Eight SVOCs (primarily PAHs) were detected in the surface soil sample. Benzo(a)pyrene (0.107 mg/kg) was the only SVOC above the PRG of 0.062 mg/kg.

PCBs. One PCB (Aroclor-1260 at 0.014 mg/kg) was detected in the soil sample but was below the PRG of 0.22 mg/kg.

Inorganics. A total of twenty inorganics were detected in the surface soil sample. Only arsenic was detected above the PRG (0.39 mg/kg) at a concentration of 1.13 mg/kg and lead was above background (48.6 mg/kg) with a concentration of 69.5 mg/kg.

2.5.5 Building 139, Acid and Fume Recovery

Up to approximately 2 feet of fill was observed during excavation of the building foundation and up to 2.5 feet of fill was observed during soil sampling around the building. The estimated building size based on observations indicated the length to be approximately 83 feet. This estimate is probably incorrect given data obtained from other Acid and Fume Recovery buildings. One open manhole was found during the building foundation excavation event. It was located adjacent to the southwest corner of the former building and estimated to be approximately 3 feet in diameter by three feet in depth. Six samples (AA0036 through AA0041) were collected during Phase I of the soil investigation from depths between 0.5 ft and 3.5 feet bgs (Table 2-23, Figure 2-22).

Based on the detection of nitroaromatics in sample AA0040 and to compensate for any uncertainty in the building dimensions, a surface soil (AA0312) sample was collected as well as samples AA0291 through AA0296 to delineate the DNT contamination. Screening soil sample AA0326 was also collected from the base of an open manhole near the southwest corner of the former building.

One boring was advanced near surface soil screening sample AA0040 and two subsurface screening samples were collected (AA0375, 4 to 6 feet bgs, AA0376; 8 to 10 feet bgs) to determine if DNT contamination had migrated vertically.

To confirm screening results of DNT contamination, one confirmation surface soil sample (AA0432) was collected near boring AA0312, at a depth of 2 to 3 feet.

2.5.5.1 Screening Results

Nitroaromatics were detected in only one initial sample (AA0040). In sample AA0040, collected from 2 to 3 feet bgs, total DNT (2.50 mg/kg), 2,4,6-TNT (2.79 mg/kg), 2A-4,6-DNT (1.10 mg/kg), 4A-2,6-DNT (0.75 mg/kg), and tetryl (0.63 mg/kg) were detected. Only DNT in sample AA0040 exceeded PRGs.

From the additional delineation samples, total DNT was detected in samples AA0291, AA0292, and AA0296 but was not above the PRG. TNT was also detected in sample AA0296 below the PRG limit.

No nitroaromatics were detected in the soil from the manhole (AA0326).

Subsurface screening samples (AA0375 and AA0376) detected 6 nitroaromatic compounds but all concentrations were below PRG levels.

2.5.5.2 Confirmation Results

One surface soil confirmation sample (AA0432) was collected near screening sample AA0312 (Table 2-2).

Nitroaromatics. Seven nitroaromatics (4A-2,6-DNT, DNT, three NT isomers, NB, and TNT) were detected in the 2 to 3 ft sample but only DNT exceeded the PRG level. Total DNT was detected at a concentration of 40.8 mg/kg (above the 0.72 mg/kg PRG).

VOCs. Two VOCs, acetone and methylene chloride were detected in the surface soil sample below the associated PRGs.

SVOCs. Six SVOC analytes were detected in the surface soil sample. The only two SVOCs that were above PRG values were the nitroaromatics 2,4-DNT and 2,6-DNT. 2,4-DNT was detected at a concentration of 4.72 mg/kg and 2,6-DNT was detected at 1.32 mg/kg, both of which exceeded the PRG of 0.72 mg/kg.

PCBs. One PCB (Aroclor-1260) was detected above the PRG limit (0.22 mg/kg) at a concentration of 69.8 mg/kg.

Inorganics. A total of twenty-one inorganics were detected in the surface soil sample with arsenic (4.67 mg/kg) exceeding the PRG level. The background concentration for arsenic was not exceeded. Lead, at a concentration of 11,900 mg/kg, was found to be much greater than the PBOW background value of 48.6 mg/kg.

2.6 Process Line 4 Analytical Results

2.6.1 Building 141, Mono House

Up to approximately 2 feet of fill was observed during excavation of the building foundation and up to 2.5 feet of fill was observed during soil sampling around the building. Nine samples (AA0001 through AA0008 and AA0065) were collected during Phase I of the soil investigation from depths between 0.1 and 3.5 feet bgs (Table 2-24, Figure 2-23).

For delineation of DNT in sample AA003, samples AA0297, AA0298 and AA0300 were collected. Sample AA0299 was collected from the location of TNTA-S22 to confirm the historical detection reported by D&M.

Based on the detections of nitroaromatics in sample AA0297, a surface soil (AA0349) sample (0 to 1 ft bgs) was collected at that location.

One subsurface boring was advanced near AA0297 and two subsurface screening samples were collected (AA0377, 4 to 6 feet bgs; AA0378, 8 to 10 feet bgs).

One confirmation surface soil sample was also collected from Building 141 near boring AA0297 to verify screening results of nitroaromatics above PRG levels.

2.6.1.1 Screening Results

Only two initial samples (AA0001 and AA0003) had reportable concentrations of nitroaromatics. In sample AA0001, DNT was the only explosive detected at a concentration below 0.2 mg/kg. In sample AA0003, 3-NT (0.27 mg/kg), DNT (1.35 mg/kg), 2A-4,6-DNT (0.71 mg/kg), 4A-2,6-DNT (1.10 mg/kg), and TNT (0.41 mg/kg), were detected. The only compound to exceed PRGs was DNT in sample AA0003.

With the exception of sample AA0297, all nitroaromatics detected were below PRGs in the delineation samples. In sample AA0297, collected from the area of the Drowning Tank, TNT (17.9 mg/kg), DNT (2.34 mg/kg), 2A-4,6-DNT (5.66 mg/kg), and 4A-2,6-DNT (4.81 mg/kg) were detected at concentrations exceeding PRGs.

Nitroaromatics were also detected in the 0 to 1 ft bgs surface soil sample AA0349 collected at the same location as sample AA0297. PRGs were exceeded for TNT (40.7 mg/kg), DNT (2.8 mg/kg), 2A-4,6-DNT (15.6 mg/kg), and 4A-2,6-DNT (10.0 mg/kg). Two nitrotoluene isomers were also detected but at concentrations below the PRG level.

Three nitroaromatics (2A-4,6-DNT, 4A-2,6-DNT, and DNT) were detected in the 4 to 6 feet bgs subsurface sample but each was below PRG levels. Only 2-NT was detected in the 8 to 10 feet bgs sample (AA0378).

2.6.1.2 Confirmation Results

One surface soil confirmation sample was collected. Sample AA0451 was collected near sample AA0297 from a depth of 1 to 2 feet bgs (Table 2-2).

Nitroaromatics. Five nitroaromatics (2A-4,6-DNT, 4A-2,6-DNT, DNT, 2-NT, and TNT) were detected in the 1-2 feet sample. Of these detections, 2A-4,6-DNT, (4.83 mg/kg), 4A-2,6-DNT (4.22 mg/kg), and DNT (7.36 mg/kg) were above the PRGs.

VOCs. Four VOCs, acetone, benzene, methylene chloride, and toluene were detected in the surface soil sample but all concentrations were at least one order of magnitude below respective PRGs.

SVOCs. Eight SVOC analytes were detected in the surface soil sample. Only 2,4-DNT, detected at a concentration of 2.03 mg/kg, exceeded the PRGs.

PCBs. One PCB (Aroclor-1260 at 0.215 mg/kg) was detected in the surface soil sample but at a concentration below the PRG.

Inorganics. A total of nineteen inorganics were detected in the surface soil sample with arsenic (1.1 mg/kg) exceeding the PRG level. The background concentration for arsenic was not exceeded. Lead, at a concentration of 119 mg/kg, was found to be greater than the PBOW background value of 48.6 mg/kg.

2.6.2 Building 142, Bi-Tri House

Less than 1 ft of fill was observed during excavation of the building foundation and up to 2 feet of fill was observed during soil sampling around the building. One open manhole was located adjacent to the northwest corner of the former building. The manhole was estimated to be approximately 3 feet in diameter by 3 feet in depth. Ten samples (AA0016 through AA0025) were collected during the initial sampling from 0.2 to 3 feet bgs (Table 2-25, Figure 2-24).

Based on the detection of nitroaromatics in samples AA0016, AA0018, and AA0020 at concentrations above PRGs, ten additional samples (AA0233 through AA0238 and AA0240 through AA0242) were collected to delineate the extent of contamination. In addition, one surface soil sample (AA0311) was also collected from the same as sample AA0016 and one sample (AA0239) collected from TNTA-S20 to confirm the historical detection reported by D&M.

As part of the screening analysis to further investigation TNT and DNT contamination, one boring was advanced near AA0016 and two subsurface samples (AA0379, 4 to 6 feet bgs; AA0380; 8 to 10 feet bgs) were collected.

To verify screening results of TNT and DNT, two confirmation surface soil samples were collected near the initial boring AA0016.

2.6.2.1 Screening Results

Nitroaromatics were detected in all but two of the initial samples collected. However, only three samples had concentrations of nitroaromatics exceeding PRGs. In sample AA0016, collected from 2 to 3 feet bgs, TNT was detected at 31.2 mg/kg and DNT was detected at 3.54 mg/kg. In sample AA0018, collected from 0.2 to 1.2 feet bgs, DNT was detected at 2.46 mg/kg. In sample AA0020, DNT was detected at 0.94 mg/kg.

Six of the 10 delineation samples had reportable concentrations of nitroaromatics; however, all were below PRGs. Only one of the subsurface samples (AA0379) had reportable concentrations of nitroaromatics. In this sample, 4A-2,6-DNT, 2A-4,6-DNT and DNT were detected but at concentrations below 0.30 mg/kg.

2.6.2.2 Confirmation Results

Two surface soil confirmation samples, a duplicate, and a split sample were collected from Building 142. Sample AA0427 was collected from a depth of 0 to 1 feet bgs and sample AA0428 along with QA/QC samples and a split sample (AA0430) were collected 2 to 3 feet bgs near sample AA0016 (Table 2-2).

Nitroaromatics. Three nitroaromatics (4A-2,6-DNT, DNT, and TNT) were detected in sample AA0427 but only DNT at 1.46 mg/kg exceeded the PRG. . Six nitroaromatics (2A-4,6-DNT, 4A-2,6-DNT, total DNT, 3-NT, 1,3,5-TNB, and TNT) were detected in sample AA0428 but only the concentration of 2A-4,6-DNT (3.53 mg/kg) was above the PRG of 3.3 mg/kg.

VOCs. Two VOCs, acetone, and methylene chloride were detected in the surface soil sample AA0427 and four VOCs (acetone, methylene, carbon disulfide, and toluene) were detected in AA0428, but all concentrations were below respective PRG values.

SVOCs. Two nitroaromatics (2,4-DNT and 2,6-DNT detected as SVOCs) were reported in the surface soil samples and all concentrations were below respective PRG values.

PCBs. One PCB (Aroclor-1260) was detected in both surface soil samples. The concentration of Aroclor-1260 in sample AA0427 (2.48 mg/kg) exceeded the PRG value (0.22 mg/kg).

Inorganics. A total of twenty inorganics were detected in the surface soil sample AA0427 and seventeen inorganics were detected in sample AA0428. Arsenic exceeded the PRG level of 0.39 mg/kg in both samples. But neither sample exceeded the background concentration. Lead was detected in the surface soil sample AA0427, at a concentration of 588 mg/kg, exceeding the PBOW background value of 48.6 mg/kg.

2.6.3 Building 143, Fortifier House

Up to 2 feet of fill was observed during both the excavation of the building foundation and during the soil sampling. Six initial screening soil samples (AA0026 through AA0031) were collected from the ground surface to depths of up to 3 feet from around the building foundation. In addition, five samples (AA032 through AA0035 and AA0217) were collected to confirm and delineate the historical nitroaromatic detection at TNTA-S15 reported by D&M (Table 2-26, Figure 2-25).

Based upon nitroaromatics in sample AA0035, delineation samples AA0327, AA0328, AA0329, and AA0330 (0 to 1 ft bgs at AA0035) were located at a distance of approximately 10 feet around boring AA0035.

Subsurface screening samples AA0381 (4 to 6 feet bgs) and AA0382 (8 to 10 feet bgs) were collected from a boring near AA0035 for vertical delineation of amino-DNT isomers and DNT.

To verify screening results, a surface soil sample (AA0431) was also collected near boring AA0035 to confirm surface screening results of DNT.

2.6.3.1 Screening Results

Only DNT was detected in one of the initial screening samples around Building 143. Sample AA0031 collected from 0.0 to 1.0 ft bgs, exhibited total DNT at a concentration of 0.158 mg/kg. No additional nitroaromatic contamination was found at Building 143.

All nitroaromatics in sample AA0217, placed to confirm the historical detection at TNTA-S22, were below reporting limits. Nitroaromatics were detected in delineation samples (AA0033, AA0034, and AA0035) of the historical D&M location. PRGs were exceeded only in sample AA0035 for DNT (2.16 mg/kg), 2A-4,6-DNT (6.49 mg/kg), and 4A-2,6-DNT (3.70 mg/kg).

Nitroaromatics were detected in delineation samples AA0327, AA0329, AA0330 but were below their respective PRGs. The only sample with concentrations above 1 mg/kg was the 0 to 1 ft sample at AA0035. 2A-4,6-DNT was detected in this sample at 1.12 mg/kg.

No nitroaromatics were detected in subsurface screening samples AA0381 and AA0382.

2.6.3.2 Confirmation Results

One surface soil confirmation sample was collected. Sample AA0431 was collected near boring AA0035 from a depth of 1.5 to 2.5 feet (Table 2-2).

Nitroaromatics. Four nitroaromatics (2A-4,6-DNT, 4A-2,6-DNT, DNT, and TNT) were detected in the sample but none were above the PRG limits

VOCs. Two VOCs, acetone, and methylene chloride were detected in the surface soil sample and all concentrations were at least two orders of magnitude below the PRG values.

SVOCs. Eleven SVOCs (primarily PAHs) were detected in the soil sample. Benzo(a)pyrene was detected at a concentration of 0.218 mg/kg above the PRG of 0.062 mg/kg.

PCBs. One PCB (Aroclor-1260 at 0.053 mg/kg) was detected in the surface soil sample but at a concentration below the PRG value.

Inorganics. A total of nineteen inorganics were detected in the soil sample. Arsenic at a concentration of 2.86 mg/kg was the only metal to exceed PRGs.. The background arsenic concentration of 36.5 mg/kg was not exceeded.

2.6.4 Building 146, Wash House

Up to 2 feet of fill was observed during both the foundation excavation and the soil sampling. Fourteen initial screening samples (AA0078 through AA0091) were collected from around Building 146. In addition, four samples (AA0229 through AA0232) were collected adjacent to the Catch Basin to compensate for uncertainty in the location of the building catch basin.

Based on the detection of TNT at sampling locations AA0079, AA0080, and AA0081, eight additional samples (AA0222, AA0223, AA0224, AA0226, AA0227, AA0228, AA0331 and AA0332) were collected to delineate the soil contamination at this site. One additional sample (AA0225) was collected on the east side of the Wash House to characterize that part of the building (Table 2-27 and Figure 2-26). Surface soil samples 0 to 1 ft bgs (AA0308, AA0309, AA0310, and AA0353) were also collected at borings AA0079, AA0080, AA0081, and AA0225.

Red-colored water was observed in the foundation excavation near location AA0080. A surface

water sample (AA2018) was collected for analyses of nitroaromatics only in addition to the soil samples at this site.

Subsurface samples AA0383 (4 to 6 feet bgs) and AA0384 (8 to 10 feet bgs) were collected near boring AA0080 (former red water location) to delineate the vertical extent of contamination.

Two surface soil confirmation samples along with a duplicate, a split, and two subsurface soil confirmation samples were collected from Building 146. In addition, a groundwater sample (AA3005) was collected from a depth of 9.6 feet to investigate groundwater quality near boring AA0080.

2.6.4.1 Screening Results

Three initial screening soil samples (AA0079, AA0080, and AA0081) had detections of TNT up to 2,385 mg/kg and DNT at concentrations up to 14.1 mg/kg. Of the remaining eleven initial samples, five samples had detections of nitroaromatics but at concentrations below 1 mg/kg and below PRGs.

From the additional characterization and delineation surface soil samples, AA0222, AA0225, AA0309, AA0353, and AA0384 exhibited nitroaromatics that exceeded PRGs. Samples AA0222 and AA0225 showed 2A-4,6-DNT, 4A-2,6-DNT, DNT, and TNT above the PRG limits with the greatest concentration of TNT from AA0225 at 734 mg/kg. Sample AA0309 exhibited nitroaromatics 2A-4,6-DNT, 4A-2,6-DNT, and TNT with a concentration of TNT at 261 mg/kg and sample AA0353 contained 2A-4,6-DNT at a concentration of 3.98 mg/kg.

Nitroaromatics were detected in both subsurface samples (AA0383 and AA0384). In the shallow (AA0383) sample, 4A-2,6-DNT, 2A-4,6-DNT and TNT were detected but at concentrations below 0.50 mg/kg. Subsurface sample AA0384 (8 to 10 feet bgs) showed four detections of nitroaromatics but only TNT was above the PRG with a concentration of 85.3 mg/kg.

2.6.4.2 Confirmation Results

2.6.4.2.1 Surface Soil

Two surface soil samples (AA0434 and AA0480) along with a duplicate, a split, and two subsurface soil confirmation samples were collected from Building 146. Surface soil sample AA0434 was collected from a depth of 0.8-1.8 feet bgs near boring AA0081 with QA/QC

samples and a field split sample (AA0436). Surface soil confirmation sample AA0480 was collected from a depth 2 to 3 feet bgs near sample AA0225. A summary of confirmation analytes detected is presented in Table 2-2.

Nitroaromatics. Three nitroaromatics (2A-4,6-DNT, 4A-2,6-DNT, and TNT) were detected in both the soil samples. Sample AA0434 exhibited 2A-4,6-DNT (9.59 mg/kg), 4A-2,6-DNT (5.84 mg/kg), and TNT (163 mg/kg) above the PRGs. Sample AA480 also had 2A-4,6-DNT (20.7 mg/kg), 4A-2,6-DNT (7.45 mg/kg), and TNT (205 mg/kg) above the PRGs. In addition, 1,3,5-TNB was also detected in samples AA0434.

VOCs. Two VOCs, acetone, and methylene chloride, were detected in both the surface soil samples but concentrations were below the PRGs.

SVOCs. One nitroaromatic (2,4-DNT) was detected in sample AA0434 below the PRG of 0.72 mg/kg. Three SVOC analytes were detected in sample AA0480 (bis(2-ethylhexyl)phthalate, 2,4-DNT, and 2,6-DNT) but were also below the PRGs.

PCBs. One PCB (Aroclor-1260 at 0.0634 mg/kg) was detected in surface soil sample AA0434 but at a concentration below the PRG.

Inorganics. Nineteen inorganics were detected in sample AA0434. However, only arsenic exceeded the PRG at 2.94 mg/kg. In addition, lead was detected at 50.3 mg/kg, above the PBOW background concentration of 48.6 mg/kg. Twenty inorganics were detected in surface soil sample AA0480 and only arsenic (5.07 mg/kg) exceeded the PRG but was below PBOW background concentrations.

2.6.4.2.2 Subsurface Soil

Two confirmation subsurface soil samples were collected from a boring advanced near AA0080 (AA0463, 4 to 6 feet bgs; sample AA0464, 8 to 10 feet bgs) to confirm the nitroaromatic detections.

Nitroaromatics. Five nitroaromatics were detected in the both the 4 to 6 ft sample and the 8 to 10 ft sample. 2A-4,6-DNT (32.6 mg/kg), 4A-2,6-DNT (16 mg/kg), and TNT (530 mg/kg) were detected above the PRGs in the 4 to 6 feet interval. In the 8 to 10 ft sample, only TNT was detected above the PRG at a concentration of 92.5 mg/kg.

VOCs. Three VOCs (acetone, carbon disulfide, and methylene chloride) were detected in the 4 to 6 feet interval but below PRG values. Two VOCs (acetone and methylene chloride) were detected in the 8 to 10 feet interval but were also below the PRG limits.

SVOCs. Three SVOC analytes (bis(2-ethylhexyl)phthalate, di-n-butyl phthalate, and 2,4-DNT) were detected in sample AA0463 (none in sample AA0464) and were below their respective PRGs.

PCBs. One PCB (Aroclor-1260) was detected in subsurface soil sample AA0463, but was below the PRG limit of 0.22 mg/kg.

Inorganics. A total of eighteen inorganics were detected in the 4 to 6 ft subsurface sample AA0463 with arsenic (7.52 mg/kg) above the PRG value. Arsenic was not detected above the background standard of 36.5 mg/kg. Two inorganics exceeded the PRGs in sample AA0464. Arsenic was detected at a concentration of 11 mg/kg and iron was detected a concentration of 24,500 mg/kg.

2.6.4.2.3 Groundwater

Groundwater was encountered near the surface at sample AA0080. Bedrock was not encountered. Groundwater sample AA3005 was collected from a temporary piezometer (GW05) installed to a depth of 9.6 feet and submitted for analysis. Inorganics of this sample were not filtered but water quality measurements were recorded. The turbidity measurement of the sample was 720 NTU with a pH value of 7.11 SUs.

Nitroaromatics. Five nitroaromatics (2A-4,6-DNT, 4A-2,6-DNT, 1,3-DNB, 1,3,5-TNB, and TNT) were detected in the groundwater sample. Of these analytes, 2A-4,6-DNT (1,890 µg/L), 4A-2,6-DNT (931 µg/L), and TNT (11,500 µg/L) were above the PRGs.

VOCs. Two VOCs, cis-1,2-dichloroethene (2.11 mg/kg), and methylene chloride (1.21 mg/kg), were detected in the groundwater sample. Cis-1,2-dichloroethene and methylene chloride were below PRG limits.

SVOCs. One nitroaromatic, 2,4-DNT (4.74 μg/L) was found as an SVOC parameter in groundwater sample AA3005. The concentration of 2,4-DNT was above the PRG limit of 0.099 μg/L.

PCBs. No PCBs were detected in the groundwater sample.

Inorganics. Twenty unfiltered inorganics were detected in the groundwater sample. Three inorganics, arsenic (21μg/L), iron (63,800 μg/L), lead (694 μg/L), and manganese (2080 μg/L), exceeded PRG limits. Arsenic, iron, and manganese did not exceed the PBOW background values.

2.6.5 Building 148, Nailing House

Less than 0.7 ft of fill was observed during both the foundation excavation and the soil sampling. Five initial screening samples (AA0073 through AA0077) were collected from around the foundation of Building 148 (Table 2-28 and Figure 2-27).

Since 2-A4,6-DNT was detected above the PRG limits in AA0077, four additional samples (AA0218 through AA0221) were collected to delineate the extent of contamination.

One surface soil confirmation sample was collected from Building 148. Sample AA0433 was collected near boring AA0077.

2.6.5.1 Screening Results

Nitroaromatics were detected in samples AA0076 and AA0077. In sample AA0076, 2A-4,6-DNT, 4A-2,6-DNT, and TNT were detected at concentrations below 0.30 mg/kg. In sample AA0077, 2A-4,6-DNT (4.55 mg/kg), 4A-2,6-DNT (2.34 mg/kg), DNT (0.69 mg/kg), TNT (13.2 mg/kg), and 1,3,5-TNB (0.14 mg/kg) were detected. Of these compounds, only 2A-4,6-DNT (4.55 mg/kg) exceeded the PRG.

From the four delineation samples (AA0218 through AA0221), DNT and TNT were each detected in one sample but at concentrations below PRGs.

2.6.5.2 Confirmation Results

One surface soil confirmation sample was collected from Building 148. Sample AA0433 was collected near boring AA0077 from a depth of 0.7 to 1.7 feet (Table 2-2).

Nitroaromatics. Four nitroaromatics (2A-4,6-DNT, 4A-2,6-DNT, total DNT, and TNT) were detected in the 0.7 to 1.7 ft sample but no parameters exceeded the PRG limits

VOCs. Two VOCs, acetone, and methylene chloride were detected in the surface soil sample but no concentrations exceeded the PRG standards.

SVOCs. One nitroaromatic (2,4-DNT detected as a SVOC), was found in the surface soil sample and it did not exceed the PRG.

PCBs. One PCB (Aroclor-1260) was detected in the surface soil sample at a concentration of 0.24 mg/kg, above the PRG of 0.22 mg/kg.

Inorganics. A total of nineteen inorganics were detected in the soil sample and only arsenic (3.67 mg/kg) was above the PRG of 0.39 mg/kg.

2.6.6 Building 149, Acid and Fume Recovery

Approximately 1.5 feet of fill was observed during both the foundation excavation and the soil sampling at this building. One open manhole was also located during the building foundation excavation event. It was found in the field northwest of the former building and estimated to be approximately three feet in diameter by three feet in depth. Six initial screening samples (AA0055 through AA0060) were collected from around the foundation of Building 149 (Table 2-29 and Figure 2-28).

Based on the detection of DNT in sample AA0059 (collection depth of 1.3 to 2.3 feet bgs), one 0 to 1 ft surface soil sample (AA0321) was collected at this location. Also, one subsurface screening sample (AA0401, 4 to 6 feet bgs) was collected near this boring to determine if DNT contamination was deeper in the ground surface.

2.6.6.1 Screening Results

From the six initial screening results, the only nitroaromatic detected was total DNT at 0.68 mg/kg in sample AA0059.

DNT and nitrobenzene were the only nitroaromatics detected in the surface soil sample (AA0321) and they were at concentrations below PRG limits. No nitroaromatics were detected in the subsurface sample (AA0401).

2.6.6.2 Confirmation Results

No confirmation soil samples were collected at this location due to lack of contamination.

2.7 Surface Water and Sediment

Eight surface water (unfiltered) and ten sediment samples were collected on site from tributaries to and in Lindsey Ditch, and one surface water (unfiltered) and five sediment samples were collected off site from Plum Brook during the TNTA remedial investigation. One surface water sample (TNTA-SO080) was also collected from an excavation trench at Building 146 that had filled with rainwater. Table 2-30 presents a summary of analytes detected in surface water and Table 2-31 shows analytes detected in sediment samples. Figure 2-29 presents the on-site locations of surface water and sediment samples. Figure 2-30 presents a regional location of the off-site surface water and sediment samples while Figure 2-31 shows specific locations with analyte detections.

Due to lack of precipitation, two surface water samples in the TNTA area and one from Plum Brook were unable to be collected. Each of the sediment samples in the TNTA area was collected from a depth of 0 to 0.5 ft below top of the sediment. Sediment samples in Plum Brook were collected as composite samples from depths above a gravel layer (believed former stream bottom). Sample SD11 (AA2011) was collected 0 to 2.5 feet, SD12 (AA2012) collected 0 to 3.5 feet, SD13 (AA2013) collected 0 to 4.5 feet, and SD14 (AA2014) and SD15 (AA2015) were collected at depths of 0 to 3 feet below the stream bottom.

2.7.1 On-Site (Lindsey Ditch) Analytical Results

Nine surface water samples (AA2002 through AA2007, AA2009, AA2010, and AA2018) and ten sediment samples (AA1001 through AA1010) were collected in the TNTA area. All samples were analyzed for nitroaromatic compounds, VOCs, SVOCs, PCBs, and inorganics except for sample number AA2018, which was analyzed for nitroaromatics only. From the on-site surface water sampling, a field split (sample number AA2012), and two QA/QC samples were collected. Also, sediment sample number AA1004 was collected along with field split sample number AA1012 and two QA/QC samples.

2.7.1.1 Surface Water Results

Nitroaromatics. Four nitroaromatic compounds were detected in three surface water samples. Explosive compounds 1,3,5-TNB, 2,4,6-TNT, 2A-4,6-DNT, and 4A-2,6-DNT were detected in the surface water sample collected at Building 146 (AA2018) with concentrations of 466 µg/L, 1,3,5-TNB, 11,000 µg/L TNT 64.7 µg/L, 2A-4,6-DNT 58.6 µg/L, 4A-2,6-DNT. Sample AA2002 (collected from a ditch north of Building 146) exhibited concentrations of 2A-4,6-DNT (1.96 µg/L) and 4A-2,6-DNT (2.34 µg/L) and sample AA2009 showed 4A-2,6-DNT at 0.16 µg/L.

VOCs. Three VOCs were detected in the eight surface water samples. Acetone was detected in one sample (AA2007) at a concentration of 2.95 µg/L. Carbon disulfide and methylene chloride was detected in all eight surface water samples. Carbon disulfide concentrations ranged from 1.04 µg/L (AA2004) to 11.5 µg/L (AA2002) and methylene chloride concentrations ranged from 2.05 µg/L in AA2006 to 3.75 µg/L in AA2005.

SVOCs. One SVOC (di-n-butyl phthalate) was detected in two surface water samples. Concentrations were 1.3 µg/L in AA2006 and 1.17 µg/L in AA2007.

PCBs. PCBs were not detected in surface water samples.

Inorganics. Twenty inorganics were detected in the surface water samples. Aluminum, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, potassium, selenium, silver, sodium, vanadium, and zinc were detected. Arsenic was detected only in one sample (AA2002) at a concentration of 3.75 µg/L.

2.7.1.2 Sediment Results

Nitroaromatics. No nitroaromatics were detected above the PRG limits. Five nitroaromatic compounds (2,4,6-TNT, DNT, 4A-2,6-DNT, 2A-4,6-DNT, and 2-NT) were detected in eight sediment samples. TNT concentrations ranged from 0.064 mg/kg (AA1010) to 4.6 mg/kg (AA1006) and were detected in seven samples. DNT was detected in six samples with concentrations ranging from 0.045 mg/kg at location SD10 to 0.576 mg/kg at SD06. 4A-2,6-DNT was exhibited in six of the samples, 2A-4,6-DNT in five samples and 2-NT was detected in one sample.

VOCs. Three VOCs, acetone, carbon disulfide, and methylene chloride were detected in the sediment samples. Methylene chloride was detected in all samples and was found at a concentration of 0.004 mg/kg in sample AA1008 to 0.063 mg/kg in AA1002. Acetone ranged in concentration from 0.009 mg/kg (AA1004) to 0.021 mg/kg in sample AA1005. Carbon disulfide was only detected in sample SD07 at a concentration of 0.0102 mg/kg.

SVOCs. Ten SVOCs were detected in six sediment samples and included 2,4-DNT, 2,6-DNT, benzo(a)anthracene, benzo(a)pyrene, benzo(a)flouranthene, bis(2ethylhexyl)phthalate, chrysene, flouranthene, phenanthrene, and pyrene. At sample location SD06 (AA1006), seven SVOCs were detected with flouranthene at the greatest concentration of 0.688 mg/kg. SVOCs were detected at SD01 (2,4-DNT, 2,6-DNT), SD02 (bis(2ethylhexyl)phthalate), SD03 (2,6 DNT), SD05 (benzo(a)pyrene), and SD07 (2,4-DNT, 2,6-DNT).

PCBs. One PCB (Aroclor-1260) was detected at four sediment sampling locations. Concentrations ranged from 0.0204 mg/kg at SD08 to 0.731 mg/kg at SD05.

Inorganics. A total of twenty inorganics were detected in at least one of the ten sediment samples (SD08). Sixteen of these inorganics, aluminum, arsenic, barium, beryllium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, potassium, vanadium, and zinc were detected in all samples collected.

2.7.2 Off-Site (Plum Brook) Analytical Results

One surface water sample (AA2016) and five composite sediment samples (AA1013 through AA1017) were collected from Plum Brook. Surface water sample AA2016, collected from location SW14, was the only surface water sample able to be collected due to the creek being dry. All samples were analyzed for nitroaromatic compounds VOCs, SVOCs, PCBs, and inorganics.

2.7.2.1 Surface Water Results

Nitroaromatics. Nitroaromatic compounds were not detected in the surface water sample.

VOCs. Two VOCs were detected in the surface water sample. Acetone was detected at a concentration of 13.3 µg/L and methylene chloride was detected at 1.0 µg/L.

SVOCs. SVOCs were not detected in the surface water sample.

PCBs. PCBs were not detected in the surface water sample.

Inorganics. Seventeen inorganics were detected in the unfiltered sample. Aluminum, arsenic, barium, beryllium, calcium, chromium, cobalt, copper, iron, magnesium, manganese, nickel, potassium, silver, sodium, vanadium, and zinc. Cadmium, lead, and selenium were not detected.

2.7.2.2 Sediment Results

Nitroaromatics. Nitrobenzene was detected in all five composite samples. Concentrations were 0.05 mg/kg at SD11, 0.08 mg/kg at SD12, 0.27 mg/kg at SD13, 0.06 mg/kg at SD14, and 0.06 mg/kg at SD15.

VOCs. Three VOCs, acetone, carbon disulfide, and methylene chloride were detected in two of the five sediment samples. Acetone was found in four of the five samples and ranged in concentration from 0.0168 to 0.0284 mg/kg. Carbon disulfide was found in two samples at 0.0026 and 0.0046. Methylene chloride was detected in all five samples with concentrations ranging from 0.0141 to 0.0357 mg/kg.

SVOCs. Seventeen SVOCs (primarily PAHs) were detected in sediment samples. The greatest SVOCs detected were benzo(a)anthracene (2.81 mg/kg), benzo(a)pyrene (1.93 mg/kg), benzo(a)flouranthene (2.34 mg/kg), benzo(k)flouranthene (1.11 mg/kg), chrysene (2.92 mg/kg), fluoranthene (5.95 mg/kg), phenanthrene (3.58 mg/kg), and pyrene (4.74 mg/kg), all from sample location SD11 (AA1013).

PCBs. One PCB (Aroclor-1260) was detected at four sediment sampling locations. Concentrations ranged from 0.029 mg/kg at SD13 to 0.116 mg/kg at SD11.

Inorganics. A total of twenty inorganics were detected in at least one of the five sediment samples (SD13). Eighteen of these inorganics, aluminum, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, vanadium, and zinc were detected in all sediment samples.

3.0 Conclusions and Recommendations

This section presents conclusions and recommendations for the TNTA remedial investigation (RI) at the former PBOW based on the analytical results presented in Section 2.0. The objectives of the RI were to determine the nature and extent of contamination in TNTA surface soil, subsurface soil, surface water, and sediment to support risk assessments and a potential future remedial action.

3.1 Conclusions of the Remedial Investigation

3.1.1 DNT Process Buildings

Building 182, DNT Sweating and Graining House. Low concentrations of nitroaromatics were detected in surface soil samples at this site; however, none of these detections exceeded PRGs. Subsurface samples (both screening and confirmation samples) indicate that subsurface soil has been impacted by nitroaromatics, particularly DNT. In addition, PAHs were also detected in the soil, probably related to either atmospheric deposition or the burning of the site buildings. Groundwater was not present in the overburden at this site.

Building 185, DNT Nitrating Building. Nitroaromatics were not detected in site surface soils; however, DNT did exceed the PRG in the deepest subsurface soil sample collected near the former drowning tank. While the subsurface soil contamination PRGs was limited to one sample, overburden groundwater was also impacted at the site. In groundwater, DNT, TNT and manganese (unfiltered sample) exceeded PRGs.

Building 192, DNT Sweating and Graining House. Nitroaromatics, particularly DNT, were detected in all samples at this site. Concentrations exceeded PRGs for DNT, TNT and 4A-2,6-DNT. Contamination extends down to four feet bgs, the thickness of the overburden in this area. In addition, lead exceeded the PBOW background concentration in one surface soil confirmation sample. Limited overburden groundwater was present at this site. Data from the groundwater sample at this site indicate that DNT, iron and manganese (unfiltered) exceed PRGs.

Building 195, DNT Nitrating Building. Analytical results from this site indicate limited impact to surface soils by nitroaromatics with only DNT and/or TNT in one screening and confirmation sample exceeding PRGs. In addition, Aroclor-1260 also exceeded PRGs.

Subsurface soil has also been impacted at this site with both DNT and TNT detected at concentrations above PRGs.

3.1.2 Wastewater Settling Tanks

Surface and subsurface soil sampling adequately covered the area around the outside and inside of the concrete foundation wall of Building 187. Analytical results indicate that site-related contamination is minor, with no exceedances of PRGs.

3.1.3 Process Line 1 Buildings

Building 111, Mono House. Nitroaromatic contamination was found in the surface and subsurface soil around the Mono House in close proximity to the former drowning tank. The main nitroaromatic compound detected was total DNT at concentrations up to 12 mg/kg.. In addition, groundwater has also been impacted by DNT, 2-NT and 4-NT, benzene and toluene at concentrations above PRGs. Aluminum, arsenic, iron lead and manganese were also present in groundwater at concentrations exceeding PRGs.

Building 112, Bi-Tri House. Field screening results determined that nitroaromatic contamination is isolated to the area near the former drowning tank. The main nitroaromatics detected were TNT and DNT with the highest concentrations being approximately 1,298 mg/kg and 865 mg/kg, respectively. The contamination appears to be limited to approximately 8 feet bgs. In addition, Aroclor-1260 and lead exceeded the PRG and background concentrations, respectively. Groundwater at this location also has been impacted by nitroaromatics at concentrations above PRGs. PRG exceedances were also observed for the inorganics, but these likely were due to suspended solids.

Building 113, Fortifier House. Field screening results indicate that nitroaromatic contamination is limited at this site. The most significant detections were TNT (10.5 mg/kg) and 4A-2,6-DNT (1.05 mg/kg).

Building 116, Wash House. Both screening and confirmation samples indicate that the nitroaromatic contamination at the Wash House is mainly limited to the subsurface soil. The only nitroaromatic compounds detected above their PRGs were 2A-4,6-DNT (12.5 mg/kg) and 4A-2,6-DNT (7.13 mg/kg). Groundwater has also been impacted at this site. Three nitroaromatics, 2A-4,6-DNT, 4A-2,6-DNT, and TNT all exceeded PRGs. Arsenic, iron, lead and manganese were also above PRGs.

Building 119, Acid and Fume Recovery Building. Soil and groundwater at this building have been impacted by site activities. Nitroaromatics were detected at concentrations exceeding PRGs in both surface and subsurface soils. DNT was detected at the highest concentration but elevated concentrations of the DNT isomers, the NT isomers, and TNT were also reported. In addition, Aroclor-1260 exceeded PRGs and lead was detected at concentrations above PBOW background.

As with the soil, groundwater also has been impacted by site activities. DNT, NB, and NT isomers exceeded PRGs. In addition, Aroclor-1260, arsenic, iron, lead, and manganese exceeded PRGs.

3.1.4 Process Line 2 Buildings

Building 121, Mono House. The present NASA administration building is constructed over the location of the former Mono House; therefore, no samples could be collected from this site.

Building 122, Bi-Tri House. Nitroaromatics were not detected above PRGs at this site. However, it is likely that the building foundation was removed during construction activities associated with the NASA administration building.

Building 123, Fortifier House. Nitroaromatics were not detected above PRGs at this site. However, it is likely that the building foundation was removed during construction activities associated with the NASA administration building.

Building 126, Wash House. Nitroaromatic contamination was detected at elevated levels in the surface soil at this site. TNT and the amino DNT isomers were the most common contaminants exceeding PRGs in both surface and subsurface soils. Contamination at this site extends at least 10 feet bgs. Other contaminants in soil exceeding PRGs include Aroclor-1260.

Groundwater also has been impacted by site activities. As with the soil, TNT, DNT, and the amino-DNT isomers were detected at concentrations above PRGs. The only other analytes to exceed PRGs in groundwater were the inorganics arsenic, iron, lead and manganese.

Building 128, Nailing House. Only three nitroaromatics were detected in two surface soil samples collected from this site with all detections below PRGs. Based on the low concentrations of nitroaromatics detected, impact to this site is minimal.

Building 129, Acid and Fume Recovery Building. Only limited nitroaromatic contamination was detected in two surface soil samples at this site. DNT exceeded the PRG in these two samples but not in deeper subsurface samples. Based on field screening results, minimal impact has occurred at this site due to former process activities.

3.1.5 Process Line 3 Buildings

Building 131, Mono House. Nitroaromatic contamination was not detected in any surface soil samples at this site. However, DNT and the DNT isomers exceeded the PRG in the subsurface samples near the drowning tank. Other analytes exceeding PRGs were Aroclor-1260 and lead. Groundwater has also been impacted at this site with DNT and 2-NT detected at concentrations above PRGs. In addition, the inorganics arsenic, iron, lead and manganese also exceeded the PRGs.

Building 132, Bi-Tri House. Nitroaromatic compounds were not detected at concentrations above the PRGs at this site. Based on the field screening results, impact to this site is minimal.

Building 133, Fortifier House. Surface soil screening data showed only low levels of nitroaromatic contamination, and mostly near the drowning tank. TNT and amino-DNT isomers exceeded PRGs. However, subsurface soil screening samples from the drowning tank location, did not indicate that nitroaromatics had significantly impacted this site.

Building 136, Wash House. Low level nitroaromatic contamination (mostly TNT and the amino-DNT isomers) was detected in most of the surface soil screening samples, but at concentrations below their PRGs. Nitroaromatic contamination was not detected at depth. Other soil contaminants include lead detected above PBOW background and benzo(a)pyrene detected above PRGs. Based on the limited detections, environmental impact at this site appears to be minimal.

Building 139, Acid and Fume Recovery Building. Nitroaromatics were only detected at concentrations above PRGs in one location at this site. Based on the limited detections, environmental impact at this site is limited.

3.1.6 Process Line 4 Buildings

Building 141, Mono House. Nitroaromatics were only detected in the surface soil samples collected near the drowning tank from this site. Total DNT, TNT and the amino DNT isomers exceeded PRGs. Lead was also detected at a concentration exceeding PBOW background. Based on field screening results, nitroaromatic contamination is limited to the drowning tank area surface soils.

Building 142, Bi-Tri House. Nitroaromatics were only detected at concentrations above PRGs in three surface soil samples at this site. In addition, Aroclor 1260 and lead exceeded the PRG and PBOW background, respectively. Based on these results, contamination at this site is limited to one area.

Building 143, Fortifier House. Only one sample (AA0035) had DNT and the amino DNT isomers exceeding PRGs. This sample was collected to confirm historical detections reported by D&M. The only other compound exceeding PRGs was benzo(a)pyrene. Based on these results, environmental impact is limited surface soil contamination near sample AA0035.

Building 146, Wash House. Field screening data indicates that nitroaromatic contamination above the PRGs is present in surface and subsurface soils at this site. The nitroaromatic compounds that exceeded their PRG were mainly TNT (2,385 mg/kg max.), DNT (32.6 mg/kg max.) and the amino DNT isomers. (14.1 mg/kg max.) The only other contaminant of potential concern was lead which only marginally exceeded PBOW background. TNT, DNT, and the amino DNT isomers were found in the groundwater sample at concentrations above their PRGs. In addition, arsenic, iron, lead and manganese also exceeded PRGs. Based on these results, this site shows significant impact from historical processes.

Building 148, Nail House. Only one nitroaromatic compound (2A-4,6-DNT) was detected at a concentration above PRGs in sample AA0077. In addition, Aroclor 1260 marginally exceeded the PRG in surface soils. Based on the limited detections, environmental impact at this site is minimal and limited to a small area near sample AA0077.

Building 149, Acid and Fume Recovery Building. Nitroaromatics were only detected at low concentrations in the surface soil samples at this site. Based on the limited detections, environmental impact at this site is minimal.

3.1.7 On-Site (Lindsey Ditch) Surface Water and Sediment

Surface Water. Analytical results indicate that nitroaromatics, VOCs, SVOCs, and metals are present in surface water. The amino-DNT isomers were detected in two surface water samples at concentrations up to 2.34 μg/L. Only three VOCs were detected, all at concentrations below 3.75 μg/L. Two of these compounds, acetone, and methylene chloride could be laboratory contamination introduced during extraction and sample analysis.

Sediment. Analytical results for sediment indicate that nitroaromatics, VOCs, SVOCs, PCBs, and metals are present in sediment. As with surface water, these compounds were detected at low concentrations. In addition, the detection of acetone and methylene chloride could be laboratory contaminants introduced during analysis. Ten SVOCs were detected in sediment. As with TNTA soils most of these are PAHs, which result from incomplete combustion of fossil fuels. It is most likely that the source of PAHs in both TNTB soils and Lindsey sediments is atmospheric deposition and/or road runoff and not sediment transport from a source at TNTA.

3.1.8 Off-Site (Plum Brook) Surface Water and Sediment

Surface Water. Analytical results indicate that VOCs, SVOCs, and metals are present in surface water. Only two VOCs (acetone and methylene chloride) were detected at concentrations below 13.3 μg/L. These compounds are attributable be laboratory contamination introduced during extraction and sample analysis.

Sediment. Analytical results for sediment indicate that nitroaromatics, VOCs, SVOCs, PCBs, and metals are present in sediment. As with surface water, these compounds were detected at low concentrations. The only nitroaromatic detected was nitrobenzene at concentrations below 0.06 mg/kg. VOCs detected were acetone, carbon disulfide, and methylene chloride at low concentrations. Again, the detection of acetone and methylene chloride could be laboratory contaminants introduced during analysis. Seventeen SVOCs were detected in sediment. As with TNTA soils most of these are PAHs, which result from incomplete combustion of fossil fuels. It is most likely that the source of PAHs in both TNTA soils and Lindsey sediments is atmospheric deposition and/or road runoff and not sediment transport from a source at or downgradient of TNTA. PCBs were also detected at concentrations below 0.12 mg/kg.

3.2 Recommendations

- Based on the analytical results from this investigation, no additional soils sampling is required to delineate surface soil contamination. Further evaluation of required sampling is dependent on results of the soil risk assessment for these areas.

- Additional subsurface sampling may be required to delineate contamination detected in this investigation. As with surface soil sampling, further evaluation of required sampling is dependent on results of the soil risk assessment for these areas.

4.0 References

Dames and Moore (D&M), 1997, ***TNT Areas Site Investigation, Final Report, Plum Brook Ordnance Works, Sandusky, Ohio***, prepared for U.S. Army Corps of Engineers, Nashville District/Huntington District, April.

IT Corporation (IT), 1999, Final - *Summary Report*, ***Site-Wide Groundwater Monitoring (1997-1998), Former Plum Brook Ordnance Works, Sandusky, Ohio***, June.

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IT Corporation (IT), 1997, ***Site-Wide Groundwater Investigation, Former Plum Brook Ordnance Works, Sandusky, Ohio***, September.

Morrison-Knudsen Ferguson Corporation (MK), 1994, ***Site Inspection Report, Plum Brook Station, Sandusky, Ohio***, Volume 1, January.

Ohio Department of Natural Resources, 1994, ***Erie County Soil Survey Progress Report, Erie Soil and Water Conservation District, Sandusky, Ohio***.

TABLES

Table 1-1

Historical Surface Water and Sediment Analytical Results (1994)[a]
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Sample ID	Date	Media	Unit	Parameter	Result	VQ
MK04SW16	7/93	SW	ug/L	Aluminum - Unfiltered	404	*
				Barium - Unfiltered	23.2	B
				Magnesium - Filtered	10700	
				Magnesium -Unfiltered	10300	
				Manganese - Filtered	74.9	
				Manganese - Unfiltered	151	
MK04SD16	7/93	SD	mg/kg	Acetone	0.025	
				Methylene Chloride	0.0009	J
				2,4-Dinitritoluene	0.170	J
				Benzo(a)pyrene	0.070	J
				Benzo(b)fluoranthene	0.190	J
				Chrysene	0.120	J
				Flouranthene	0.220	J
				Phenanthrene	0.082	J
				Pyrene	0.160	J
				4,4-DDT	0.0098	J
				Dieldrin	0.0027	J
				Methoxychlor	0.029	*
				Aluminum	5510	*
				Arsenic	30.3	N*
				Barium	131	
				Beryllium	2.2	
				Cadmium	1.8	BNJ
				Chromium	8.3	
				Cobalt	107	
				Copper	18.9	
				Lead	38.3	
				Magnesium	2930	*
				Managanese	3230	*
				Nickel	183	
				Vanadium	32.7	B*
				Zinc	247	*
MK04SW17	7/93	SW	ug/L	Aluminum - Unfiltered	1450	
				Barium - Filtered	86.2	B
				Barium - Unfiltered	97.5	B
				Magnesium - Filtered	37900	
				Magnesium - Unfiltered	37800	
				Manganese - Filtered	457	
				Manganese - Unfiltered	591	
				Nickel - Unfiltered	35.4	B
				Zinc - Filtered	59.3	
				Zinc - Unfiltered	40.8	

Table 1-1

Historical Surface Water and Sediment Analytical Results (1994)[a]
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Sample ID	Date	Media	Unit	Parameter	Result	VQ
MK04SD17	7/93	SD	mg/kg	Acetone	0.021	
				Toluene	0.001	J
				Benzo(a)pyrene	0.076	J
				Benzo(b)fluoranthene	0.200	J
				Chrysene	0.091	J
				Flouranthene	0.180	J
				Phenanthrene	0.052	J
				Pyrene	0.140	J
				Aluminum	8050	*
				Arsenic	6.1	N*
				Barium	113	
				Beryllium	2.7	
				Cadmium	2.3	BNJ
				Chromium	10.3	
				Cobalt	68.3	
				Copper	21.0	
				Lead	19.1	
				Magnesium	3190	*
				Managanese	2490	*
				Mercury	0.05	
				Nickel	128	
				Vanadium	17.9	*
				Zinc	199.0	*

[a] Morrison Knudsen, (1994a).
VQ - Validation qualifier.
SW - Surface water.
SD - Sediment
EPA Region IX PRG's and PBOW background values are not established for surface water or sediment.
Only the detected analytical results are shown.
The nutritionally essential elements calcium, iron, potassium, and sodium are not included.
* Relative percent difference between two duplicates is outside stated control limits.
B - Compound found also in the associated blank.
J - Indicates an estimated value.
N - Spiked analyze recovery is outside stated control limits.

Table 1-2

Historical Soil Analytical Results Above PRGs and Background (1993 and 1994)
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

TNTA Location or Associated Bldg	Sample ID	Date	Unit	PARAMETER	PRG	Background	RESULT	VQ
Surface Soil samples collected by Morrison Knudsen in 1993 (MK, 1994a).								
Soil from monitoring well MK-MW22 boring (collected 0-2' bgs)	MK04SB14	7/93	mg/kg	Benzo(a) anthracene	0.62	ne	220	J
			mg/kg	Benzo(ghi)perylene	ne	ne	0.074	J
			mg/kg	Phenanthrene	ne	ne	0.091	J
			mg/kg	Magnesium	ne	ne	1000	
Soil from monitoring well MK-MW23 boring (collected 0-2' bgs)	MK04SB15	7/93	mg/kg	Magnesium	ne	ne	915	
Soil from monitoring well MK-MW24 boring (collected 0-2' bgs)	MK04SB16	7/93	mg/kg	Phenanthrene	ne	ne	0.041	J
			mg/kg	Magnesium	ne	ne	630	
Soil from southwest corner of TNTA (collected 0-2' bgs)	MK04SS23	7/93	mg/kg	Magnesium	ne	ne	761	*
Soil Samples Collected by Dames & Moore in 1994 (D&M, 1997a)								
Wastewater Settling Basins - Bldg 187	TNTA-S1-1.5/5.0	10/28/94	mg/kg	2,4,6-Trinitrotoluene	16	ne	580	
		10/29/94	mg/kg	2,4 Dinitrotoluene	0.72	ne	5	
		10/28/94	mg/kg	2,6-Dinitrotoluene	0.72	ne	5.6	
		10/28/94	mg/kg	4-Amino-2-nitrotoluene	ne	ne	0.3	
		10/28/94	mg/kg	4-Amino-2,6-dinitrotoluene	3.3	ne	5.6	
		10/28/94	mg/kg	2-Amino-4,6-dinitrotoluene	3.3	ne	7.0	
Fortifier House - Bldg 143	TNTA-S15-0.0/2.0	10/29/94	mg/kg	2,4,6-Trinitrotoluene	16	ne	53	
		10/29/94	mg/kg	2,6-Dinitrotoluene	0.72	ne	0.8	
	TNTA-S16-0.0/2.0	10/29/94	mg/kg	2,4,6-Trinitrotoluene	16	ne	19	
		10/29/94	mg/kg	2,4-Dinitrotoluene	0.72	ne	1.5	
		10/29/94	mg/kg	2,6-Dinitrotoluene	0.72	ne	1.3	
Wash House - Line 4 - Bldg 146	TNTA-S10-2.5/3.5	10/26/94	mg/kg	Lead	ne	48.6	60	
Bi-Tri House-Bldg 142	TNTA-S20-0.5/1.5	10/29/94	mg/kg	Lead	ne	48.6	1809	
Mono House - Bldg 141	TNTA-S22-0.0/2.0	10/29/94	mg/kg	2,4-Dinitrotoluene	0.72	ne	45	
		10/29/94	mg/kg	2,6-Dinitrotoluene	0.72	ne	47	
	TNTA-S23-0.0/2.0	10/29/94	mg/kg	Lead	ne	48.6	187	
DNT Sweating and Graining House - Bldg 192	TNTA-S24-0.0/1.5	10/29/94	mg/kg	Lead	ne	48.6	256	
	TNTA-S25-0.0/1.5	10/29/94	mg/kg	4-Amino-2-nitrotoluene	ne	ne	0.4	
		10/30/94	mg/kg	2,4-Dinitrotoluene	ne	ne	2.7	
		10/29/94	mg/kg	Lead	ne	48.6	1400	
	TNTA-S26-0.0/1.5	10/29/94	mg/kg	3,4-Dinitrotoluene	0.72	ne	8.9	
		10/29/94	mg/kg	Lead	ne	48.6	130	
QA Samples	TNTA-S29-0.0/2.0	10/29/94	mg/kg	2,4-Dinitrotoluene	0.72	ne	2.7	
		10/29/94	mg/kg	2,6-Dinitrotoluene	0.72	ne	1.5	
		10/29/94	mg/kg	Lead	ne	48.6	55	
	TNTA-S30-1.5/3.0	10/29/94	mg/kg	3,4-Dinitrotoluene	0.72	ne	0.8	

Table 1-2

Historical Soil Analytical Results Above PRGs and Background (1993 and 1994)
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

QA sample TNTA-S29-0.0/2.0 is a split of TNTA-S16-0.0/2.0.
QA sample TNTA-S30-1.5/3.0 is a split of TNTA-S24-1.5/3.0.

PRG - Nitoraromatic Preliminary Remediation Goals (PRG) developed specifically for TNTA & C RI, all others from November 2000, EPA Region IX.
Background concentrations for metals from the Investigation of Acid Areas report, (IT, 1998).
ne - PRG and/or background values not established.
The nutritionally essential elements calcium, iron, potassium, and sodium are not included.
* Relative percent difference between two duplicates is outside stated control limits.
J - Indicates an estimated value.

Table 1-3

Historical Groundwater Analytical Results Above PRGs, Overburden and Bedrock Monitoring Wells (1994 through 1998) TNT Area A - RI Report Former Plum Brook Ordnance Works, Sandusky, Ohio

TNTA Well Name	Unit	Parameter	PRG	Result (Filtered/Unfiltered)
Samples collected by Morrison Knudsen in 1993 (MK, 1994).				
		Metals		
MK-MW22	[a]NA			
MK-MW-23	[a]NA			
MK-MW24	µg/L	Arsenic	0.045	ND/21.0
	µg/L	Lead	ne	ND/18
	µg/L	Magnesium	ne	49600/70800
	µg/L	Manganese	880	<PRG/1530N
		Organics		
MK-MW22	None			
MK-MW-23	None			
MK-MW24	µg/L	bis(2-ethylhexyl) phthalate	4.8	22
Samples collected by Dames and Moore in 1994 (D&M, 1997a).				
		Metals		
PB-TNTA-MW10	µg/L	Lead	ne	<DL/7
	µg/L	Manganese	880	960/980
PB-TNTA-MW11	µg/L	Arsenic	0.045	<DL/10
	µg/L	Lead	ne	<DL/14
	µg/L	Manganese	880	<PRG/1300
PB-BED-MW17	µg/L	Arsenic	0.045	15/18
		Organics		
PB-TNTA-MW10	µg/L	2,4,6-TNT	2.2	10
	µg/L	4-Amino-2,6-dinitrotoluene	2.2	8.7
	µg/L	2-Amino-2,6-dinitrotoluene	2.2	31
	µg/L	2-Amino-4-nitrotoluene	ne	1.3
PB-BED-MW17	µg/L	Benzene	0.41	33
	µg/L	2-Methyl-naphthalene	ne	20
	µg/L	Naphthalene	6.2	21
	µg/L	3,4-Dinitrotoluene	0.099	2.2
PB-BED-MW18	µg/L	Benzene	0.41	14
	µg/L	Naphthalene	6.2	17
Samples collected by IT in November 1997 (IT, 1998).				
		Metals		
MK-MW22	µg/L	Lead	ne	ND/6.7
	µg/L	Magnesium	ne	17900/17500
MK-MW23	µg/L	Arsenic	0.045	13.8/59.8
	µg/L	Lead	ne	ND/29.8
	µg/L	Magnesium	ne	49900/61400
	µg/L	Manganese	880	ND/1370
MK-MW24	µg/L	Lead	ne	ND/13.1
	µg/L	Manganese	880	<PRG/788
	µg/L	Magnesium	ne	41300/47400
		Organics		
MK-MW22	µg/L	di-n-octyl-phthalate	ne	9.3J
PB-BED-MW17	µg/L	Benzene	0.41	10J
	µg/L	Cynanide	6.2	320
	µg/L	Methylene Chloride	4.3	18B
PB-BED-MW18	µg/L	Benzene	0.41	11

Table 1-3

Historical Groundwater Analytical Results Above PRGs, Overburden and Bedrock Monitoring Wells (1994 through 1998) TNT Area A - RI Report Former Plum Brook Ordnance Works, Sandusky, Ohio

TNTA Well Name	Unit	Parameter	PRG	Result (Filtered/Unfiltered)
Samples collected by IT in May 1998 (IT, 1999a)				
		Metals		
MK-MW22	µg/L	Lead	ne	ND/4.3
	µg/L	Magnesium	ne	17700/16200
MK-MW23	µg/L	Aluminum	36000	ND/143000J
	µg/L	Antimony	15	ND/82
	µg/L	Arsenic	0.045	ND/113
	µg/L	Chromium	110	ND/258
	µg/L	Lead	ne	ND/108
	µg/L	Magnesium	ne	57100J/172000
	µg/L	Manganese	880	<PRG/7550
MK--MW24	µg/L	Magnesium	ne	33900/29700
PB-BED-MW17	µg/L	Arsenic	0.045	13.1/ND
	µg/L	Lead	ne	6.8/ND
	µg/L	Magnesium	ne	231000J/212000
PB-BED-MW18	µg/L	Magnesium	ne	1020000/938000
		Organics		
MK-MW23	µg/L	bis(2-ethylhexyl) phthalate	4.8	890D
PB-BED-MW17	µg/L	Naphthalene	6.2	18
	µg/L	Methylene Chloride	4.3	65B
PB-BED-MW18	µg/L	Benzene	0.41	5.7
	µg/L	Naphthalene	6.2	10

PRG - Preliminary Remediation Goals (PRG) from November 2000, EPA Region IX.
PBOW background values for groundwater not established.
Only the detected analytical results above PRG values are shown.
The nutritionally essential elements calcium, iron, potassium, and sodium are not included.
[a]NA - Due to an insufficient sample volume, nitroaromatics, pesticides/PCBs, SVOCs, filtered/unfiltered metals were not analyzed.
ND - Not detected.
ne - EPA Region IX PRG not established.
<DL - Below detection limit.
<DL/7 - Filtered/Unfiltered. Result is unfiltered unless otherwise indicated.
PRGs for 2-amino-4,6-dinitrotoluene and 4-amino-2,6-dinitrotoluene created by IT risk management.
J - Indicates an estimated value. Compound was detected above the method detection limit but below the quantitation limit.
B - Compound found also in the associated blank.
N - Spiked analyte recovery is outside stated control limits.
* Relative percent difference between two duplicates is outside stated control limits.

Table 2-1
Summary of Soil Sample Locations
TNT Area A - RI Report
Former Plum Brook Ordnance Works Sandusky, Ohio

Surface/Subsurface/Sediment Screening and Confirmation Soil Samples

Sample ID	Sample Name	Building ID	Sample Date	Sample Depth (ft)	Comments
AA0108	PBOW-00-SS-TNTA-SO108-AA0108-(00-01)	111	20-Jul-00	1.0 - 2.0	**(Initial screening samples)**
AA0109	PBOW-00-SS-TNTA-SO109-AA0109-(00-01)	111	20-Jul-00	0.5 - 1.5	
AA0110	PBOW-00-SS-TNTA-SO110-AA0110-(00-01)	111	20-Jul-00	0.5 - 1.5	
AA0111	PBOW-00-SS-TNTA-SO111-AA0111-(00-01)	111	20-Jul-00	1.0 - 2.0	DNT, collocated 0-1' sample ASO-314
AA0123	PBOW-00-SS-TNTA-SO123-AA0123-(00-01)	112	19-Jul-00	2.0 - 3.0	2-A4,6-DNT, 4-A2,6-DNT, TNT, collocated 0-1' sample ASO-323
AA0124	PBOW-00-SS-TNTA-SO124-AA0124-(00-01)	112	19-Jul-00	2.0 - 3.0	
AA0125	PBOW-00-SS-TNTA-SO125-AA0125-(00-01)	112	19-Jul-00	3.0 - 4.0	
AA0126	PBOW-00-SS-TNTA-SO126-AA0126-(00-01)	112	19-Jul-00	3.0 - 4.0	4-A2,6-DNT, TNT, collocated 0-1' sample ASO-324
AA0127	PBOW-00-SS-TNTA-SO127-AA0127-(00-01)	112	19-Jul-00	2.0 - 3.0	
AA0128	PBOW-00-SS-TNTA-SO128-AA0128-(00-01)	112	19-Jul-00	1.5 - 2.5	DNT, TNT, collocated 0-1' sample ASO-325
AA0129	PBOW-00-SS-TNTA-SO129-AA0129-(00-01)	112	19-Jul-00	1.5 - 2.5	
AA0130	PBOW-00-SS-TNTA-SO130-AA0130-(00-01)	112	19-Jul-00	3.0 - 4.0	
AA0131	PBOW-00-SS-TNTA-SO131-AA0131-(00-01)	112	19-Jul-00	2.5 - 3.5	
AA0132	PBOW-00-SS-TNTA-SO132-AA0132-(00-01)	112	19-Jul-00	2.5 - 3.5	
AA0487	PBOW-00-SS-TNTA-SO487-AA0487-(00-01)	112	13-Oct-00	1.5 - 2.5	
AA0488	PBOW-00-SS-TNTA-SO488-AA0488-(00-01)	112	13-Oct-00	1.0 - 2.0	
AA0117	PBOW-00-SS-TNTA-SO117-AA0117-(00-01)	113	19-Jul-00	2.0 - 3.0	
AA0118	PBOW-00-SS-TNTA-SO118-AA0118-(00-01)	113	19-Jul-00	1.5 - 2.5	
AA0119	PBOW-00-SS-TNTA-SO119-AA0119-(00-01)	113	19-Jul-00	2.5 - 3.5	
AA0120	PBOW-00-SS-TNTA-SO120-AA0120-(00-01)	113	19-Jul-00	2.0 - 3.0	
AA0121	PBOW-00-SS-TNTA-SO121-AA0121-(00-01)	113	19-Jul-00	3.0 - 4.0	DNT collocated 0-1' sample ASO-322
AA0122	PBOW-00-SS-TNTA-SO122-AA0122-(00-01)	113	19-Jul-00	1.0 - 2.0	
AA0189	PBOW-00-SS-TNTA-SO189-AA0189-(00-01)	116	24-Jul-00	1.0 - 2.0	
AA0190	PBOW-00-SS-TNTA-SO190-AA0190-(00-01)	116	24-Jul-00	1.0 - 2.0	
AA0191	PBOW-00-SS-TNTA-SO191-AA0191-(00-01)	116	24-Jul-00	1.0 - 2.0	
AA0192	PBOW-00-SS-TNTA-SO192-AA0192-(00-01)	116	24-Jul-00	0.5 - 1.5	
AA0193	PBOW-00-SS-TNTA-SO193-AA0193-(00-01)	116	24-Jul-00	0.1 - 1.1	

Table 2-1
Summary of Soil Sample Locations
TNT Area A - RI Report
Former Plum Brook Ordnance Works Sandusky, Ohio

Sample ID	Sample Name	Building ID	Sample Date	Sample Depth (ft)	Comments
AA0194	PBOW-00-SS-TNTA-SO194-AA0194-(00-01)	116	24-Jul-00	0.5 - 1.5	
AA0195	PBOW-00-SS-TNTA-SO195-AA0195-(00-01)	116	24-Jul-00	0.0 - 1.0	
AA0196	PBOW-00-SS-TNTA-SO196-AA0196-(00-01)	116	24-Jul-00	1.0 - 2.0	
AA0197	PBOW-00-SS-TNTA-SO197-AA0197-(00-01)	116	24-Jul-00	1.0 - 2.0	
AA0198	PBOW-00-SS-TNTA-SO198-AA0198-(00-01)	116	24-Jul-00	1.0 - 2.0	
AA0199	PBOW-00-SS-TNTA-SO199-AA0199-(00-01)	116	24-Jul-00	1.0 - 2.0	
AA0200	PBOW-00-SS-TNTA-SO200-AA0200-(00-01)	116	24-Jul-00	1.0 - 2.0	
AA0201	PBOW-00-SS-TNTA-SO201-AA0201-(00-01)	116	24-Jul-00	1.0 - 2.0	
AA0202	PBOW-00-SS-TNTA-SO202-AA0202-(00-01)	116	24-Jul-00	0.5 - 1.5	
AA0102	PBOW-00-SS-TNTA-SO102-AA0102-(00-01)	119	24-Jul-00	2.0 - 3.0	
AA0103	PBOW-00-SS-TNTA-SO103-AA0103-(00-01)	119	24-Jul-00	2.0 - 3.0	DNT, collocated 0-1' sample ASO-315
AA0104	PBOW-00-SS-TNTA-SO104-AA0104-(00-01)	119	24-Jul-00	2.0 - 3.0	
AA0105	PBOW-00-SS-TNTA-SO105-AA0105-(00-01)	119	24-Jul-00	2.0 - 3.0	DNT, collocated 0-1' sample ASO-316
AA0106	PBOW-00-SS-TNTA-SO106-AA0106-(00-01)	119	24-Jul-00	2.5 - 3.5	DNT, collocated 0-1' sample ASO-317
AA0107	PBOW-00-SS-TNTA-SO107-AA0107-(00-01)	119	24-Jul-00	2.0 - 3.0	DNT, collocated 0-1' sample ASO-318
AA0168	PBOW-00-SS-TNTA-SO168-AA0168-(00-01)	122	22-Jul-00	0.0 - 1.0	
AA0169	PBOW-00-SS-TNTA-SO169-AA0169-(00-01)	122	22-Jul-00	0.0 - 1.0	
AA0170	PBOW-00-SS-TNTA-SO170-AA0170-(00-01)	122	22-Jul-00	0.0 - 1.0	
AA0171	PBOW-00-SS-TNTA-SO171-AA0171-(00-01)	122	22-Jul-00	0.0 - 1.0	
AA0172	PBOW-00-SS-TNTA-SO172-AA0172-(00-01)	122	22-Jul-00	0.0 - 1.0	
AA0173	PBOW-00-SS-TNTA-SO173-AA0173-(00-01)	122	22-Jul-00	0.0 - 1.0	
AA0174	PBOW-00-SS-TNTA-SO174-AA0174-(00-01)	122	22-Jul-00	0.0 - 1.0	
AA0175	PBOW-00-SS-TNTA-SO175-AA0175-(00-01)	122	22-Jul-00	0.0 - 1.0	
AA0162	PBOW-00-SS-TNTA-SO162-AA0162-(00-01)	123	22-Jul-00	0.0 - 1.0	
AA0163	PBOW-00-SS-TNTA-SO163-AA0163-(00-01)	123	22-Jul-00	0.0 - 1.0	
AA0164	PBOW-00-SS-TNTA-SO164-AA0164-(00-01)	123	22-Jul-00	0.0 - 1.0	
AA0165	PBOW-00-SS-TNTA-SO165-AA0165-(00-01)	123	22-Jul-00	0.0 - 1.0	
AA0166	PBOW-00-SS-TNTA-SO166-AA0166-(00-01)	123	22-Jul-00	0.0 - 1.0	
AA0167	PBOW-00-SS-TNTA-SO167-AA0167-(00-01)	123	22-Jul-00	0.0 - 1.0	

Table 2-1
Summary of Soil Sample Locations
TNT Area A - RI Report
Former Plum Brook Ordnance Works Sandusky, Ohio

Sample ID	Sample Name	Building ID	Sample Date	Sample Depth (ft)	Comments
AA0203	PBOW-00-SS-TNTA-SO203-AA0203-(00-01)	126	25-Jul-00	1.5 - 2.5	
AA0204	PBOW-00-SS-TNTA-SO204-AA0204-(00-01)	126	25-Jul-00	2.0 - 3.0	
AA0205	PBOW-00-SS-TNTA-SO205-AA0205-(00-01)	126	25-Jul-00	0.5 - 1.5	TNT
AA0206	PBOW-00-SS-TNTA-SO206-AA0206-(00-01)	126	25-Jul-00	1.0 - 2.0	
AA0207	PBOW-00-SS-TNTA-SO207-AA0207-(00-01)	126	25-Jul-00	1.0 - 2.0	
AA0208	PBOW-00-SS-TNTA-SO208-AA0208-(00-01)	126	25-Jul-00	1.0 - 2.0	
AA0209	PBOW-00-SS-TNTA-SO209-AA0209-(00-01)	126	25-Jul-00	1.0 - 2.0	
AA0210	PBOW-00-SS-TNTA-SO210-AA0210-(00-01)	126	25-Jul-00	1.0 - 2.0	
AA0211	PBOW-00-SS-TNTA-SO211-AA0211-(00-01)	126	25-Jul-00	1.0 - 2.0	
AA0212	PBOW-00-SS-TNTA-SO212-AA0212-(00-01)	126	25-Jul-00	1.0 - 2.0	
AA0213	PBOW-00-SS-TNTA-SO213-AA0213-(00-01)	126	25-Jul-00	0.0 - 1.0	
AA0214	PBOW-00-SS-TNTA-SO214-AA0214-(00-01)	126	25-Jul-00	1.5 - 2.5	
AA0215	PBOW-00-SS-TNTA-SO215-AA0215-(00-01)	126	25-Jul-00	0.0 - 1.0	
AA0216	PBOW-00-SS-TNTA-SO216-AA0216-(00-01)	126	25-Jul-00	0.0 - 1.0	
AA0142	PBOW-00-SS-TNTA-SO142-AA0142-(00-01)	128	24-Jul-00	0.0 - 1.0	
AA0143	PBOW-00-SS-TNTA-SO143-AA0143-(00-01)	128	24-Jul-00	0.0 - 1.0	
AA0144	PBOW-00-SS-TNTA-SO144-AA0144-(00-01)	128	24-Jul-00	0.0 - 1.0	
AA0145	PBOW-00-SS-TNTA-SO145-AA0145-(00-01)	128	24-Jul-00	0.0 - 1.0	
AA0146	PBOW-00-SS-TNTA-SO146-AA0146-(00-01)	128	24-Jul-00	0.0 - 1.0	
AA0112	PBOW-00-SS-TNTA-SO112-AA0112-(00-01)	129	20-Jul-00	1.0 - 2.0	
AA0113	PBOW-00-SS-TNTA-SO113-AA0113-(00-01)	129	20-Jul-00	3.6 - 4.6	
AA0114	PBOW-00-SS-TNTA-SO114-AA0114-(00-01)	129	20-Jul-00	3.6 - 4.6	
AA0115	PBOW-00-SS-TNTA-SO115-AA0115-(00-01)	129	20-Jul-00	3.6 - 4.6	
AA0116	PBOW-00-SS-TNTA-SO116-AA0116-(00-01)	129	20-Jul-00	3.6 - 4.6	DNT, collocated 0-1' sample ASO-313
AA0061	PBOW-00-SS-TNTA-SO061-AA0061-(00-01)	131	21-Jul-00	0.5 - 1.5	
AA0062	PBOW-00-SS-TNTA-SO062-AA0062-(00-01)	131	21-Jul-00	0.4 - 1.4	
AA0063	PBOW-00-SS-TNTA-SO063-AA0063-(00-01)	131	21-Jul-00	0.5 - 1.5	
AA0064	PBOW-00-SS-TNTA-SO064-AA0064-(00-01)	131	21-Jul-00	1.5 - 2.5	
AA0046	PBOW-00-SS-TNTA-SO046-AA0046-(00-01)	132	24-Jul-00	2.5 - 3.5	

Table 2-1
Summary of Soil Sample Locations
TNT Area A - RI Report
Former Plum Brook Ordnance Works Sandusky, Ohio

Sample ID	Sample Name	Building ID	Sample Date	Sample Depth (ft)	Comments
AA0047	PBOW-00-SS-TNTA-SO047-AA0047-(00-01)	132	24-Jul-00	2.0 - 3.0	
AA0048	PBOW-00-SS-TNTA-SO048-AA0048-(00-01)	132	24-Jul-00	2.5 - 3.5	
AA0049	PBOW-00-SS-TNTA-SO049-AA0049-(00-01)	132	24-Jul-00	2.0 - 3.0	
AA0050	PBOW-00-SS-TNTA-SO050-AA0050-(00-01)	132	24-Jul-00	2.0 - 3.0	
AA0051	PBOW-00-SS-TNTA-SO051-AA0051-(00-01)	132	24-Jul-00	2.5 - 3.5	
AA0052	PBOW-00-SS-TNTA-SO052-AA0052-(00-01)	132	24-Jul-00	2.5 - 3.5	DNT, collocated 0-1' sample ASO-320
AA0053	PBOW-00-SS-TNTA-SO053-AA0053-(00-01)	132	24-Jul-00	2.0 - 3.0	
AA0054	PBOW-00-SS-TNTA-SO054-AA0054-(00-01)	132	24-Jul-00	2.0 - 3.0	
AA0042	PBOW-00-SS-TNTA-SO042-AA0042-(00-01)	133	24-Jul-00	3.0 - 4.0	
AA0043	PBOW-00-SS-TNTA-SO043-AA0043-(00-01)	133	24-Jul-00	3.0 - 4.0	
AA0044	PBOW-00-SS-TNTA-SO044-AA0044-(00-01)	133	24-Jul-00	3.0 - 4.0	
AA0045	PBOW-00-SS-TNTA-SO045-AA0045-(00-01)	133	24-Jul-00	3.0 - 4.0	DNT, collocated 0-1' sample ASO-319
AA0176	PBOW-00-SS-TNTA-SO176-AA0176-(00-01)	136	24-Jul-00	0.0 - 1.0	
AA0177	PBOW-00-SS-TNTA-SO177-AA0177-(00-01)	136	24-Jul-00	0.5 - 1.5	
AA0178	PBOW-00-SS-TNTA-SO178-AA0178-(00-01)	136	24-Jul-00	0.0 - 1.0	
AA0179	PBOW-00-SS-TNTA-SO179-AA0179-(00-01)	136	24-Jul-00	1.0 - 2.0	
AA0180	PBOW-00-SS-TNTA-SO180-AA0180-(00-01)	136	24-Jul-00	0.5 - 1.5	
AA0181	PBOW-00-SS-TNTA-SO181-AA0181-(00-01)	136	24-Jul-00	1.5 - 2.5	
AA0182	PBOW-00-SS-TNTA-SO182-AA0182-(00-01)	136	24-Jul-00	1.0 - 2.0	
AA0183	PBOW-00-SS-TNTA-SO183-AA0183-(00-01)	136	24-Jul-00	0.5 - 1.5	
AA0184	PBOW-00-SS-TNTA-SO184-AA0184-(00-01)	136	24-Jul-00	0.5 - 1.5	
AA0185	PBOW-00-SS-TNTA-SO185-AA0185-(00-01)	136	24-Jul-00	1.0 - 2.0	
AA0186	PBOW-00-SS-TNTA-SO186-AA0186-(00-01)	136	24-Jul-00	0.5 - 1.5	
AA0187	PBOW-00-SS-TNTA-SO187-AA0187-(00-01)	136	24-Jul-00	1.0 - 2.0	
AA0188	PBOW-00-SS-TNTA-SO188-AA0188-(00-01)	136	24-Jul-00	0.5 - 1.5	
AA0036	PBOW-00-SS-TNTA-SO036-AA0036-(00-01)	139	21-Jul-00	1.0 - 2.0	
AA0037	PBOW-00-SS-TNTA-SO037-AA0037-(00-01)	139	21-Jul-00	2.5 - 3.5	
AA0038	PBOW-00-SS-TNTA-SO038-AA0038-(00-01)	139	21-Jul-00	0.5 - 1.5	
AA0039	PBOW-00-SS-TNTA-SO039-AA0039-(00-01)	139	21-Jul-00	0.5 - 1.5	

Table 2-1
Summary of Soil Sample Locations
TNT Area A - RI Report
Former Plum Brook Ordnance Works Sandusky, Ohio

Sample ID	Sample Name	Building ID	Sample Date	Sample Depth (ft)	Comments
AA0040	PBOW-00-SS-TNTA-SO040-AA0040-(00-01)	139	21-Jul-00	2.0 - 3.0	DNT, collocated 0-1' sample ASO-312
AA0041	PBOW-00-SS-TNTA-SO041-AA0041-(00-01)	139	21-Jul-00	1.0 - 2.0	
AA0001	PBOW-00-SS-TNTA-SO001-AA0001-(00-01)	141	21-Jul-00	0.1 - 1.1	
AA0002	PBOW-00-SS-TNTA-SO002-AA0002-(00-01)	141	21-Jul-00	0.5 - 1.5	
AA0003	PBOW-00-SS-TNTA-SO003-AA0003-(00-01)	141	21-Jul-00	2.5 - 3.5	DNT
AA0004	PBOW-00-SS-TNTA-SO004-AA0004-(00-01)	141	21-Jul-00	1.5 - 2.5	
AA0005	PBOW-00-SS-TNTA-SO005-AA0005-(00-01)	141	21-Jul-00	1.0 - 2.0	
AA0006	PBOW-00-SS-TNTA-SO006-AA0006-(00-01)	141	21-Jul-00	1.5 - 2.5	
AA0007	PBOW-00-SS-TNTA-SO007-AA0007-(00-01)	141	21-Jul-00	1.5 - 2.5	
AA0008	PBOW-00-SS-TNTA-SO008-AA0008-(00-01)	141	21-Jul-00	2.5 - 3.5	
AA0065	PBOW-00-SS-TNTA-SO065-AA0065-(00-01)	141	21-Jul-00	2.5 - 3.5	
AA0016	PBOW-00-SS-TNTA-SO016-AA0016-(00-01)	142	20-Jul-00	2.0 - 3.0	DNT, TNT, collocated 0-1' sample ASO-311
AA0017	PBOW-00-SS-TNTA-SO017-AA0017-(00-01)	142	20-Jul-00	1.5 - 2.5	
AA0018	PBOW-00-SS-TNTA-SO018-AA0018-(00-01)	142	20-Jul-00	0.2 - 1.2	DNT
AA0019	PBOW-00-SS-TNTA-SO019-AA0019-(00-01)	142	20-Jul-00	1.0 - 2.0	
AA0020	PBOW-00-SS-TNTA-SO020-AA0020-(00-01)	142	20-Jul-00	0.5 - 1.5	DNT
AA0021	PBOW-00-SS-TNTA-SO021-AA0021-(00-01)	142	20-Jul-00	1.5 - 2.5	
AA0022	PBOW-00-SS-TNTA-SO022-AA0022-(00-01)	142	20-Jul-00	1.5 - 2.5	
AA0023	PBOW-00-SS-TNTA-SO023-AA0023-(00-01)	142	20-Jul-00	1.5 - 2.5	
AA0024	PBOW-00-SS-TNTA-SO024-AA0024-(00-01)	142	20-Jul-00	0.5 - 1.5	
AA0025	PBOW-00-SS-TNTA-SO025-AA0025-(00-01)	142	20-Jul-00	1.5 - 2.0	
AA0026	PBOW-00-SS-TNTA-SO026-AA0026-(00-01)	143	21-Jul-00	2.0 - 3.0	
AA0027	PBOW-00-SS-TNTA-SO027-AA0027-(00-01)	143	21-Jul-00	1.6 - 2.6	
AA0028	PBOW-00-SS-TNTA-SO028-AA0028-(00-01)	143	21-Jul-00	1.6 - 2.6	
AA0029	PBOW-00-SS-TNTA-SO029-AA0029-(00-01)	143	21-Jul-00	2.0 - 3.0	
AA0030	PBOW-00-SS-TNTA-SO030-AA0030-(00-01)	143	21-Jul-00	1.0 - 2.0	
AA0031	PBOW-00-SS-TNTA-SO031-AA0031-(00-01)	143	21-Jul-00	0.0 - 1.0	
AA0032	PBOW-00-SS-TNTA-SO032-AA0032-(00-01)	143	14-Aug-00	1.6 - 2.6	
AA0033	PBOW-00-SS-TNTA-SO033-AA0033-(00-01)	143	14-Aug-00	0.5 - 1.5	

Table 2-1
Summary of Soil Sample Locations
TNT Area A - RI Report
Former Plum Brook Ordnance Works Sandusky, Ohio

Sample ID	Sample Name	Building ID	Sample Date	Sample Depth (ft)	Comments
AA0034	PBOW-00-SS-TNTA-SO034-AA0034-(00-01)	143	14-Aug-00	1.6 - 2.6	
AA0035	PBOW-00-SS-TNTA-SO035-AA0035-(00-01)	143	14-Aug-00	1.6 - 2.6	
AA0217	PBOW-00-SS-TNTA-SO217-AA0217-(00-01)	143	14-Aug-00	1.5 - 2.5	
AA0078	PBOW-00-SS-TNTA-SO078-AA0078-(00-01)	146	21-Jul-00	1.5 - 2.5	
AA0079	PBOW-00-SS-TNTA-SO079-AA0079-(00-01)	146	21-Jul-00	2.0 - 3.0	2-A4,6-DNT, TNT, collocated 0-1' sample ASO-308
AA0080	PBOW-00-SS-TNTA-SO080-AA0080-(00-01)	146	21-Jul-00	0.5 - 1.0	TNT, collocated 0-1' sample ASO-309
AA0081	PBOW-00-SS-TNTA-SO081-AA0081-(00-01)	146	21-Jul-00	0.8 - 1.8	TNT, collocated 0-1' sample ASO-310
AA0082	PBOW-00-SS-TNTA-SO082-AA0082-(00-01)	146	21-Jul-00	2.0 - 3.0	
AA0083	PBOW-00-SS-TNTA-SO083-AA0083-(00-01)	146	22-Jul-00	1.5 - 2.5	
AA0084	PBOW-00-SS-TNTA-SO084-AA0084-(00-01)	146	22-Jul-00	1.5 - 2.5	
AA0085	PBOW-00-SS-TNTA-SO085-AA0085-(00-01)	146	22-Jul-00	1.5 - 2.5	
AA0086	PBOW-00-SS-TNTA-SO086-AA0086-(00-01)	146	22-Jul-00	1.5 - 2.5	
AA0087	PBOW-00-SS-TNTA-SO087-AA0087-(00-01)	146	21-Jul-00	0.0 - 1.0	
AA0088	PBOW-00-SS-TNTA-SO088-AA0088-(00-01)	146	21-Jul-00	0.0 - 1.0	
AA0089	PBOW-00-SS-TNTA-SO089-AA0089-(00-01)	146	21-Jul-00	0.0 - 1.0	
AA0090	PBOW-00-SS-TNTA-SO090-AA0090-(00-01)	146	21-Jul-00	0.0 - 1.0	
AA0091	PBOW-00-SS-TNTA-SO091-AA0091-(00-01)	146	21-Jul-00	1.0 - 2.0	
AA0229	PBOW-00-SS-TNTA-SO299-AA0291-(00-01)	146	14-Aug-00	1.0 - 2.0	
AA0230	PBOW-00-SS-TNTA-SO230-AA0230-(00-01)	146	15-Aug-00	1.3 - 2.3	
AA0231	PBOW-00-SS-TNTA-SO231-AA0231-(00-01)	146	16-Aug-00	1.6 - 2.6	
AA0232	PBOW-00-SS-TNTA-SO232-AA0232-(00-01)	146	17-Aug-00	1.1 - 2.1	
AA0233	PBOW-00-SS-TNTA-SO233-AA0233-(00-01)	146	18-Aug-00	1.0 - 2.0	
AA0073	PBOW-00-SS-TNTA-SO073-AA0073-(00-01)	148	20-Jul-00	0.5 - 1.5	
AA0074	PBOW-00-SS-TNTA-SO074-AA0074-(00-01)	148	20-Jul-00	0.5 - 1.5	
AA0075	PBOW-00-SS-TNTA-SO075-AA0075-(00-01)	148	20-Jul-00	0.3 - 1.3	
AA0076	PBOW-00-SS-TNTA-SO076-AA0076-(00-01)	148	20-Jul-00	0.5 - 1.5	
AA0077	PBOW-00-SS-TNTA-SO077-AA0077-(00-01)	148	20-Jul-00	0.7 - 1.7	2-A4,6-DNT
AA0055	PBOW-00-SS-TNTA-SO055-AA0055-(00-01)	149	22-Jul-00	1.5 - 2.5	
AA0056	PBOW-00-SS-TNTA-SO056-AA0056-(00-01)	149	22-Jul-00	1.2 - 2.2	

Table 2-1
Summary of Soil Sample Locations
TNT Area A - RI Report
Former Plum Brook Ordnance Works Sandusky, Ohio

Sample ID	Sample Name	Building ID	Sample Date	Sample Depth (ft)	Comments
AA0057	PBOW-00-SS-TNTA-SO057-AA0057-(00-01)	149	22-Jul-00	1.5 - 2.5	
AA0058	PBOW-00-SS-TNTA-SO058-AA0058-(00-01)	149	22-Jul-00	1.5 - 2.5	
AA0059	PBOW-00-SS-TNTA-SO059-AA0059-(00-01)	149	22-Jul-00	1.3 - 2.3	DNT, collocated 0-1' sample ASO-321
AA0060	PBOW-00-SS-TNTA-SO060-AA0060-(00-01)	149	22-Jul-00	1.5 - 2.5	
AA0092	PBOW-00-SS-TNTA-SO092-AA0092-(00-01)	182	18-Jul-00	2.0 - 3.0	
AA0093	PBOW-00-SS-TNTA-SO093-AA0093-(00-01)	182	18-Jul-00	2.5 - 3.5	
AA0094	PBOW-00-SS-TNTA-SO094-AA0094-(00-01)	182	18-Jul-00	2.0 - 3.0	
AA0095	PBOW-00-SS-TNTA-SO095-AA0095-(00-01)	182	13-Sep-00	1.0 - 2.0	
AA0096	PBOW-00-SS-TNTA-SO096-AA0096-(00-01)	182	13-Sep-00	1.0 - 2.0	
AA0097	PBOW-00-SS-TNTA-SO097-AA0097-(00-01)	182	18-Jul-00	2.0 - 3.0	
AA0098	PBOW-00-SS-TNTA-SO098-AA0098-(00-01)	182	13-Sep-00	1.0 - 2.0	
AA0099	PBOW-00-SS-TNTA-SO099-AA0099-(00-01)	182	13-Sep-00	1.0 - 2.0	
AA0100	PBOW-00-SS-TNTA-SO100-AA0100-(00-01)	182	13-Sep-00	1.0 - 2.0	
AA0101	PBOW-00-SS-TNTA-SO101-AA0101-(00-01)	182	13-Sep-00	1.0 - 2.0	
AA0133	PBOW-00-SS-TNTA-SO133-AA0133-(00-01)	185	19-Jul-00	1.0 - 2.0	
AA0134	PBOW-00-SS-TNTA-SO134-AA0134-(00-01)	185	19-Jul-00	1.5 - 2.5	
AA0135	PBOW-00-SS-TNTA-SO135-AA0135-(00-01)	185	19-Jul-00	2.0 - 3.0	
AA0136	PBOW-00-SS-TNTA-SO136-AA0136-(00-01)	185	19-Jul-00	1.5 - 2.5	
AA0137	PBOW-00-SS-TNTA-SO137-AA0137-(00-01)	185	19-Jul-00	1.2 - 2.2	
AA0138	PBOW-00-SS-TNTA-SO138-AA0138-(00-01)	185	19-Jul-00	1.5 - 2.5	
AA0139	PBOW-00-SS-TNTA-SO139-AA0139-(00-01)	185	19-Jul-00	1.0 - 2.0	
AA0140	PBOW-00-SS-TNTA-SO140-AA0140-(00-01)	185	19-Jul-00	1.0 - 2.0	
AA0141	PBOW-00-SS-TNTA-SO141-AA0141-(00-01)	185	19-Jul-00	1.0 - 2.0	
AA0147	PBOW-00-SS-TNTA-SO147-AA0147-(00-01)	187	20-Jul-00	2.0 - 3.0	
AA0148	PBOW-00-SS-TNTA-SO148-AA0148-(00-01)	187	20-Jul-00	0.5 - 1.5	
AA0149	PBOW-00-SS-TNTA-SO149-AA0149-(00-01)	187	20-Jul-00	1.5 - 2.5	
AA0150	PBOW-00-SS-TNTA-SO150-AA0150-(00-01)	187	20-Jul-00	0.5 - 1.5	
AA0151	PBOW-00-SS-TNTA-SO151-AA0151-(00-01)	187	20-Jul-00	1.5 - 2.5	
AA0152	PBOW-00-SS-TNTA-SO152-AA0152-(00-01)	187	20-Jul-00	0.5 - 1.5	

Table 2-1
Summary of Soil Sample Locations
TNT Area A - RI Report
Former Plum Brook Ordnance Works Sandusky, Ohio

Sample ID	Sample Name	Building ID	Sample Date	Sample Depth (ft)	Comments
AA0153	PBOW-00-SS-TNTA-SO153-AA0153-(00-01)	187	20-Jul-00	0.5 - 1.0	
AA0154	PBOW-00-SS-TNTA-SO154-AA0154-(00-01)	187	20-Jul-00	0.5 - 1.5	
AA0155	PBOW-00-SS-TNTA-SO155-AA0155-(00-01)	187	20-Jul-00	0.5 - 1.5	
AA0156	PBOW-00-SS-TNTA-SO156-AA0156-(00-01)	187	20-Jul-00	0.5 - 1.0	
AA0157	PBOW-00-SS-TNTA-SO157-AA0157-(00-01)	187	20-Jul-00	0.5 - 1.0	
AA0158	PBOW-00-SS-TNTA-SO158-AA0158-(00-01)	187	20-Jul-00	0.0 - 1.0	
AA0066	PBOW-00-SS-TNTA-SO066-AA0066-(00-01)	192	22-Jul-00	1.5 - 2.5	
AA0067	PBOW-00-SS-TNTA-SO067-AA0067-(00-01)	192	22-Jul-00	1.5 - 2.5	
AA0068	PBOW-00-SS-TNTA-SO068-AA0068-(00-01)	192	22-Jul-00	1.3 - 2.3	
AA0069	PBOW-00-SS-TNTA-SO069-AA0069-(00-01)	192	22-Jul-00	1.0 - 2.0	
AA0070	PBOW-00-SS-TNTA-SO070-AA0070-(00-01)	192	22-Jul-00	1.6 - 2.6	
AA0071	PBOW-00-SS-TNTA-SO071-AA0071-(00-01)	192	22-Jul-00	1.5 - 2.5	
AA0072	PBOW-00-SS-TNTA-SO072-AA0072-(00-01)	192	22-Jul-00	1.5 - 2.5	
AA0159	PBOW-00-SS-TNTA-SO159-AA0159-(00-01)	192	22-Jul-00	1.5 - 2.5	
AA0160	PBOW-00-SS-TNTA-SO160-AA0160-(00-01)	192	22-Jul-00	1.5 - 2.5	
AA0161	PBOW-00-SS-TNTA-SO161-AA0161-(00-01)	192	22-Jul-00	1.5 - 2.5	DNT
AA0009	PBOW-00-SS-TNTA-SO009-AA0009-(00-01)	195	21-Jul-00	2.0 - 3.0	
AA0010	PBOW-00-SS-TNTA-SO010-AA0010-(00-01)	195	21-Jul-00	2.0 - 3.0	
AA0011	PBOW-00-SS-TNTA-SO011-AA0011-(00-01)	195	21-Jul-00	0.5 - 1.5	
AA0012	PBOW-00-SS-TNTA-SO012-AA0012-(00-01)	195	21-Jul-00	0.5 - 1.5	DNT
AA0013	PBOW-00-SS-TNTA-SO013-AA0013-(00-01)	195	21-Jul-00	1.0 - 2.0	
AA0014	PBOW-00-SS-TNTA-SO014-AA0014-(00-01)	195	21-Jul-00	2.0 - 3.0	
AA0015	PBOW-00-SS-TNTA-SO015-AA0015-(00-01)	195	21-Jul-00	1.5 - 2.5	DNT
AA0305	PBOW-00-SS-TNTA-SO305-AA0305-(00-01)	111	15-Aug-00	2.0 - 3.0	DNT, **(Delineation Samples)**
AA0306	PBOW-00-SS-TNTA-SO306-AA0306-(00-01)	111	15-Aug-00	0.5 - 1.5	
AA0307	PBOW-00-SS-TNTA-SO307-AA0307-(00-01)	111	15-Aug-00	1.0 - 2.0	
AA0314	PBOW-00-SS-TNTA-SO314-AA0314-(00-01)	111	15-Aug-00	0.0 - 1.0	0-1' sample for ASO-111
AA0405	PBOW-00-SS-TNTA-SO405-AA0405-(00-01)	111	21-Sep-00	0.5 - 1.5	
AA0406	PBOW-00-SS-TNTA-SO406-AA0406-(00-01)	111	21-Sep-00	0.5 - 1.5	

Table 2-1
Summary of Soil Sample Locations
TNT Area A - RI Report
Former Plum Brook Ordnance Works Sandusky, Ohio

Sample ID	Sample Name	Building ID	Sample Date	Sample Depth (ft)	Comments
AA0253	PBOW-00-SS-TNTA-SO253-AA0253-(00-01)	112	16-Aug-00	1.6 - 2.6	
AA0254	PBOW-00-SS-TNTA-SO254-AA0254-(00-01)	112	16-Aug-00	1.0 - 2.0	TNT, 2A46DNT, 4A26DNT
AA0255	PBOW-00-SS-TNTA-SO255-AA0255-(00-01)	112	16-Aug-00	1.6 - 2.6	TNT
AA0256	PBOW-00-SS-TNTA-SO256-AA0256-(00-01)	112	16-Aug-00	1.0 - 2.0	
AA0257	PBOW-00-SS-TNTA-SO257-AA0257-(00-01)	112	16-Aug-00	2.0 - 3.0	
AA0258	PBOW-00-SS-TNTA-SO258-AA0258-(00-01)	112	16-Aug-00	2.0 - 3.5	
AA0259	PBOW-00-SS-TNTA-SO259-AA0259-(00-01)	112	16-Aug-00	0.5 - 1.5	
AA0323	PBOW-00-SS-TNTA-SO323-AA0323-(00-01)	112	15-Aug-00	0.0 - 1.0	0-1' sample for ASO-123
AA0324	PBOW-00-SS-TNTA-SO324-AA0324-(00-01)	112	15-Aug-00	0.0 - 1.0	0-1' sample for ASO-126
AA0325	PBOW-00-SS-TNTA-SO325-AA0325-(00-01)	112	15-Aug-00	0.0 - 1.0	TNT, DNT, 2A46DNT, 4A26DNT, 0-1' sample for ASO-128
AA0407	PBOW-00-SS-TNTA-SO407-AA0407-(00-01)	112	21-Sep-00	0.5 - 1.5	
AA0408	PBOW-00-SS-TNTA-SO408-AA0408-(00-01)	112	21-Sep-00	0.5 - 1.5	
AA0409	PBOW-00-SS-TNTA-SO409-AA0409-(00-01)	112	21-Sep-00	0.5 - 1.5	
AA0322	PBOW-00-SS-TNTA-SO322-AA0322-(00-01)	113	17-Aug-00	0.0 - 1.0	0-1' sample for ASO-121
AA0410	PBOW-00-SS-TNTA-SO410-AA0410-(00-01)	116	21-Sep-00	1.0 - 2.0	
AA0411	PBOW-00-SS-TNTA-SO411-AA0411-(00-01)	116	21-Sep-00	1.0 - 2.0	
AA0281	PBOW-00-SS-TNTA-SO281-AA0281-(00-01)	119	15-Aug-00	1.0 - 2.0	
AA0282	PBOW-00-SS-TNTA-SO282-AA0282-(00-01)	119	15-Aug-00	1.0 - 2.0	
AA0283	PBOW-00-SS-TNTA-SO283-AA0283-(00-01)	119	15-Aug-00	1.0 - 2.0	
AA0284	PBOW-00-SS-TNTA-SO284-AA0284-(00-01)	119	15-Aug-00	1.0 - 2.0	DNT
AA0285	PBOW-00-SS-TNTA-SO285-AA0285-(00-01)	119	15-Aug-00	2.0 - 3.0	DNT
AA0286	PBOW-00-SS-TNTA-SO286-AA0286-(00-01)	119	15-Aug-00	1.6 - 2.6	DNT
AA0287	PBOW-00-SS-TNTA-SO287-AA0287-(00-01)	119	15-Aug-00	1.0 - 2.0	
AA0288	PBOW-00-SS-TNTA-SO288-AA0288-(00-01)	119	15-Aug-00	1.0 - 2.0	
AA0289	PBOW-00-SS-TNTA-SO289-AA0289-(00-01)	119	15-Aug-00	0.5 - 1.5	
AA0290	PBOW-00-SS-TNTA-SO290-AA0290-(00-01)	119	15-Aug-00	1.0 - 2.0	
AA0315	PBOW-00-SS-TNTA-SO315-AA0315-(00-01)	119	15-Aug-00	0.0 - 1.0	DNT. 0-1' sample for ASO-103
AA0316	PBOW-00-SS-TNTA-SO316-AA0316-(00-01)	119	15-Aug-00	0.0 - 1.0	0-1' sample for ASO-105
AA0317	PBOW-00-SS-TNTA-SO317-AA0317-(00-01)	119	15-Aug-00	0.0 - 1.0	0-1' sample for ASO-106

Table 2-1
Summary of Soil Sample Locations
TNT Area A - RI Report
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Sample ID	Sample Name	Building ID	Sample Date	Sample Depth (ft)	Comments
AA0318	PBOW-00-SS-TNTA-SO318-AA0318-(00-01)	119	15-Aug-00	0.0 - 1.0	0-1' sample for ASO-107
AA0412	PBOW-00-SS-TNTA-SO412-AA0412-(00-01)	119	22-Sep-00	0.0 - 0.6	0-1' sample for ASO-288
AA0413	PBOW-00-SS-TNTA-SO413-AA0413-(00-01)	119	21-Sep-00	1.0 - 2.0	
AA0414	PBOW-00-SS-TNTA-SO414-AA0414-(00-01)	119	21-Sep-00	1.0 - 2.0	
AA0415	PBOW-00-SS-TNTA-SO415-AA0415-(00-01)	119	21-Sep-00	1.0 - 2.0	
AA0416	PBOW-00-SS-TNTA-SO416-AA0416-(00-01)	119	21-Sep-00	1.0 - 2.0	
AA0417	PBOW-00-SS-TNTA-SO417-AA0417-(00-01)	119	21-Sep-00	0.5 - 1.5	
AA0482	PBOW-00-SS-TNTA-SO482-AA0481-(00-01)	119	13-Oct-00	1.0 - 2.0	
AA0483	PBOW-00-SS-TNTA-SO483-AA0483-(00-01)	119	13-Oct-00	1.0 - 2.0	
AA0484	PBOW-00-SS-TNTA-SO484-AA0484-(00-01)	119	13-Oct-00	1.5 - 2.5	
AA0485	PBOW-00-SS-TNTA-SO485-AA0485-(00-01)	119	13-Oct-00	1.5 - 2.5	
AA0486	PBOW-00-SS-TNTA-SO486-AA0486-(00-01)	119	13-Oct-00	1.5 - 2.5	
AA0260	PBOW-00-SS-TNTA-SO260-AA0260-(00-01)	126	17-Aug-00	0.25 - 1.25	
AA0261	PBOW-00-SS-TNTA-SO261-AA0261-(00-01)	126	17-Aug-00	1.5 - 2.5	TNT, 2A46DNT, 4A26DNT
AA0262	PBOW-00-SS-TNTA-SO262-AA0262-(00-01)	126	17-Aug-00	1.0 - 2.0	
AA0263	PBOW-00-SS-TNTA-SO263-AA0263-(00-01)	126	17-Aug-00	2.0 - 3.0	TNT, DNT, 2A46DNT, 4A26DNT
AA0264	PBOW-00-SS-TNTA-SO264-AA0264-(00-01)	126	17-Aug-00	1.0 - 2.0	
AA0265	PBOW-00-SS-TNTA-SO265-AA0265-(00-01)	126	17-Aug-00	1.0 - 2.0	
AA0266	PBOW-00-SS-TNTA-SO266-AA0266-(00-01)	126	17-Aug-00	1.0 - 2.0	
AA0267	PBOW-00-SS-TNTA-SO267-AA0267-(00-01)	126	17-Aug-00	2.5 - 3.5	TNT, 2A46DNT, 4A26DNT
AA0268	PBOW-00-SS-TNTA-SO268-AA0268-(00-01)	126	17-Aug-00	0.5 - 1.5	TNT
AA0269	PBOW-00-SS-TNTA-SO269-AA0269-(00-01)	126	17-Aug-00	1.0 - 2.0	
AA0270	PBOW-00-SS-TNTA-SO270-AA0270-(00-01)	126	17-Aug-00	0.5 - 1.5	
AA0418	PBOW-00-SS-TNTA-SO418-AA0418-(00-01)	126	22-Sep-00	0.0 - 1.0	0-1' sample for ASO-261
AA0419	PBOW-00-SS-TNTA-SO419-AA0419-(00-01)	126	21-Sep-00	1.0 - 2.0	
AA0420	PBOW-00-SS-TNTA-SO420-AA0420-(00-01)	126	22-Sep-00	0.0 - 1.0	0-1' sample for ASO-263
AA0421	PBOW-00-SS-TNTA-SO421-AA0421-(00-01)	126	21-Sep-00	1.0 - 2.0	
AA0422	PBOW-00-SS-TNTA-SO422-AA0422-(00-01)	126	21-Sep-00	1.0 - 2.0	
AA0423	PBOW-00-SS-TNTA-SO423-AA0423-(00-01)	126	21-Sep-00	1.0 - 2.0	

Table 2-1
Summary of Soil Sample Locations
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Former Plum Brook Ordnance Works Sandusky, Ohio

Sample ID	Sample Name	Building ID	Sample Date	Sample Depth (ft)	Comments
AA0424	PBOW-00-SS-TNTA-SO424-AA0424-(00-01)	126	22-Sep-00	0.0 - 1.0	0-1' sample for ASO-267
AA0301	PBOW-00-SS-TNTA-SO301-AA0301-(00-01)	129	15-Aug-00	1.5 - 2.5	
AA0302	PBOW-00-SS-TNTA-SO302-AA0302-(00-01)	129	15-Aug-00	1.5 - 2.5	
AA0303	PBOW-00-SS-TNTA-SO303-AA0303-(00-01)	129	15-Aug-00	2.0 - 3.0	DNT
AA0304	PBOW-00-SS-TNTA-SO304-AA0304-(00-01)	129	15-Aug-00	2.0 - 3.0	
AA0313	PBOW-00-SS-TNTA-SO313-AA0313-(00-01)	129	15-Aug-00	0.0 - 1.0	0-1' sample for ASO-116
AA0342	PBOW-00-SS-TNTA-SO342-AA0342-(00-01)	129	22-Sep-00	0.0 - 1.0	0-1' sample for ASO-303
AA0343	PBOW-00-SS-TNTA-SO343-AA0343-(00-01)	129	22-Sep-00	1.0 - 1.5	
AA0344	PBOW-00-SS-TNTA-SO344-AA0344-(00-01)	129	22-Sep-00	1.0 - 1.5	
AA0345	PBOW-00-SS-TNTA-SO345-AA0345-(00-01)	131	22-Sep-00	0.8 - 1.8	
AA0346	PBOW-00-SS-TNTA-SO346-AA0346-(00-01)	131	22-Sep-00	1.5 - 2.5	
AA0320	PBOW-00-SS-TNTA-SO320-AA0320-(00-01)	132	17-Aug-00	0.0 - 1.0	0-1' sample for ASO-052
AA0319	PBOW-00-SS-TNTA-SO319-AA0319-(00-01)	133	17-Aug-00	0.0 - 1.0	0-1' sample for ASO-045
AA0347	PBOW-00-SS-TNTA-SO347-AA0347-(00-01)	133	22-Sep-00	3.0 - 3.5	
AA0348	PBOW-00-SS-TNTA-SO348-AA0348-(00-01)	133	22-Sep-00	3.0 - 3.5	
AA0333	PBOW-00-SS-TNTA-SO333-AA0333-(00-01)	136	23-Aug-00	0.5 - 1.5	
AA0334	PBOW-00-SS-TNTA-SO334-AA0334-(00-01)	136	23-Aug-00	1.0 - 2.0	
AA0335	PBOW-00-SS-TNTA-SO335-AA0335-(00-01)	136	23-Aug-00	1.0 - 2.0	
AA0336	PBOW-00-SS-TNTA-SO336-AA0336-(00-01)	136	23-Aug-00	0.5 - 1.5	
AA0337	PBOW-00-SS-TNTA-SO337-AA0337-(00-01)	136	23-Aug-00	0.5 - 1.5	
AA0338	PBOW-00-SS-TNTA-SO338-AA0338-(00-01)	136	23-Aug-00	0.5 - 1.5	
AA0339	PBOW-00-SS-TNTA-SO339-AA0339-(00-01)	136	23-Aug-00	0.5 - 1.5	
AA0340	PBOW-00-SS-TNTA-SO340-AA0340-(00-01)	136	23-Aug-00	0.5 - 1.5	
AA0341	PBOW-00-SS-TNTA-SO341-AA0341-(00-01)	136	23-Aug-00	0.5 - 1.5	
AA0291	PBOW-00-SS-TNTA-SO291-AA0291-(00-01)	139	16-Aug-00	1.5 - 2.5	
AA0292	PBOW-00-SS-TNTA-SO292-AA0292-(00-01)	139	16-Aug-00	1.0 - 2.0	
AA0293	PBOW-00-SS-TNTA-SO293-AA0293-(00-01)	139	16-Aug-00	1.0 - 2.0	
AA0294	PBOW-00-SS-TNTA-SO294-AA0294-(00-01)	139	16-Aug-00	1.6 - 2.6	
AA0295	PBOW-00-SS-TNTA-SO295-AA0295-(00-01)	139	16-Aug-00	1.0 - 2.0	

Table 2-1
Summary of Soil Sample Locations
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Sample ID	Sample Name	Building ID	Sample Date	Sample Depth (ft)	Comments
AA0296	PBOW-00-SS-TNTA-SO296-AA0296-(00-01)	139	16-Aug-00	1.5 - 2.5	
AA0312	PBOW-00-SS-TNTA-SO312-AA0312-(00-01)	139	17-Aug-00	0.0 - 1.0	0-1' sample for ASO-040
AA0326	PBOW-00-SS-TNTA-SO326-AA0326-(00-01)	139	19-Aug-00	3.0 - 4.0	Collected in manhole
AA0297	PBOW-00-SS-TNTA-SO297-AA0297-(00-01)	141	16-Aug-00	1.0 - 2.0	TNT, DNT, 2A46DNT, 4A26DNT
AA0298	PBOW-00-SS-TNTA-SO298-AA0298-(00-01)	141	16-Aug-00	1.0 - 2.0	
AA0299	PBOW-00-SS-TNTA-SO299-AA0299-(00-01)	141	16-Aug-00	1.0 - 2.0	
AA0300	PBOW-00-SS-TNTA-SO300-AA0300-(00-01)	141	16-Aug-00	1.0 - 2.0	
AA0349	PBOW-00-SS-TNTA-SO349-AA0349-(00-01)	141	22-Sep-00	0.0 - 1.0	0-1' sample for ASO-297
AA0233	PBOW-00-SS-TNTA-SO233-AA0233-(00-01)	142	17-Aug-00	1.0 - 2.0	
AA0234	PBOW-00-SS-TNTA-SO234-AA0234-(00-01)	142	17-Aug-00	2.0 - 3.0	
AA0235	PBOW-00-SS-TNTA-SO235-AA0235-(00-01)	142	17-Aug-00	0.5 - 1.5	
AA0236	PBOW-00-SS-TNTA-SO236-AA0236-(00-01)	142	17-Aug-00	0.5 - 1.5	
AA0237	PBOW-00-SS-TNTA-SO237-AA0237-(00-01)	142	17-Aug-00	0.5 - 1.5	
AA0238	PBOW-00-SS-TNTA-SO238-AA0238-(00-01)	142	17-Aug-00	2.0 - 3.0	
AA0239	PBOW-00-SS-TNTA-SO239-AA0239-(00-01)	142	17-Aug-00	1.0 - 2.0	
AA0240	PBOW-00-SS-TNTA-SO240-AA0240-(00-01)	142	17-Aug-00	1.0 - 2.0	
AA0241	PBOW-00-SS-TNTA-SO241-AA0241-(00-01)	142	17-Aug-00	1.0 - 2.0	
AA0242	PBOW-00-SS-TNTA-SO242-AA0242-(00-01)	142	17-Aug-00	0.5 - 1.5	
AA0311	PBOW-00-SS-TNTA-SO311-AA0311-(00-01)	142	17-Aug-00	0.0 - 1.0	0-1' sample for ASO-016
AA0327	PBOW-00-SS-TNTA-SO327-AA0327-(00-01)	143	22-Aug-00	0.5 - 1.5	
AA0328	PBOW-00-SS-TNTA-SO328-AA0328-(00-01)	143	22-Aug-00	0.5 - 1.5	
AA0329	PBOW-00-SS-TNTA-SO329-AA0329-(00-01)	143	22-Aug-00	0.5 - 1.5	
AA0330	PBOW-00-SS-TNTA-SO330-AA0330-(00-01)	143	22-Aug-00	0.0 - 1.0	0-1' sample for ASO-035
AA0350	PBOW-00-SS-TNTA-SO350-AA0350-(00-01)	143	22-Sep-00	1.5 - 2.5	
AA0351	PBOW-00-SS-TNTA-SO351-AA0351-(00-01)	143	22-Sep-00	1.5 - 2.5	
AA0352	PBOW-00-SS-TNTA-SO352-AA0352-(00-01)	143	22-Sep-00	1.5 - 2.5	
AA0308	PBOW-00-SS-TNTA-SO308-AA0308-(00-01)	146	15-Aug-00	0.0 - 1.0	0-1' sample for ASO-079
AA0309	PBOW-00-SS-TNTA-SO309-AA0309-(00-01)	146	15-Aug-00	0.0 - 1.0	TNT, 2A46DNT, 4A26DNT0-1' sample for ASO-080

Table 2-1
Summary of Soil Sample Locations
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Former Plum Brook Ordnance Works Sandusky, Ohio

Sample ID	Sample Name	Building ID	Sample Date	Sample Depth (ft)	Comments
AA0310	PBOW-00-SS-TNTA-SO310-AA0310-(00-01)	146	15-Aug-00	0.0 - 1.0	0-1' sample for ASO-081
AA0331	PBOW-00-SS-TNTA-SO331-AA0331-(00-01)	146	23-Aug-00	0.3 - 1.5	
AA0332	PBOW-00-SS-TNTA-SO332-AA0332-(00-01)	146	23-Aug-00	0.5 - 1.5	
AA0353	PBOW-00-SS-TNTA-SO353-AA0353-(00-01)	146	22-Sep-00	0.0 - 1.0	0-1' sample for ASO-225
AA0218	PBOW-00-SS-TNTA-SO218-AA0218-(00-01)	148	14-Aug-00	1.0 - 2.0	
AA0321	PBOW-00-SS-TNTA-SO321-AA0321-(00-01)	149	17-Aug-00	0.0 - 1.0	0-1' sample for ASO-059
AA0271	PBOW-00-SS-TNTA-SO271-AA0271-(00-01)	192	16-Aug-00	1.6 - 2.6	DNT
AA0272	PBOW-00-SS-TNTA-SO272-AA0272-(00-01)	192	16-Aug-00	2.0 - 3.0	
AA0273	PBOW-00-SS-TNTA-SO273-AA0273-(00-01)	192	16-Aug-00	2.0 - 3.0	
AA0274	PBOW-00-SS-TNTA-SO274-AA0274-(00-01)	192	16-Aug-00	2.0 - 3.0	
AA0275	PBOW-00-SS-TNTA-SO275-AA0275-(00-01)	192	16-Aug-00	1.0 - 2.0	
AA0276	PBOW-00-SS-TNTA-SO276-AA0276-(00-01)	192	16-Aug-00	1.5 - 2.5	DNT
AA0277	PBOW-00-SS-TNTA-SO277-AA0277-(00-01)	192	16-Aug-00	2.0 - 3.0	TNT, DNT, 4A26DNT
AA0278	PBOW-00-SS-TNTA-SO278-AA0278-(00-01)	192	16-Aug-00	1.0 - 1.75	DNT
AA0279	PBOW-00-SS-TNTA-SO279-AA0279-(00-01)	192	16-Aug-00	2.0 - 3.0	TNT, DNT, 4A26DNT
AA0280	PBOW-00-SS-TNTA-SO280-AA0280-(00-01)	192	15-Aug-00	2.0 - 3.0	TNT, 4A26DNT
AA0354	PBOW-00-SS-TNTA-SO354-AA0354-(00-01)	192	22-Sep-00	1.5 - 2.5	
AA0355	PBOW-00-SS-TNTA-SO355-AA0355-(00-01)	192	22-Sep-00	1.5 - 2.5	
AA0356	PBOW-00-SS-TNTA-SO356-AA0356-(00-01)	192	22-Sep-00	1.5 - 2.5	
AA0357	PBOW-00-SS-TNTA-SO357-AA0357-(00-01)	192	22-Sep-00	1.5 - 2.5	
AA0359	PBOW-00-SS-TNTA-SO359-AA0359-(00-01)	192	22-Sep-00	1.5 - 2.5	
AA0243	PBOW-00-SS-TNTA-SO243-AA0243-(00-01)	195	16-Aug-00	1.5 - 2.5	
AA0244	PBOW-00-SS-TNTA-SO244-AA0244-(00-01)	195	16-Aug-00	1.0 - 2.0	
AA0245	PBOW-00-SS-TNTA-SO245-AA0245-(00-01)	195	16-Aug-00	1.5 - 2.5	
AA0246	PBOW-00-SS-TNTA-SO246-AA0246-(00-01)	195	16-Aug-00	0.75 - 2.00	
AA0247	PBOW-00-SS-TNTA-SO247-AA0247-(00-01)	195	16-Aug-00	0.75 - 1.75	
AA0248	PBOW-00-SS-TNTA-SO248-AA0248-(00-01)	195	16-Aug-00	1.0 - 2.0	
AA0249	PBOW-00-SS-TNTA-SO249-AA0249-(00-01)	195	16-Aug-00	0.75 - 1.75	
AA0250	PBOW-00-SS-TNTA-SO250-AA0250-(00-01)	195	16-Aug-00	1.0 - 2.0	
AA0251	PBOW-00-SS-TNTA-SO251-AA0251-(00-01)	195	16-Aug-00	1.0 - 2.0	
AA0252	PBOW-00-SS-TNTA-SO252-AA0252-(00-01)	195	16-Aug-00	1.5 - 2.5	

Table 2-1
Summary of Soil Sample Locations
TNT Area A - RI Report
Former Plum Brook Ordnance Works Sandusky, Ohio

Sample ID	Sample Name	Building ID	Sample Date	Sample Depth (ft)	Comments
AA0361	PBOW-00-SB-TNTA-SB361-AA0361-(04-06)	111	12-Sep-00	4 - 6	Collected near ASO- 111, **(Subsurface screening samples)**
AA0362	PBOW-00-SB-TNTA-SO362-AA0362-(08-10)	111	12-Sep-00	8 - 10	Collected near ASO- 111
AA0363	PBOW-00-SB-TNTA-SB363-AA0363-(04-06)	112	12-Sep-00	4 - 6	Collected near ASO- 128
AA0364	PBOW-00-SB-TNTA-SB364-AA0364-(08-10)	112	12-Sep-00	8 - 10	Collected near ASO- 128
AA0365	PBOW-00-SB-TNTA-SB365-AA0365-(04-06)	113	12-Sep-00	4 - 6	Collected near ASO- 121
AA0366	PBOW-00-SB-TNTA-SB366-AA0366-(08-10)	113	12-Sep-00	8 - 10	Collected near ASO- 121
AA0403	PBOW-00-SB-TNTA-SB403-AA0403-(04-06)	116	15-Sep-00	4 - 6	Collected near ASO- 201, AA0402 not collected
AA0404	PBOW-00-SB-TNTA-SB404-AA0404-(08-10)	116	16-Sep-00	8 - 10	Collected near ASO- 201
AA0367	PBOW-00-SB-TNTA-SB367-AA0367-(04-06)	119	12-Sep-00	4 - 6	Collected near ASO- 105
AA0368	PBOW-00-SB-TNTA-SB368-AA0368-(08-10)	119	12-Sep-00	8 - 9	Collected near ASO- 105, Refusal at 9'
AA0369	PBOW-00-SB-TNTA-SB369-AA0369-(04-06)	126	13-Sep-00	4 - 6	Collected near ASO- 261
AA0370	PBOW-00-SB-TNTA-SB370-AA0370-(08-10)	126	13-Sep-00	8 - 10	Collected near ASO- 261
AA0371	PBOW-00-SB-TNTA-SB371-AA0371-(04-06)	126	15-Sep-00	4 - 6	Collected near ASO- 263
AA0372	PBOW-00-SB-TNTA-SB372-AA0372-(08-10)	126	15-Sep-00	8 - 10	Collected near ASO- 263
AA0373	PBOW-00-SB-TNTA-SB373-AA0373-(04-06)	129	12-Sep-00	4 - 6	Collected near ASO- 303
AA0374	PBOW-00-SB-TNTA-SB374-AA0374-(08-10)	129	12-Sep-00	8 - 10	Collected near ASO- 303
AA0389	PBOW-00-SB-TNTA-SB389-AA0389-(04-06)	131	15-Sep-00	4 - 6	Collected near ASO- 062
AA0390	PBOW-00-SB-TNTA-SB390-AA0390-(08-10)	131	15-Sep-00	8 - 10	Collected near ASO- 062
AA0391	PBOW-00-SB-TNTA-SB391-AA0391-(04-06)	132	15-Sep-00	4 - 6	Collected near ASO- 052
AA0392	PBOW-00-SB-TNTA-SB392-AA0392-(08-10)	132	15-Sep-00	8 - 10	Collected near ASO- 052
AA0393	PBOW-00-SB-TNTA-SB393-AA0393-(04-06)	133	15-Sep-00	4 - 6	Collected 15 ft SE of ASO- 043
AA0394	PBOW-00-SB-TNTA-SB394-AA0394-(08-10)	133	15-Sep-00	8 - 10	Collected 15 ft SE of ASO- 043
AA0395	PBOW-00-SB-TNTA-SB395-AA0395-(04-06)	136	15-Sep-00	4 - 6	Collected near ASO- 337
AA0396	PBOW-00-SB-TNTA-SB396-AA0396-(08-10)	136	15-Sep-00	8 - 10	Collected near ASO- 337
AA0375	PBOW-00-SB-TNTA-SB375-AA0375-(04-06)	139	13-Sep-00	4 - 6	Collected near ASO- 040
AA0376	PBOW-00-SB-TNTA-SB376-AA0376-(08-10)	139	13-Sep-00	8 - 10	Collected near ASO- 040
AA0377	PBOW-00-SB-TNTA-SB377-AA0377-(04-06)	141	13-Sep-00	4 - 6	Collected near ASO- 297
AA0378	PBOW-00-SB-TNTA-SB378-AA0378-(08-10)	141	13-Sep-00	8 - 10	Collected near ASO- 297
AA0379	PBOW-00-SB-TNTA-SB379-AA0379-(04-06)	142	13-Sep-00	4 - 6	Collected near ASO- 016
AA0380	PBOW-00-SB-TNTA-SB380-AA0380-(08-10)	142	13-Sep-00	8 - 10	Collected near ASO- 016

Table 2-1
Summary of Soil Sample Locations
TNT Area A - RI Report
Former Plum Brook Ordnance Works Sandusky, Ohio

Sample ID	Sample Name	Building ID	Sample Date	Sample Depth (ft)	Comments
AA0381	PBOW-00-SB-TNTA-SB381-AA0381-(04-06)	143	13-Sep-00	4 - 6	Collected near ASO- 035
AA0382	PBOW-00-SB-TNTA-SB382-AA0382-(08-10)	143	13-Sep-00	8 - 10	Collected near ASO- 035
AA0383	PBOW-00-SB-TNTA-SB383-AA0383-(04-06)	146	13-Sep-00	4 - 6	Collected near ASO- 080
AA0384	PBOW-00-SB-TNTA-SB384-AA0384-(08-10)	146	13-Sep-00	8 - 10	Collected near ASO- 080
AA0401	PBOW-00-SB-TNTA-SB401-AA0401-(04-06)	149	15-Sep-00	4 - 6	Collected near ASO- 059, Refusal at 8'
AA0397	PBOW-00-SB-TNTA-SB397-AA0397-(04-06)	182	15-Sep-00	4 - 6	Collected near ASO- 094
AA0398	PBOW-00-SB-TNTA-SB398-AA0398-(06-07)	182	15-Sep-00	6 - 7	Collected near ASO- 094
AA0399	PBOW-00-SB-TNTA-SB399-AA0399-(04-06)	185	15-Sep-00	4 - 6	New location
AA0400	PBOW-00-SB-TNTA-SO400-AA0400-(08-10)	185	15-Sep-00	8 - 10	New location
AA0385	PBOW-00-SB-TNTA-SB385-AA0385-(00-01)	192	13-Sep-00	2 - 4	Collected near ASO- 279, AA0386 not collected
AA0387	PBOW-00-SB-TNTA-SB387-AA0387-(04-06)	195	13-Sep-00	4 - 6	Collected near ASO- 012, AA0388 not collected
AA0441	PBOW-00-SO-TNTA-SO111-AA0441-(01-02)	111	22-Sep-00	1.0 - 2.0	MS, MSD also at ASO- 111, **(Surface Confirmation Samples)**
AA0442	PBOW-00-SO-TNTA-SO123-AA0442-(02-03)	112	22-Sep-00	2.0 - 3.0	At ASO- 123
AA0443	PBOW-00-SO-TNTA-SO123-AA0443-(02-03)	112	22-Sep-00	2.0 - 3.0	FD for 442 at ASO- 123
AA0444	PBOW-00-SO-TNTA-SO123-AA0444-(02-03)	112	22-Sep-00	2.0 - 3.0	FS for at ASO- 123
AA0445	PBOW-00-SO-TNTA-SO128-AA0445-(02-03)	112	25-Sep-00	1.5 - 2.5	At ASO- 128
AA0481	PBOW-00-SO-TNTA-SO409-AA0481-(01-02)	112	11-Oct-00	0.5 - 1.5	At ASO- 409
AA0446	PBOW-00-SO-TNTA-SO196-AA0446-(01-02)	116	25-Sep-00	1.0 - 2.0	At ASO- 196
AA0440	PBOW-00-SO-TNTA-SO105-AA0440-(02-03)	119	26-Sep-00	2.0 - 3.0	At ASO- 105
AA0447	PBOW-00-SO-TNTA-SO261-AA0447-(02-03)	126	25-Sep-00	1.5 - 2.5	At ASO- 261
AA0448	PBOW-00-SO-TNTA-SO263-AA0448-(02-03)	126	25-Sep-00	2.0 - 3.0	At ASO- 263
AA0452	PBOW-00-SO-TNTA-SO303-AA0452-(02-03)	129	26-Sep-00	2.0 - 3.0	At ASO- 303
AA0453	PBOW-00-SO-TNTA-SO334-AA0453-(01-02)	136	25-Sep-00	1.0 - 2.0	At ASO- 334
AA0432	PBOW-00-SO-TNTA-SO312-AA0432-(02-03)	139	25-Sep-00	2.0 - 3.0	At ASO- 312
AA0451	PBOW-00-SO-TNTA-SO297-AA0451-(01-02)	141	25-Sep-00	1.0 - 2.0	At ASO- 297
AA0427	PBOW-00-SO-TNTA-SO016-AA0427-(00-01)	142	25-Sep-00	0.0 - 1.0	At ASO- 016
AA0428	PBOW-00-SO-TNTA-SO016-AA0428(02-03)	142	25-Sep-00	2.0 - 3.0	At ASO- 016
AA0429	PBOW-00-SO-TNTA-SO016-AA0429-(02-03)	142	25-Sep-00	2.0 - 3.0	FD for 428 at ASO-016
AA0430	PBOW-00-SO-TNTA-SO016-AA0430-(02-03)	142	25-Sep-00	2.0 - 3.0	FS for 428 at ASO-016

Table 2-1
Summary of Soil Sample Locations
TNT Area A - RI Report
Former Plum Brook Ordnance Works Sandusky, Ohio

Sample ID	Sample Name	Building ID	Sample Date	Sample Depth (ft)	Comments
AA0431	PBOW-00-SO-TNTA-SO035-AA0431-(02-03)	143	25-Sep-00	1.5 - 2.5	At ASO- 035
AA0434	PBOW-00-SO-TNTA-SO081-AA0434-(01-02)	146	25-Sep-00	0.8 - 1.8	At ASO- 081
AA0435	PBOW-00-SO-TNTA-SO081-AA0435-(01-02)	146	25-Sep-00	0.8 - 1.8	FD for 434 at ASO- 081
AA0436	PBOW-00-SO-TNTA-SO081-AA0436-(01-02)	146	25-Sep-00	0.8 - 1.8	FS for 434 at ASO- 081
AA0480	PBOW-00-SO-TNTA-SO225-AA0480-(02-03)	146	11-Oct-00	2.0 - 3.0	At ASO- 225
AA0433	PBOW-00-SO-TNTA-SO077-AA0433-(01-02)	148	25-Sep-00	0.7 - 1.7	At ASO- 077
AA0437	PBOW-00-SO-TNTA-SO094-AA0437-(02-03)	182	22-Sep-00	2.0 - 3.0	At ASO- 094
AA0438	PBOW-00-SO-TNTA-SO094-AA0438-(02-03)	182	22-Sep-00	2.0 - 3.0	FD for 437 at ASO- 094
AA0439	PBOW-00-SO-TNTA-SO094-AA0439-(02-03)	182	22-Sep-00	2.0 - 3.0	FS for 437 at ASO- 094
AA0449	PBOW-00-SO-TNTA-SO276-AA0449-(02-03)	192	25-Sep-00	1.5 - 2.5	At ASO-276
AA0450	PBOW-00-SO-TNTA-SO279-AA0450-(02-03)	192	25-Sep-00	2.0 - 3.0	At ASO- 279
AA0426	PBOW-00-SO-TNTA-SO012-AA0426-(02-03)	195	25-Sep-00	2.0 - 3.0	At ASO- 012, MS, MSD
AA0468	PBOW-00-SO-TNTA-SO111-AA0468-(04-6)	111	28-Sep-00	4.0 - 6.0	At ASO- 111, **(Subsurface Confirmation Samples)**
AA0469	PBOW-00-SO-TNTA-SO111-AA0469-(08-10)	111	28-Sep-00	8.0 - 10.0	At ASO- 111
AA0470	PBOW-00-SO-TNTA-SO128-AA0470-(04-06)	112	28-Sep-00	4.0 - 6.0	At ASO- 128
AA0471	PBOW-00-SO-TNTA-SO128-AA0471-(08-10)	112	28-Sep-00	8.0 - 10.0	At ASO- 128
AA0472	PBOW-00-SO-TNTA-SO201-AA0472-(04-06)	116	26-Sep-00	4.0 - 6.0	At ASO- 201
AA0473	PBOW-00-SO-TNTA-SO201-AA0473-(08-10)	116	26-Sep-00	8.0 - 10.0	At ASO- 201
AA0466	PBOW-00-SO-TNTA-SO105-AA0466-(04-06)	119	29-Sep-00	4.0 - 6.0	At ASO- 105, AA0467 not collected, Refusal at 7'
AA0474	PBOW-00-SO-TNTA-SO261-AA0474-(04-06)	126	26-Sep-00	4.0 - 6.0	At ASO- 126
AA0475	PBOW-00-SO-TNTA-SO261-AA0475-(08-10)	126	26-Sep-00	8.0 - 10.0	At ASO-126
AA0461	PBOW-00-SO-TNTA-SO062-AA0461-(04-06)	131	29-Sep-00	4.0 - 6.0	At ASO- 062
AA0462	PBOW-00-SO-TNTA-SO062-AA0462-(08-10)	131	29-Sep-00	6.0 - 8.0	At ASO- 062
AA0463	PBOW-00-SO-TNTA-SO080-AA0463-(04-06)	146	29-Sep-00	4.0 - 6.0	At ASO- 080
AA0464	PBOW-00-SO-TNTA-SO080-AA0464-(08-10)	146	29-Sep-00	8.0 - 10.0	At ASO- 080
AA0465	PBOW-00-SO-TNTA-SO094-AA0465-(05-07)	182	29-Sep-00	5.0 - 7.0	At ASO- 094
AA0478	PBOW-00-SO-TNTA-SO399-AA0478-(04-06)	185	26-Sep-00	4.0 - 6.0	At ASO- 399
AA0479	PBOW-00-SO-TNTA-SO399-AA0479-(08-10)	185	26-Sep-00	8.0 - 9.0	At ASO- 399
AA0460	PBOW-00-SO-TNTA-SO012-AA0460-(04-06)	195	29-Sep-00	4.0 - 6.0	At ASO- 012

Table 2-1
Summary of Soil Sample Locations
TNT Area A - RI Report
Former Plum Brook Ordnance Works Sandusky, Ohio

Sample ID	Sample Name	Building ID	Sample Date	Sample Depth (ft)	Comments
AA1001	PBOW-00-SD-TNTA-SD01-AA1001-(00-00)		19-Sep-00	1.0 - 1.5	**(Sediment Samples)**
AA1002	PBOW-00-SD-TNTA-SD02-AA1002-(00-00)		20-Sep-00	1.0 - 1.5	
AA1003	PBOW-00-SD-TNTA-SD03-AA1003-(00-00)		20-Sep-00	1.0 - 1.5	
AA1004	PBOW-00-SD-TNTA-SD04-AA1004-(00-00)		20-Sep-00	1.0 - 1.5	MS, MSD sample collected
AA1005	PBOW-00-SD-TNTA-SD05-AA1005-(00-00)		20-Sep-00	1.0 - 1.5	
AA1006	PBOW-00-SD-TNTA-SD06-AA1006-(00-00)		20-Sep-00	1.0 - 1.5	
AA1007	PBOW-00-SD-TNTA-SD07-AA1007-(00-00)		20-Sep-00	1.0 - 1.5	
AA1008	PBOW-00-SD-TNTA-SD08-AA1008-(00-00)		19-Sep-00	1.0 - 1.5	
AA1009	PBOW-00-SD-TNTA-SD09-AA1009-(00-00)		20-Sep-00	1.0 - 1.5	
AA1010	PBOW-00-SD-TNTA-SD10-AA1010-(00-00)		20-Sep-00	1.0 - 1.5	
AA1011	PBOW-00-SD-TNTA-SD04-AA1011-(00-00)		20-Sep-00	1.0 - 1.5	FD sample from SD04 location
AA1012	PBOW-00-SD-TNTA-SD04-AA1012-(00-00)		20-Sep-00	1.0 - 1.5	FS sample from SD04 location
AA1013	PBOW-00-SD-TNTA-SD11-AA1013-(00-00)		20-Sep-00	1.5 - 2.5	
AA1014	PBOW-00-SD-TNTA-SD12-AA1014-(00-00)		20-Sep-00	2.5 - 3.5	
AA1015	PBOW-00-SD-TNTA-SD13-AA1015-(00-00)		20-Sep-00	3.5 - 4.5	
AA1016	PBOW-00-SD-TNTA-SD14-AA1016-(00-00)		20-Sep-00	0.0 - 3.0	
AA1017	PBOW-00-SD-TNTA-SD15-AA1017-(00-00)		20-Sep-00	0.0 - 3.0	

Table 2-2

Summary of Detected Analytes in Confirmation Soil Samples
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

	Location Code:		TNTA-SO111			TNTA-SO111			TNTA-SO111			TNTA-SO123			TNTA-SO128			TNTA-SO128			TNTA-SO128			TNTA-SO409		
	Building:		111									112														
	Sample No:		AA0441			AA0468			AA0469			AA0442			AA0445			AA0470			AA0471			AA0481		
	Sample Date:		22-SEP-00			28-SEP-00			28-SEP-00			22-SEP-00			25-SEP-00			28-SEP-00			28-SEP-00			11-OCT-00		
Parameter	Sample Depth:		1 - 2			4 - 6			8 - 10			2 - 3			1.5 - 2.5			4 - 6			8 - 10			0.5 - 1.5		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			0.373			-			-			1.78			**3.96**			1.62			0.739		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			-			-			1.24			1.18			2.43			0.59		
Dinitrotoluene, total	mg/kg	0.72	-			**3.14**			0.17			-			-			0.549			0.645			-		
Nitrobenzene	mg/kg	20	-			0.0778	J	J	-			-			-			-			-			-		
Nitrotoluene, 2-	mg/kg	370	-			1.41			0.38			-			-			0.276			0.235			-		
Nitrotoluene, 3-	mg/kg	370	-			0.476			-			-			-			0.823			0.335			-		
Nitrotoluene, 4-	mg/kg	370	-			0.376			0.423			-			-			0.555			0.278			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			-			-			-			-			-			0.562			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			0.213			-			-			3.99			7.89			8.57			0.704		
VOLATILES																										
Acetone	mg/kg	1600	0.0582			-		R	0.0221		J	0.114			0.0217			0.0314		J	0.051		J	0.0134		J
Benzene	mg/kg	0.67	-			-			-			-			-			-			-			-		
Butanone, 2-	mg/kg	7300	0.0098	J	J	-			-			-			-			-			-			-		
Carbon disulfide	mg/kg	360	-			-			0.00917			0.00218	J	J	-			0.00185	J	J	0.00287	J	J	-		
Methylene chloride	mg/kg	8.9	0.00398	J	B	0.00714	JB	B	0.00612	B	B	0.00376	J	B	0.0323	B	B	0.00878	B	B	0.00392	JB	B	0.00917	B	B
Toluene	mg/kg	590	-			0.013		J	0.00196	J	J	-			-			-			-			-		
Xylene, o-	mg/kg	1400	-			-			-			-			-			-			-			-		
Xylenes, m,p-	mg/kg	1400	-			-			-			-			-			-			-			-		
SEMIVOLATILES																										
Benzo(a)anthracene	mg/kg	0.62	-			-			-			-			-			-			-			-		
Benzo(a)pyrene	mg/kg	0.062	-			-			-			-			-			-			-			-		
Benzo(b)fluoranthene	mg/kg	0.62	-			-			-			-			-			-			-			-		
Benzo(ghi)perylene	mg/kg		-			-			-			-			-			-			-			-		
Benzo(k)fluoranthene	mg/kg	6.2	-			-			-			-			-			-			-			-		
Bis(2-ethylhexyl)phthalate	mg/kg	35	-			0.026	J	J	-			-			-			-			-			0.0355	J	J
Chrysene	mg/kg	62	-			-			-			-			-			-			-			-		
Di-n-butyl phthalate	mg/kg	6100	-			-			-			-			-			-			-			-		
Dinitrotoluene, 2,4-	mg/kg	0.72	-			0.558			-			-			-			-			**0.831**			-		
Dinitrotoluene, 2,6-	mg/kg	0.72	-			0.208	J	J	-			-			-			-			0.248	J	J	-		
Fluoranthene	mg/kg	2300	-			-			-			-			-			-			-			-		
Indeno(1,2,3-cd)pyrene	mg/kg	0.62	-			-			-			-			-			-			-			-		
Methylnaphthalene, 2-	mg/kg		-			-			-			-			-			-			-			-		
Naphthalene	mg/kg	56	-			-			-			-			-			-			-			-		
Phenanthrene	mg/kg		-			-			-			-			-			-			-			-		
Pyrene	mg/kg	2300	-			-			-			-			-			-			-			-		
PCBs																										
Aroclor 1260	mg/kg	0.22	0.133		J	0.0125	J	J	-			**0.507**		J	0.0352	J	J	0.0448	J	J	-			**1.34**		J

Table 2-2

Summary of Detected Analytes in Confirmation Soil Samples
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Parameter	Location Code:		TNTA-SO111			TNTA-SO111			TNTA-SO111			TNTA-SO123			TNTA-SO128			TNTA-SO128			TNTA-SO128			TNTA-SO409		
	Building:		111									112														
	Sample No:		AA0441			AA0468			AA0469			AA0442			AA0445			AA0470			AA0471			AA0481		
	Sample Date:		22-SEP-00			28-SEP-00			28-SEP-00			22-SEP-00			25-SEP-00			28-SEP-00			28-SEP-00			11-OCT-00		
	Sample Depth:		1 - 2			4 - 6			8 - 10			2 - 3			1.5 - 2.5			4 - 6			8 - 10			0.5 - 1.5		
METALS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Aluminum	mg/kg	76000	5530		J	5670		J	6630		J	4660		J	2980		J	4490		J	4730		J	5000		
Antimony	mg/kg	31	1.38		B	-			-			-		UJ	-		UJ	-			-			1.02	B	B
Arsenic	mg/kg	0.39	**4.11**		J	**4.23**			**3.27**			**3.71**		J	**2.21**		J	**2.34**			**7.59**			**4.95**		
Barium	mg/kg	5400	33.5		J	26.6			23			24.6		J	19			23.8			14.5			29.8		
Beryllium	mg/kg	150	0.226			0.346			0.398			0.179	B		0.16	B	J	0.269			0.305			0.344		
Cadmium	mg/kg	37	0.518	B	B	0.131	B	J	-			1.15			-			-			-			0.719		
Calcium	mg/kg		4080		J	3200			1770			13600		J	1260			1250			2240			4610		J
Chromium	mg/kg	210	10.8		J	8.4			9.31			7.52		J	5.51			6.29			7.23			8.09		J
Cobalt	mg/kg	4700	2.82			2.97			3.64			3.05			1.54			1.54			3.8			2.87		
Copper	mg/kg	2900	18.4		J	5.52			4.9			8.26		J	5.92		J	5.82			8.14			10.2		
Iron	mg/kg	23000	10400			9140			10000			9280			7820			7420			10500			11000		
Lead	mg/kg	48.6	**122**		J	21.7			9.55			**115**		J	26.5		J	15.4			4.91		B	**254**		J
Magnesium	mg/kg		1090		J	990			920			3350		J	598			695			1150			1350		J
Manganese	mg/kg	1800	230		J	124			132			218		J	86.9		J	107			217			240		
Mercury	mg/kg	23	0.077			-			0.022	B	J	0.049			-			0.021	B	J	-			0.042		J
Nickel	mg/kg	1600	7.42			7.88			8.67			8.96			4.27			4.98			9.48			8.88		
Potassium	mg/kg		481			393			425			572			348			334			635			393		J
Selenium	mg/kg	390	-			-			-			-			-			-			-			-		
Silver	mg/kg	390	-			-			-			-			-			-			-			-		
Sodium	mg/kg		217	B	B	140	B	B	145	B	B	249		B	99.6	B	B	96.3	B	B	231	B	B	181	B	J
Thallium	mg/kg	6.3	-			-			-			-			-			-			-			-		
Vanadium	mg/kg	550	16.1			15.8			18.2			14.7			11.3			11.4			16.8			13.8		
Zinc	mg/kg	23000	148		J	36.5			29			241		J	20.8			25.2			38.3			178		J

Table 2-2

Summary of Detected Analytes in Confirmation Soil Samples
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Parameter	Location Code:		TNTA-SO196			TNTA-SO201			TNTA-SO201			TNTA-SO105			TNTA-SO105			TNTA-SO261			TNTA-SO261			TNTA-SO261			TNTA-SO263		
	Building:		116									119						126											
	Sample No:		AA0446			AA0472			AA0473			AA0440			AA0466			AA0447			AA0474			AA0475			AA0448		
	Sample Date:		25-SEP-00			26-SEP-00			26-SEP-00			25-SEP-00			28-SEP-00			25-SEP-00			26-SEP-00			26-SEP-00			25-SEP-00		
	Sample Depth:		1 - 2			4 - 6			8 - 10			2 - 3			4 - 6			1.5 - 2.5			4 - 6			8 - 10			2 - 3		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			0.0915			-			**9.91**			**10.6**			0.358			-			-			0.599		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			0.358			-			-			**33.6**			0.467			-			-			0.878		
Dinitrotoluene, total	mg/kg	0.72	0.188			-			0.133			**275**	D		**356**			-			-			-			0.114		
Nitrobenzene	mg/kg	20	-			-			-			-			-			0.0713	J	J	-			-			-		
Nitrotoluene, 2-	mg/kg	370	-			-			-			27.1			**582**			-			-			-			-		
Nitrotoluene, 3-	mg/kg	370	-			-			-			5.43			59			-			-			-			-		
Nitrotoluene, 4-	mg/kg	370	-			-			-			3.54			**484**			-			-			-			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			-			-			-			-			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			0.0875	J	J	0.169			**21**			0.817			**62.8**	D	D	4.81			**259**	D		.72		
VOLATILES																													
Acetone	mg/kg	1600	0.0242			0.0127			-			0.0291			0.0437			0.08		J	0.00713	J	J	-			0.00949	J	J
Benzene	mg/kg	0.67	-			-			0.0026	J	J	-			-			-			0.00285	J		-			-		
Butanone, 2-	mg/kg	7300	-			-			-			-			-			-			-			-			-		
Carbon disulfide	mg/kg	360	0.00324	J	J	-			-			-			-			0.00267	J	J	-			-			-		
Methylene chloride	mg/kg	8.9	0.0805	B		0.00907	JB	B	0.00611	JB	B	0.00727	JB	B	0.00264	J	B	0.0629	B		0.00972	JB	B	0.00327	JB	B	0.0913	B	
Toluene	mg/kg	590	-			-			0.0032	J	J	-			-			-			0.0049	J	J	-			0.0027	J	J
Xylene, o-	mg/kg	1400	-			-			-			-			-			-			-			-			-		
Xylenes, m,p-	mg/kg	1400	-			-			-			-			-			-			-			-			-		
SEMIVOLATILES																													
Benzo(a)anthracene	mg/kg	0.62	-			-			-			-			-			-			-			-			-		
Benzo(a)pyrene	mg/kg	0.062	0.0424	J	J	-			-			-			-			-			-			-			-		
Benzo(b)fluoranthene	mg/kg	0.62	-			-			-			-			-			-			-			-			-		
Benzo(ghi)perylene	mg/kg		-			-			-			-			-			-			-			-			-		
Benzo(k)fluoranthene	mg/kg	6.2	-			-			-			-			-			-			-			-			-		
Bis(2-ethylhexyl)phthalate	mg/kg	35	-			-			-			-			-			-			-			-			-		
Chrysene	mg/kg	62	-			-			-			-			-			-			-			-			-		
Di-n-butyl phthalate	mg/kg	6100	-			-			-			-			-			-			-			-			-		
Dinitrotoluene, 2,4-	mg/kg	0.72	-			-			-						**30.2**			0.48			-			-			-		
Dinitrotoluene, 2,6-	mg/kg	0.72	-			-			-			**61.8**			**5.01**			0.0622	J	J	-			-			-		
Fluoranthene	mg/kg	2300	-			-			-			-			-			-			-			-			-		
Indeno(1,2,3-cd)pyrene	mg/kg	0.62	-			-			-			-			-			-			-			-			-		
Methylnaphthalene, 2-	mg/kg		-			-			-			-			-			-			-			-			-		
Naphthalene	mg/kg	56	-			-			-			-			-			-			-			-			-		
Phenanthrene	mg/kg		-			-			-			-			-			-			-			-			-		
Pyrene	mg/kg	2300	-			-			-			-			-			-			-			-			-		
PCBs																													
Aroclor 1260	mg/kg	0.22	0.00862	J	J	-			-			**5.55**	D	J	0.113			**0.346**		J	-			-			0.0174	J	J

Table 2-2

Summary of Detected Analytes in Confirmation Soil Samples
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Parameter	Location Code:		TNTA-SO196			TNTA-SO201			TNTA-SO201			TNTA-SO105			TNTA-SO105			TNTA-SO261			TNTA-SO261			TNTA-SO261			TNTA-SO263		
	Building:		116									119						126											
	Sample No:		AA0446			AA0472			AA0473			AA0440			AA0466			AA0447			AA0474			AA0475			AA0448		
	Sample Date:		25-SEP-00			26-SEP-00			26-SEP-00			25-SEP-00			28-SEP-00			25-SEP-00			26-SEP-00			26-SEP-00			25-SEP-00		
	Sample Depth:		1 - 2			4 - 6			8 - 10			2 - 3			4 - 6			1.5 - 2.5			4 - 6			8 - 10			2 - 3		
METALS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Aluminum	mg/kg	76000	6820		J	7120		J	11900		J	1090		J	3170			9000		J	10800		J	11700		J	6690		J
Antimony	mg/kg	31	-		UJ	-		UJ	-		UJ	1.31	B	J	1.78		J	-		UJ	-		UJ	1.13	B	UJ	-		UJ
Arsenic	mg/kg	0.39	**8.59**		J	**3.03**			**7.31**			**5.89**			**12.6**			**6.01**		J	**5.29**			**7.97**			**5.42**		J
Barium	mg/kg	5400	27.8			26.5		J	15.9		J	109		J	66.6			67.3			33.6		J	20.3		J	26.9		
Beryllium	mg/kg	150	0.45			0.438			0.646			0.166	B	J	0.372			0.671			0.704			0.641			0.405		
Cadmium	mg/kg	37	0.131	B	J	-			-			-			-			-			-			-			0.103	B	J
Calcium	mg/kg		5150			4060		J	56900		J	1700		J	1600			57200			75800		J	65500		J	7330		
Chromium	mg/kg	210	19.9			9.62			22.7			3.09			7.01			14.3			20.4			22.2			13.2		
Cobalt	mg/kg	4700	9.1			5.32			19			0.803	B	J	5.88			9.9			15.2			15.5			4.62		
Copper	mg/kg	2900	8.3		J	5.28			13.4			7.11			26.5			14.3		J	17.6			13.2			20.5		J
Iron	mg/kg	23000	21900			10100			21800			6060			15000			22000			**28600**			**23000**			14600		
Lead	mg/kg	48.6	7.24		J	7.17		J	4.11		J	**1660**		J	**257**			19.4		J	8.47		J	4.76		J	17.4		J
Magnesium	mg/kg		2040			1420			7820			235			721			3320			5000			7500			2060		
Manganese	mg/kg	1800	220		J	256			563			26.7			47.4			1370		J	873			703			340		J
Mercury	mg/kg	23	-			0.027	B	B	-			0.049		B	0.067			0.022	J	J	-			-			0.03	J	J
Nickel	mg/kg	1600	18.3			12			50.7			3.26			21.4			25.5			44.1			44.1			12		
Potassium	mg/kg		939			665			2770			678			1560			1700			2690			2940			727		
Selenium	mg/kg	390	-			-			-			1.15	B	J	0.97	B	J	-			-			-			-		
Silver	mg/kg	390	-			-			-			-			-			-			-			-			-		
Sodium	mg/kg		113	B	B	244	B	B	454			191	B	B	182	B	J	381		B	433			350		B	346		B
Thallium	mg/kg	6.3	-			-			-			-			-			-			-			-			-		
Vanadium	mg/kg	550	17.9			14.2			16.9			6.54			16.2			19.3			15.2			16.2			18		
Zinc	mg/kg	23000	214			29.4			56.3			12.8			27.5			41.5			30.3			33.8			109		

Table 2-2

Summary of Detected Analytes in Confirmation Soil Samples
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Parameter	Location Code:		TNTA-SO303			TNTA-SO062			TNTA-SO062			TNTA-SO334			TNTA-SO040			TNTA-SO297			TNTA-SO016			TNTA-SO016		
	Building:		129			131						136			139			141			142					
	Sample No:		AA0452			AA0461			AA0462			AA0453			AA0432			AA0451			AA0427			AA0428		
	Sample Date:		26-SEP-00			29-SEP-00			29-SEP-00			25-SEP-00			25-SEP-00			25-SEP-00			25-SEP-00			25-SEP-00		
	Sample Depth:		2 - 3			4 - 6			6 - 8			1 - 2			2 - 3			1 - 2			0 - 1			2 - 3		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			2.24			**9.44**			-			2.43			**4.22**			0.132			1.87		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			1.05			**9.49**			-			-			**4.83**			-			**3.53**		
Dinitrotoluene, total	mg/kg	0.72	-			**3.43**			**61.8**			-			**40.8**			**7.36**			**1.46**			0.534		
Nitrobenzene	mg/kg	20	-			-			-			-			-			-			-			-		
Nitrotoluene, 2-	mg/kg	370	-			0.528			152			-			1.05			0.374			-			-		
Nitrotoluene, 3-	mg/kg	370	-			-			16.9			-			0.199	J	J	-			-			0.16	J	J
Nitrotoluene, 4-	mg/kg	370	-			0.249			98.4			-			0.827			-			-			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			-			-			-			0.902			-			-			0.0665	J	J
Trinitrotoluene, 2,4,6-	mg/kg	16	-			1.31			15.9			-			7.21			11.5			0.806			0.896		
VOLATILES																										
Acetone	mg/kg	1600	0.02			0.125			0.0544			0.0159		J	0.0837			0.194		J	0.188			0.0277		
Benzene	mg/kg	0.67	-			-			-			-			-			0.00244	J	J	-			-		
Butanone, 2-	mg/kg	7300	-			-			-			-			-			-			-			-		
Carbon disulfide	mg/kg	360	-			0.00909			-			-			-			-			-			0.00671		
Methylene chloride	mg/kg	8.9	0.0053	JB	B	0.00428	JB	B	0.00217	JB	B	0.107	B	B	0.0325	B	B	0.0272	B	B	0.0567	B	B	0.0522	B	J
Toluene	mg/kg	590	0.00209	J	J	0.00295	J	J	0.00484	J	J	-			-			0.00339	J	J	-			0.00254	J	J
Xylene, o-	mg/kg	1400	-			-			-			-			-			-			-			-		
Xylenes, m,p-	mg/kg	1400	-			-			-			-			-			-			-			-		
SEMIVOLATILES																										
Benzo(a)anthracene	mg/kg	0.62	0.0386	J	J	-			-			0.117	J	J	-			0.0496	J	J	-			-		
Benzo(a)pyrene	mg/kg	0.062	-			-			-			**0.107**	J	J	-			0.0484	J	J	-			-		
Benzo(b)fluoranthene	mg/kg	0.62	-			-			-			0.162	J	J	-			0.127	J	J	-			-		
Benzo(ghi)perylene	mg/kg		-			-			-			-			-			-			-			-		
Benzo(k)fluoranthene	mg/kg	6.2	-			-			-			-			-			-			-			-		
Bis(2-ethylhexyl)phthalate	mg/kg	35	-			0.0595	J	J	-			-			-			-			-			-		
Chrysene	mg/kg	62	-			-			-			0.109	J	J	0.0733	J	J	0.107	J	J	-			-		
Di-n-butyl phthalate	mg/kg	6100	-			-			-			0.0729	J	J	0.0568	J	J	-			-			-		
Dinitrotoluene, 2,4-	mg/kg	0.72	-			**1.73**			**15.2**			-			**4.72**			**2.03**			0.0761	J	J	0.551		
Dinitrotoluene, 2,6-	mg/kg	0.72	-			**1.5**			**7.29**			-			**1.32**			0.694			-			0.179	J	J
Fluoranthene	mg/kg	2300	-			-			-			0.176	J	J	-			-			-			-		
Indeno(1,2,3-cd)pyrene	mg/kg	0.62	-			-			-			-			-			-			-			-		
Methylnaphthalene, 2-	mg/kg		-			-			0.386	J	J	-			0.0907	J	J	0.0999	J	J	-			-		
Naphthalene	mg/kg	56	-			-			-			-			-			-			-			-		
Phenanthrene	mg/kg		0.0516	J	J	-			-			0.0807	J	J	0.06	J	J	0.0633	J	J	-			-		
Pyrene	mg/kg	2300	-			-			-			0.153	J	J	-			-			-			-		
PCBs																										
Aroclor 1260	mg/kg	0.22	0.0486	J	J	0.108		J	**0.251**			0.014	J	J	**69.8**		J	0.215			**2.48**		J	0.0328	J	J

Table 2-2

Summary of Detected Analytes in Confirmation Soil Samples
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Parameter	Location Code:		TNTA-SO303			TNTA-SO062			TNTA-SO062			TNTA-SO334			TNTA-SO040			TNTA-SO297			TNTA-SO016			TNTA-SO016		
	Building:		129			131						136			139			141			142					
	Sample No:		AA0452			AA0461			AA0462			AA0453			AA0432			AA0451			AA0427			AA0428		
	Sample Date:		26-SEP-00			29-SEP-00			29-SEP-00			25-SEP-00			25-SEP-00			25-SEP-00			25-SEP-00			25-SEP-00		
	Sample Depth:		2 - 3			4 - 6			6 - 8			1 - 2			2 - 3			1 - 2			0 - 1			2 - 3		
METALS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Aluminum	mg/kg	76000	5350		J	5970			4840			5890		J	2490		J	4660		J	3520		J	4810		J
Antimony	mg/kg	31	-		UJ	-		UJ	0.669	B	J	2.24		J	3.14		J	1.21	B	B	3.69		J	-		UJ
Arsenic	mg/kg	0.39	**3.44**			**4.09**			**10.4**			**3.13**		J	**4.67**		J	**3.83**		J	**2.76**		J	**3.71**		J
Barium	mg/kg	5400	20.5		J	27.7			73.3			23.7			61.6			22.2			124			23.7		
Beryllium	mg/kg	150	0.302			0.448			0.503			0.357			0.234	B	J	0.367			0.243			0.368		
Cadmium	mg/kg	37	-			0.494	B	J	0.494	B	J	0.686	B	J	0.198	B	J	0.579	B	J	1.59			-		
Calcium	mg/kg		5990		J	24300			97600			14500			2830			125000			51000			6860		
Chromium	mg/kg	210	7.04			9.93			9.01			11.6			8.49			8.75			15.4			9.4		
Cobalt	mg/kg	4700	3.62			5.48			7.48			3			2.04			4.79			2.85			3.58		
Copper	mg/kg	2900	5.34			9.41			30.7			80.5		J	21.1		J	35.9		J	88.4		J	6.31		J
Iron	mg/kg	23000	8760			9800			14200			10600			6920			12300			8290			19900		
Lead	mg/kg	48.6	11.1		J	35			**108**			**69.5**		J	**11900**		J	**119**		J	**588**		J	12.2		J
Magnesium	mg/kg		1480			3030			11900			2070			597			10400			3610			1460		
Manganese	mg/kg	1800	241			418			567			93.3		J	59.9		J	515		J	223		J	547		J
Mercury	mg/kg	23	-			0.033	B	J	0.084			0.041			0.078			-			0.134			-		
Nickel	mg/kg	1600	9.18			14.8			23.7			9.14			7.79			15.9			13.1			9.65		
Potassium	mg/kg		535			413			940			542			649			810			481			713		
Selenium	mg/kg	390	-			-			1.84			-			-			-			-			-		
Silver	mg/kg	390	-			-			-			-			0.704	B	J	-			-			-		
Sodium	mg/kg		156	B	B	175	B	J	202	B	J	249	B	B	178	B	B	230		B	299		B	135	B	B
Thallium	mg/kg	6.3	-			-			-			-			-			-			-			-		
Vanadium	mg/kg	550	11.9			13.8			15.7			16.3			8.51			12.8			10.6			18		
Zinc	mg/kg	23000	25			104			146			348			60.7			255			751			35.8		

Table 2-2

Summary of Detected Analytes in Confirmation Soil Samples
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

	Location Code:		TNTA-SO035			TNTA-SO080			TNTA-SO080			TNTA-SO081			TNTA-SO225			TNTA-SO077			TNTA-SO094			TNTA-SO094		
	Building:		143			146												148			182					
	Sample No:		AA0431			AA0463			AA0464			AA0434			AA0480			AA0433			AA0437			AA0465		
	Sample Date:		25-SEP-00			29-SEP-00			29-SEP-00			25-SEP-00			11-OCT-00			25-SEP-00			22-SEP-00			29-SEP-00		
Parameter	Sample Depth:		1.5 - 2.5			4 - 6			8 - 10			0.8 - 1.8			2 - 3			0.7 - 1.7			2 - 3			5 - 7		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	0.409			**16**			0.551			**5.84**			**7.46**			0.329			-			-		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	0.501			**32.6**			1.22			**9.59**			**20.7**			1.04			-			-		
Dinitrotoluene, total	mg/kg	0.72	0.349			-			-			-			-			0.677			-			**76.2**		
Nitrobenzene	mg/kg	20	-			0.119			0.136			-			-			-			-			-		
Nitrotoluene, 2-	mg/kg	370	-			-			-			-			-			-			-			0.245		
Nitrotoluene, 3-	mg/kg	370	-			-			-			-			-			-			-			-		
Nitrotoluene, 4-	mg/kg	370	-			-			-			-			-			-			-			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			0.123			0.0761	J	J	0.178			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	0.245			**530**			**92.5**			**163**	D		**205**			1.27			-			-		
VOLATILES																										
Acetone	mg/kg	1600	0.06			0.0401			0.015			0.0636			0.0368		J	0.055			0.0579			0.0228		
Benzene	mg/kg	0.67	-			-			-			-			-			-			-			-		
Butanone, 2-	mg/kg	7300	-			-			-			-			-			-			-			-		
Carbon disulfide	mg/kg	360	-			0.002	J	J	-			-			-			-			-			-		
Methylene chloride	mg/kg	8.9	0.0357	B	B	0.002	J	B	0.0024	J	B	0.037	B	B	0.00695	JB	B	0.0795	B	J	0.00666		B	0.00369	J	B
Toluene	mg/kg	590	-			-			-			-			-			-			-			-		
Xylene, o-	mg/kg	1400	-			-			-			-			-			-			-			-		
Xylenes, m,p-	mg/kg	1400	-			-			-			-			-			-			-			-		
SEMIVOLATILES																										
Benzo(a)anthracene	mg/kg	0.62	0.295	J	J	-			-			-			-			-			-			-		
Benzo(a)pyrene	mg/kg	0.062	**0.218**	J	J	-			-			-			-			-			-			-		
Benzo(b)fluoranthene	mg/kg	0.62	0.305	J	J	-			-			-			-			-			-			-		
Benzo(ghi)perylene	mg/kg		0.0981	J	J	-			-			-			-			-			-			-		
Benzo(k)fluoranthene	mg/kg	6.2	0.158	J	J	-			-			-			-			-			-			-		
Bis(2-ethylhexyl)phthalate	mg/kg	35	-			0.0231	J	J	-			-			0.0242	J	J	-			-			-		
Chrysene	mg/kg	62	0.202	J	J	-			-			-			-			-			-			-		
Di-n-butyl phthalate	mg/kg	6100	-			0.216	J	J	-			-			-			-			-			-		
Dinitrotoluene, 2,4-	mg/kg	0.72	0.301	J	J	0.296	J	J	-			0.173	J	J	0.165	J	J	0.092	J	J	**0.803**			**17.5**		
Dinitrotoluene, 2,6-	mg/kg	0.72	0.347	J	J	-			-			-			0.058	J	J	-			0.108	J	J	**10.1**		
Fluoranthene	mg/kg	2300	0.193	J	J	-			-			-			-			-			-			-		
Indeno(1,2,3-cd)pyrene	mg/kg	0.62	0.0996	J	J	-			-			-			-			-			-			-		
Methylnaphthalene, 2-	mg/kg		-			-			-			-			-			-			-			1.15	J	J
Naphthalene	mg/kg	56	-			-			-			-			-			-			-			0.652	J	J
Phenanthrene	mg/kg		-			-			-			-			-			-			-			0.45	J	J
Pyrene	mg/kg	2300	0.175	J	J	-			-			-			-			-			-			-		
PCBs																										
Aroclor 1260	mg/kg	0.22	0.053	J	J	0.152		J	-			0.0634	J	J	-			**0.24**			0.0479	J	J	-		

Table 2-2

Summary of Detected Analytes in Confirmation Soil Samples
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Parameter	Location Code:		TNTA-SO035			TNTA-SO080			TNTA-SO080			TNTA-SO081			TNTA-SO225			TNTA-SO077			TNTA-SO094			TNTA-SO094		
	Building:		143			146												148			182					
	Sample No:		AA0431			AA0463			AA0464			AA0434			AA0480			AA0433			AA0437			AA0465		
	Sample Date:		25-SEP-00			29-SEP-00			29-SEP-00			25-SEP-00			11-OCT-00			25-SEP-00			22-SEP-00			29-SEP-00		
	Sample Depth:		1.5 - 2.5			4 - 6			8 - 10			0.8 - 1.8			2 - 3			0.7 - 1.7			2 - 3			5 - 7		
METALS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Aluminum	mg/kg	76000	4960		J	11000			13200			6290		J	11700			5400		J	7060		J	4940		
Antimony	mg/kg	31	0.8	B	B	-		UJ	-		UJ	-		UJ	-		UJ	-		UJ	-		UJ	1.6		J
Arsenic	mg/kg	0.39	**2.86**		J	**7.52**			**11**			**2.94**		J	**5.07**			**3.67**		J	**10.9**		J	**23.2**		
Barium	mg/kg	5400	22.9			23			21.2			27.5			68.7			20.5			20.1		J	21.3		
Beryllium	mg/kg	150	0.33			0.61			0.707			0.396			0.759			0.331			0.497			0.796		
Cadmium	mg/kg	37	0.204	B	J	-			-			0.193	B	J	0.133	B	J	0.198	B	J	0.189	B	B	-		
Calcium	mg/kg		3240			30400			47300			11500			7120		J	5150			1330		J	1180		
Chromium	mg/kg	210	6.57			19.6			24.2			11.9			19.3		J	8.25			10.2		J	13.6		
Cobalt	mg/kg	4700	4.01			12.9			18.7			3.76			11.1			4.17			5.38			9.95		
Copper	mg/kg	2900	7.9		J	12.8			14.6			17.3		J	9.23			7.86		J	22.3		J	93.8		
Iron	mg/kg	23000	8720			18400			**24500**			11500			19700			10400			19400			**38400**		
Lead	mg/kg	48.6	9.77		J	22.5			6.65			**50.3**		J	11.1		J	25.9		J	19.8		J	32.8		
Magnesium	mg/kg		1050			6600			8980			2190			3040		J	1220			1060		J	737		
Manganese	mg/kg	1800	187		J	336			501			267		J	423			221		J	276		J	40.4		
Mercury	mg/kg	23	-			0.034	B	J	-			0.08			0.078		J	0.022	J	J	0.035			0.068		
Nickel	mg/kg	1600	11.5			35.4			50.6			9.38			26.8			11.2			22.7			48.5		
Potassium	mg/kg		361			3190			3660			632			1960		J	516			1080			2240		
Selenium	mg/kg	390	-			-			-			-			1	B	B	-			1.24			2.05		
Silver	mg/kg	390	-			-			-			-			-			-			-			-		
Sodium	mg/kg		106	B	B	338			324			147	B	B	201	B	J	151	B	B	158	B	B	92.1	B	J
Thallium	mg/kg	6.3	-			-			-			-			-			-			-			2.38		
Vanadium	mg/kg	550	13			19.1			18.9			20.4			22.4			15.3			21.7			26.2		
Zinc	mg/kg	23000	52.5			45.5			41			51.4			47.2		J	50.3			76.5		J	133		

Table 2-2

Summary of Detected Analytes in Confirmation Soil Samples
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Parameter	Location Code:		TNTA-SO399			TNTA-SO399			TNTA-SO276			TNTA-SO279			TNTA-SO012			TNTA-SO012		
	Building:		185						192						195					
	Sample No:		AA0478			AA0479			AA0449			AA0450			AA0426			AA0460		
	Sample Date:		26-SEP-00			26-SEP-00			25-SEP-00			25-SEP-00			25-SEP-00			29-SEP-00		
	Sample Depth:		4 - 6			8 - 9			1.5 - 2.5			2 - 3			2 - 3			4 - 6		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			-			-			-			-			-		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			-			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	0.252			**1.54**			0.411			**199**	D		**2708**	D		**195**		
Nitrobenzene	mg/kg	20	-			-			-			-			0.205			-		
Nitrotoluene, 2-	mg/kg	370	-			-			-			-			-			-		
Nitrotoluene, 3-	mg/kg	370	-			-			-			-			0.41			-		
Nitrotoluene, 4-	mg/kg	370	-			-			-			-			0.455			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			-			-			-			0.621			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			0.159			-			-			**259**	D		**104**		
VOLATILES																				
Acetone	mg/kg	1600	-		R	-		UJ	0.188		J	0.0381		J	0.0608			0.0359		
Benzene	mg/kg	0.67	-			-		UJ	-			-			-			-		
Butanone, 2-	mg/kg	7300	-			-		UJ	-			-			-			-		
Carbon disulfide	mg/kg	360	-			-		UJ	-			-			-			0.002	J	J
Methylene chloride	mg/kg	8.9	0.004	JB	B	0.0564	B	J	0.0738	B		0.0093	B	B	0.0957	B	J	0.00297	JB	B
Toluene	mg/kg	590	0.004	J	J	0.0086		J	-			0.0023	J	J	-			-		
Xylene, o-	mg/kg	1400	-			0.0027	J	J	-			-			-			-		
Xylenes, m,p-	mg/kg	1400	-			0.0079		J	-			-			-			-		
SEMIVOLATILES																				
Benzo(a)anthracene	mg/kg	0.62	-			-			-			-			-			-		
Benzo(a)pyrene	mg/kg	0.062	-			-			-			-			-			-		
Benzo(b)fluoranthene	mg/kg	0.62	-			-			-			-			-			-		
Benzo(ghi)perylene	mg/kg		-			-			-			-			-			-		
Benzo(k)fluoranthene	mg/kg	6.2	-			-			-			-			-			-		
Bis(2-ethylhexyl)phthalate	mg/kg	35	-			-			-			-			-			-		
Chrysene	mg/kg	62	-			-			-			-			-			-		
Di-n-butyl phthalate	mg/kg	6100	-			-			-			-			-			-		
Dinitrotoluene, 2,4-	mg/kg	0.72	0.222	J	J				0.316	J	J	**80.9**			**8912**			**47.7**		
Dinitrotoluene, 2,6-	mg/kg	0.72	-			0.342	J	J	0.0529	J	J	**3201**			**10274**			**96.9**		
Fluoranthene	mg/kg	2300	-			-			-			-			-			-		
Indeno(1,2,3-cd)pyrene	mg/kg	0.62	-			-			-			-			-			-		
Methylnaphthalene, 2-	mg/kg		-			-			-			-			-			-		
Naphthalene	mg/kg	56	-			-			-			-			-			-		
Phenanthrene	mg/kg		-			-			-			-			-			-		
Pyrene	mg/kg	2300	-			-			-			-			-			-		
PCBs																				
Aroclor 1260	mg/kg	0.22	-			-			0.0134	J	J	0.131		J	**0.357**			-		

Table 2-2

Summary of Detected Analytes in Confirmation Soil Samples
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Parameter	Location Code:		TNTA-SO399			TNTA-SO399			TNTA-SO276			TNTA-SO279			TNTA-SO012			TNTA-SO012		
	Building:		185						192						195					
	Sample No:		AA0478			AA0479			AA0449			AA0450			AA0426			AA0460		
	Sample Date:		26-SEP-00			26-SEP-00			25-SEP-00			25-SEP-00			25-SEP-00			29-SEP-00		
	Sample Depth:		4 - 6			8 - 9			1.5 - 2.5			2 - 3			2 - 3			4 - 6		
METALS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Aluminum	mg/kg	76000	3130		J	2760		J	2130		J	4630		J	3040		J	9060		
Antimony	mg/kg	31	-		UJ	1.22	B	UJ	-		UJ	-		UJ	1.23	B	B	-		UJ
Arsenic	mg/kg	0.39	**3.23**			**3.66**			-		UJ	**3.23**		J	**14.4**		J	**20.3**		
Barium	mg/kg	5400	9.08		J	9.88		J	11.1			29.4			38.7			16.5		
Beryllium	mg/kg	150	0.246			0.246			0.16	B	J	0.299			0.28			0.758		
Cadmium	mg/kg	37	-			0.103	B		-			0.695	B	J	-			-		
Calcium	mg/kg		10600		J	32500		J	31000			17400			1180			47900		
Chromium	mg/kg	210	4.96			6.4			4.71			40.3			5.43			11.6		
Cobalt	mg/kg	4700	3.08			2.97			2.01			3.69			3.14			6.31		
Copper	mg/kg	2900	5.59			5.86			2.06		J	19.9		J	14.6		J	27.9		
Iron	mg/kg	23000	7050			6710			3910			9460			**25300**			**44800**		
Lead	mg/kg	48.6	3.15		J	3.32		J	8.37		J	**142**		J	**65.9**		J	38.6		
Magnesium	mg/kg		2880			6690			9140			6450			533			19100		
Manganese	mg/kg	1800	287			220			109		J	140		J	79.4		J	834		
Mercury	mg/kg	23	-			-			-			0.028	J	J	-			-		
Nickel	mg/kg	1600	8.95			8.02			5.69			14.4			10.2			22.9		
Potassium	mg/kg		413			405			245			522			609			2260		
Selenium	mg/kg	390	-			-			-			-			-			-		
Silver	mg/kg	390	-			-			-			-			-			-		
Sodium	mg/kg		178	B	B	294		B	196	B	B	178	B	B	115	B	B	223		
Thallium	mg/kg	6.3	-			-			-			-			-			1.34	B	J
Vanadium	mg/kg	550	9.65			9.51			9.06			13.4			18.9			24.1		
Zinc	mg/kg	23000	20.9			30.7			15.1			140			53.7			234		

Table 2-3

Summary of Groundwater Analytical Detections, Overburden Temporary Piezometers TNT Area A - RI Report Former Plum Brook Ordnance Works, Sandusky, Ohio

(Page 1 of 2)

		Location Code:		TNTA-GW01			TNTA-GW02			TNTA-GW03			TNTA-GW04			TNTA-GW05			TNTA-GW06			TNTA-GW07			TNTA-GW08			TNTA-GW10		
		Building:		111			112			119			116			146			126			192			131			185		
		Sample No:		AA3001			AA3002			AA3003			AA3004			AA3005			AA3006			AA3007			AA3008			AA3010		
		Sample Date:		11-OCT-00			11-OCT-00			12-OCT-00			12-OCT-00			11-OCT-00			27-SEP-00			11-OCT-00			12-OCT-00			26-SEP-00		
Parameter	Fl	Unit	PRG	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ
NITROAROMATICS																														
Amino-2,6-dinitrotoluene, 4-		ug/L	2.2	-			**28.9**			-			**201**			**931**			**230**			0.629			-			-		
Amino-4,6-dinitrotoluene, 2-	00	ug/L	2.2	-			**16.1**			-			**139**			**1890**			**217**			0.937			-			-		
Dinitrobenzene, 1,3-		ug/L	3.6	-			-			0.563			-			0.529			0.654			-			-			-		
Dinitrotoluene, total		ug/L	0.099	**14.5**			-			**771**			-			-			**24.6**			**0.526**			**30.9**			**13800**		
Nitrobenzene		ug/L	3.4	-			-			**5.37**			-			-			-			-			-			-		
Nitrotoluene, 2-		ug/L	61	**129**			-			**2510**			0.599			-			-			-			**115**			-		
Nitrotoluene, 3-		ug/L	61	8.3			-			**190**			-			-			-			-			7.62			27.8		
Nitrotoluene, 4-		ug/L	61	**86.3**			-			**1880**			-			-			-			-			28.6			8.35		
Trinitrobenzene, 1,3,5-		ug/L	1100	-			0.279			-			-			19			7.93			-			-			-		
Trinitrotoluene, 2,4,6-		ug/L	2.2	-			**137**			-			**157**			**11500**			**32400**			0.451			-			**50.9**		
VOLATILES																														
Acetone		ug/L	610	-			-		R	-		R	-		R	-		R	6.59		J	-		R	-		R	-		R
Benzene		ug/L	0.41	**4.81**			-			-			-			-			-			-			-			-		
Carbon disulfide		ug/L		1.16			-			0.79	J	J	-			-			-			0.86	J	J	-			-		
Chloromethane		ug/L	1.5	-			-			-			-			-			-		UJ	-			-			0.53	J	J
Dichloroethene, cis-1,2-		ug/L	61	-			-			-			-			2.11			-			-			-			-		
Ethylbenzene		ug/L	1300	2.33			-			-			-			-			-			-			-			-		
Methylene chloride		ug/L	4.3	0.99	JB	B	1.23	B	B	0.94	JB	B	0.86	JB	B	1.21	B	B	0.82	J	B	0.75	JB	B	0.59	JB	B	0.89	JB	B
Toluene		ug/L	720	**1350**			-			5.24			-			-			-			-			1.11			-		
Xylene, o-		ug/L	1400	5.29			-			-			-			-			-			-			-			-		
Xylenes, m,p-		ug/L	1400	6.9			-			-			-			-			-			-			-			-		
SEMIVOLATILES																														
Di-n-butyl phthalate		ug/L	3600	-		UJ	-			10.1	JB	B	11.6	B	B	-			-			1.79	JB	B	1.8	JB	B	-		
Dinitrotoluene, 2,4-		ug/L	0.099	**957**		J	**3.29**	J	J	**218**		J	-			**4.74**	J	J	**3.92**	J	J	-			**15.6**			**5750**		
Dinitrotoluene, 2,6-		ug/L	0.099	**377**		J	-			**50.8**		J	-			-			-			-			**11.8**			**5610**		
PCBs																														
Aroclor 1260		ug/L	0.034	-			-			**0.239**	J	J	-			-			-			-			-			-		

Table 2-3

Summary of Groundwater Analytical Detections,
Overburden Temporary Piezometers
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

		Location Code:		TNTA-GW01			TNTA-GW02			TNTA-GW03			TNTA-GW04			TNTA-GW05			TNTA-GW06			TNTA-GW07			TNTA-GW08			TNTA-GW10		
		Building:		111			112			119			116			146			126			192			131			185		
		Sample No:		AA3001			AA3002			AA3003			AA3004			AA3005			AA3006			AA3007			AA3008			AA3010		
		Sample Date:		11-OCT-00			11-OCT-00			12-OCT-00			12-OCT-00			11-OCT-00			27-SEP-00			11-OCT-00			12-OCT-00			26-SEP-00		
Parameter	FI	Unit	PRG	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ
METALS																														
Aluminium	Y	ug/L	36000				29.3	B	J										281									38.4	B	B
Aluminum		ug/L	36000	**48800**			26300			9150			24100			34500			15600			144	B	J	19600			465		
Antimony	Y	ug/L	150				-												-		UJ							-		
Antimony		ug/L	150	-			-			12.5			-			6.25			-		UJ	-			-			-		
Arsenic	Y	ug/L	0.045				-												-									-		
Arsenic		ug/L	0.045	**52.7**			**30.6**		J	**16**			**8.04**			**21**		J	**8.88**			-			**19**			-		
Barium	Y	ug/L	2600				25.3												52.6									22.2		
Barium		ug/L	2600	669			140			236			229			253			174			59.2			198			23.4		
Beryllium	Y	ug/L	73				-												-									-		
Beryllium		ug/L	73	4.23			1.98			0.433	B	J	2.03			2.26			0.854	B	J	0.175	B	J	2.99			-		
Cadmium	Y	ug/L	18				-												-									0.702	B	J
Cadmium		ug/L	18	5.96			-			0.793	B	J	2.01	B	J	6.39			1.26	B	J	-			3.54			0.751	B	J
Calcium	Y	ug/L					204000												173000									240000		
Calcium		ug/L		229000			557000			212000			264000			229000			237000			525000			144000			237000		
Chromium	Y	ug/L	110				1.15	B	J										-									-		
Chromium		ug/L	110	66.3			62.1			11.9			26.8			65.3			27.2			1.11	B	J	28.1			1.24	B	J
Cobalt	Y	ug/L	2200				-												2.01	B	J							5.42		
Cobalt		ug/L	2200	37.7			25.8			10			17.8			24.4			13.3			48.7			49			5.73		
Copper	Y	ug/L	1400				2.59	B	J										2.38	B	B							3.52	B	B
Copper		ug/L	1400	54.9			57.3			24.4			23.1			253			41.1			1.62	B	B	117			4.53	B	B
Iron	Y	ug/L	11000				94.6	B	J										417									39.1	B	B
Iron		ug/L	11000	**78700**			**67100**			**22500**			**22800**			**63800**			**28700**			**15400**			**32000**			906		
Lead	Y	ug/L	15				-												4.61									2.03	B	B
Lead		ug/L	15	**566**			**63.7**			**1010**			**50.5**			**694**			**320**			2.13	B	J	**451**			1.6	B	B
Magnesium	Y	ug/L					25700												59300									19300		
Magnesium		ug/L		29200			103000			24700			34300			34600			68000			130000			20600			20300		
Manganese	Y	ug/L	880				187												**1540**									**2060**		
Manganese		ug/L	880	**7050**			**1910**			**1480**			**1430**			**2080**			**1540**			**2560**			**1460**			**1900**		
Mercury	Y	ug/L	11				-							-					-									-		
Mercury		ug/L	11	0.22			-			-			0.126	B	J	1.86			1.74			-			0.23			-		
Nickel	Y	ug/L	730				-												-									8.84		
Nickel		ug/L	730	65.1			66.7			16.7			30.5			68.6			44			98.9			103			11		
Potassium	Y	ug/L					2350												9110									2210		
Potassium		ug/L		13400			7150			8650			6800			15500			13600			2930			5220			2210		
Silver	Y	ug/L	180				-												0.975	B	J							-		
Silver		ug/L	180	-			-			1.26	B	B	-			-			0.987	B	J	-			-			-		
Sodium	Y	ug/L					7480												117000									7390		
Sodium		ug/L		6300			9680			20400			97700			67800			113000			8550			6350			6700		
Vanadium	Y	ug/L	260				-												-									-		
Vanadium		ug/L	260	106			86.8			19.7			32.9			98.1			29.9			-			44			1.59	B	J
Zinc	Y	ug/L	11000				-												16.4									25		
Zinc		ug/L	11000	923			237			92.5			219			1830			280			53.6			706			37.2		

Table 2-4

Summary of Nitroaromatic Analytical Detections in Soil
Building 182, DNT Sweating and Graining House
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

	Sample Type:		Screening			Screening			Screening			Confirmation			Confirmation			Screening			Screening		
	Location Code:		TNTA-SO092			TNTA-SO093			TNTA-SO094									TNTA-SO095			TNTA-SO096		
	Sample No:		AA0092			AA0093			AA0094			AA0437			AA0465			AA0095			AA0096		
	Sample Date:		18-JUL-00			18-JUL-00			18-JUL-00			22-SEP-00			29-SEP-00			13-SEP-00			13-SEP-00		
Parameter	Sample Depth:		2 - 3			2.5 - 3.5			2 - 3						5 - 7			1 - 2			1 - 2		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			-			-			-			-			-			-		
Dinitrobenzene, 1,3-	mg/kg	6.1	-			-			-			-			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	-			-			0.143	J		-			76.2			0.746			0.37		
Nitrobenzene	mg/kg	20	-			-			-			-			-			-			-		
Nitrotoluene, 2-	mg/kg	370	-			-			-			-			0.245			-			-		
Tetryl	mg/kg		-			-			-			-			-			-			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			-			-			-			-			0.348			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			-			-			-			-			-			-		

	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO097			TNTA-SO098			TNTA-SO099			TNTA-SO100			TNTA-SO101			TNTA-SO397			TNTA-SO398		
	Sample No:		AA0097			AA0098			AA0099			AA0100			AA0101			AA0397			AA0398		
	Sample Date:		18-JUL-00			13-SEP-00			13-SEP-00			13-SEP-00			13-SEP-00			15-SEP-00			15-SEP-00		
Parameter	Sample Depth:		2 - 3			1 - 2			1 - 2			1 - 2			1 - 2			4 - 6			6 - 7		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			0.319			-			-			-			0.657			0.197	J	
Dinitrobenzene, 1,3-	mg/kg	6.1	-			-			-			-			-			0.101	J		-		
Dinitrotoluene, total	mg/kg	0.72	0.294			1.66			0.224	J		-			-			103			51.1		
Nitrobenzene	mg/kg	20	-			-			-			-			-			0.1	J		-		
Nitrotoluene, 2-	mg/kg	370	-			-			-			-			-			0.494			-		
Tetryl	mg/kg		-			-			-			-			-			-			0.356	J	
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			-			-			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			-			-			-			-			0.331			-		

Table 2-5

Summary of Nitroaromatic Analytical Detections in Soil
Building 185, DNT Nitrating Building
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO133			TNTA-SO134			TNTA-SO135			TNTA-SO136			TNTA-SO137			TNTA-SO138			TNTA-SO139		
	Sample No:		AA0133			AA0134			AA0135			AA0136			AA0137			AA0138			AA0139		
	Sample Date:		19-JUL-00			19-JUL-00			19-JUL-00			19-JUL-00			19-JUL-00			19-JUL-00			19-JUL-00		
Parameter	Sample Depth:		1 - 2			1.5 - 2.5			2 - 3			1.5 - 2.5			1.2 - 2.2			1.5 - 2.5			1 - 2		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			-			-			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	-			-			-			-			-			-			-		
Nitrotoluene, 2-	mg/kg	370	-			-			-			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			-			-			-			-			-			-		

	Sample Type:		Screening			Screening			Screening			Confirmation			Confirmation			Screening		
	Location Code:		TNTA-SO140			TNTA-SO141			TNTA-SO399									TNTA-SO400		
	Sample No:		AA0140			AA0141			AA0399			AA0478			AA0479			AA0400		
	Sample Date:		19-JUL-00			19-JUL-00			15-SEP-00			26-SEP-00			26-SEP-00			15-SEP-00		
Parameter	Sample Depth:		1 - 2			1 - 2			4 - 6						8 - 9			8 - 10		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			0.274			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	-			-			-			0.252			1.54			27.3		
Nitrotoluene, 2-	mg/kg	370	-			-			-			-			-			0.24	J	
Trinitrotoluene, 2,4,6-	mg/kg	16	-			-			-			-			0.159			0.131	J	

Table 2-6

Summary of Nitroaromatic Analytical Detections in Soil
Building 192, DNT Sweating and Graining House
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

(Page 1 of 2)

	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO066			TNTA-SO067			TNTA-SO068			TNTA-SO069			TNTA-SO070			TNTA-SO071			TNTA-SO072		
	Sample No:		AA0066			AA0067			AA0068			AA0069			AA0070			AA0071			AA0072		
	Sample Date:		22-JUL-00			22-JUL-00			22-JUL-00			22-JUL-00			22-JUL-00			22-JUL-00			22-JUL-00		
Parameter	Sample Depth:		1.5 - 2.5			1.5 - 2.5			1.3 - 2.3			1 - 2			1.6 - 2.6			1.5 - 2.5			1.5 - 2.5		
NITROAROMATICS	Unit	PRG	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			-			-			-			-			-			-		
Dinitrobenzene, 1,3-	mg/kg	6.1	-			-			-			-			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	0.33			0.277			0.248			0.306			-			0.434			-		
HMX	mg/kg	3100	-			-			-			-			-			-			-		
Nitrobenzene	mg/kg	20	-			-			-			-			-			-			-		
Nitrotoluene, 2-	mg/kg	370	-			-			-			-			-			-			-		
Nitrotoluene, 3-	mg/kg	370	-			-			-			-			-			-			-		
Nitrotoluene, 4-	mg/kg	370	-			-			-			-			-			-			-		
RDX	mg/kg	180	-			-			-			-			-			-			-		
Tetryl	mg/kg		-			-			-			-			-			0.451			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			-			-			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			-			-			-			-			-			-		

	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO159			TNTA-SO160			TNTA-SO161			TNTA-SO271			TNTA-SO272			TNTA-SO273			TNTA-SO274		
	Sample No:		AA0159			AA0160			AA0161			AA0271			AA0272			AA0273			AA0274		
	Sample Date:		22-JUL-00			22-JUL-00			22-JUL-00			16-AUG-00			16-AUG-00			16-AUG-00			16-AUG-00		
Parameter	Sample Depth:		1.5 - 2.5			1.5 - 2.5			1.5 - 2.5			1.6 - 2.6			2 - 3			2 - 3			2 - 3		
NITROAROMATICS	Unit	PRG	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			-			-			-			-			-			-		
Dinitrobenzene, 1,3-	mg/kg	6.1	-			-			-			-			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	-			0.451			0.737			1.4			-			-			-		
HMX	mg/kg	3100	-			-			-			-			-			-			-		
Nitrobenzene	mg/kg	20	-			-			-			-			-			-			-		
Nitrotoluene, 2-	mg/kg	370	-			-			-			-			-			-			-		
Nitrotoluene, 3-	mg/kg	370	-			-			-			-			-			-			-		
Nitrotoluene, 4-	mg/kg	370	-			-			-			-			-			-			-		
RDX	mg/kg	180	-			-			-			-			-			-			-		
Tetryl	mg/kg		-			-			-			-			-			-			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			-			-			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			-			-			-			-			-			-		

Table 2-6

Summary of Nitroaromatic Analytical Detections in Soil
Building 192, DNT Sweating and Graining House
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Parameter	Sample Type:		Screening			Screening			Confirmation			Screening			Screening			Screening			Confirmation		
	Location Code:		TNTA-SO275			TNTA-SO276						TNTA-SO277			TNTA-SO278			TNTA-SO279					
	Sample No:		AA0275			AA0276			AA0449			AA0277			AA0278			AA0279			AA0450		
	Sample Date:		16-AUG-00			16-AUG-00			25-SEP-00			16-AUG-00			16-AUG-00			16-AUG-00			25-SEP-00		
	Sample Depth:		1 - 2			1.5 - 2.5						2 - 3			1 - 1.7			2 - 3					
NITROAROMATICS	Unit	PRG	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			0.146	J		-			192			0.3			933			-		
Dinitrobenzene, 1,3-	mg/kg	6.1	-			-			-			0.313			-			1.22			-		
Dinitrotoluene, total	mg/kg	0.72	0.245			0.885			0.411			996			4.14			1027			199	D	
HMX	mg/kg	3100	-			-			-			-			-			2.23			-		
Nitrobenzene	mg/kg	20	-			-			-			0.506			-			-			-		
Nitrotoluene, 2-	mg/kg	370	-			-			-			-			-			30.1			-		
Nitrotoluene, 3-	mg/kg	370	-			-			-			-			-			9.9			-		
Nitrotoluene, 4-	mg/kg	370	-			-			-			-			-			7.35			-		
RDX	mg/kg	180	-			-			-			0.302	J		-			-			-		
Tetryl	mg/kg		-			-			-			-			-			4.38			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			-			-			0.273			-			0.872			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			-			-			138			-			666			-		

Parameter	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO280			TNTA-SO354			TNTA-SO355			TNTA-SO356			TNTA-SO357			TNTA-SO358			TNTA-SO359			TNTA-SO385		
	Sample No:		AA0280			AA0354			AA0355			AA0356			AA0357			AA0358			AA0359			AA0385		
	Sample Date:		16-AUG-00			22-SEP-00			22-SEP-00			22-SEP-00			22-SEP-00			22-SEP-00			22-SEP-00			13-SEP-00		
	Sample Depth:		2 - 3			1.5 - 2.5			1.5 - 2.5			1.5 - 2.5			1.5 - 2.5			1.5 - 2.5			1.5 - 2.5			2 - 4		
NITROAROMATICS	Unit	PRG	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	25.9			-			-			-			-			-			-			759		
Dinitrobenzene, 1,3-	mg/kg	6.1	-			-			-			-			-			-			-			1.74		
Dinitrotoluene, total	mg/kg	0.72	54.9			-			0.12	J		0.324			0.178	J		0.47			698			1953		
HMX	mg/kg	3100	-			-			-			-			-			-			-			-		
Nitrobenzene	mg/kg	20	-			-			-			-			-			-			-			0.156	J	
Nitrotoluene, 2-	mg/kg	370	-			-			-			-			-			-			-			-		
Nitrotoluene, 3-	mg/kg	370	-			-			-			-			-			-			-			4.51		
Nitrotoluene, 4-	mg/kg	370	-			-			-			-			-			-			-			-		
RDX	mg/kg	180	-			-			-			-			-			-			-			-		
Tetryl	mg/kg		0.976			-			-			-			-			-			2.12			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			-			-			-			-			-			-			0.547		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			-			-			-			-			-			-			798		

Table 2-7

Summary of Nitroaromatic Analytical Detections in Soil
Building 195, DNT Nitrating Building
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

	Sample Type:		Screening			Screening			Screening			Screening			Confirmation			Confirmation			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO009			TNTA-SO010			TNTA-SO011			TNTA-SO012			TNTA-SO012			TNTA-SO012			TNTA-SO013			TNTA-SO014			TNTA-SO015			TNTA-SO243		
	Sample No:		AA0009			AA0010			AA0011			AA0012			AA0426			AA0460			AA0013			AA0014			AA0015			AA0243		
	Sample Date:		21-JUL-00			21-JUL-00			21-JUL-00			21-JUL-00			25-SEP-00			29-SEP-00			21-JUL-00			21-JUL-00			21-JUL-00			16-AUG-00		
Parameter	Sample Depth:		2 - 3			2 - 3			0.5 - 1.5			0.5 - 1.5			2 - 3			4 - 6			1 - 2			2 - 3			1.5 - 2.5			1.5 - 2.5		
NITROAROMATICS	Unit	PRG	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			-			-			1.54			-			-			0.289			0.218			0.363			-		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			-			-			-			-			-			0.216			-			-		
Dinitrotoluene, total	mg/kg	0.72	-			-			-			614			2708	D		196			0.262			0.229			0.866			0.458		
Nitrobenzene	mg/kg	20	-			-			-			-			0.205			-			-			-			-			-		
Nitrotoluene, 3-	mg/kg	370	-			-			-			-			0.41			-			-			-			-			-		
Nitrotoluene, 4-	mg/kg	370	-			-			-			-			0.455			-			-			-			-			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			-			-			0.106	J		0.621			-			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			-			-			-			259	D		104			0.285			-			0.471			-		

	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO244			TNTA-SO245			TNTA-SO246			TNTA-SO247			TNTA-SO248			TNTA-SO249			TNTA-SO250			TNTA-SO251			TNTA-SO252			TNTA-SO387		
	Sample No:		AA0244			AA0245			AA0246			AA0247			AA0248			AA0249			AA0250			AA0251			AA0252			AA0387		
	Sample Date:		16-AUG-00			16-AUG-00			16-AUG-00			16-AUG-00			16-AUG-00			16-AUG-00			16-AUG-00			16-AUG-00			16-AUG-00			13-SEP-00		
Parameter	Sample Depth:		1 - 2			1.5 - 2.5			0.75 - 2			0.75 - 1.7			1 - 2			0.75 - 1.7			1 - 2			1 - 2			1.5 - 2.5			4 - 6		
NITROAROMATICS	Unit	PRG	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			-			-			-			-			-			0.128	J		-			-			221		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			-			-			-			-			0.119	J		-			-			-		
Dinitrotoluene, total	mg/kg	0.72	-			0.217	J		-			-			0.198	J		0.132	J		0.15	J		-			-			197		
Nitrobenzene	mg/kg	20	-			-			-			-			-			-			-			-			-			-		
Nitrotoluene, 3-	mg/kg	370	-			-			-			-			-			-			-			-			-			-		
Nitrotoluene, 4-	mg/kg	370	-			-			-			-			-			-			-			-			-			0.637		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			-			-			-			-			-			-			-			-			0.114	J	
Trinitrotoluene, 2,4,6-	mg/kg	16	-			-			-			-			-			-			0.123	J		-			-			229		

Table 2-8

Summary of Nitroaromatic Analytical Detections in Soil
Building 187, Wastewater Disposal Settling Tanks
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Parameter	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO147			TNTA-SO148			TNTA-SO149			TNTA-SO150			TNTA-SO151			TNTA-SO152			TNTA-SO153			TNTA-SO154			TNTA-SO155			TNTA-SO156			TNTA-SO157			TNTA-SO158		
	Sample No:		AA0147			AA0148			AA0149			AA0150			AA0151			AA0152			AA0153			AA0154			AA0155			AA0156			AA0157			AA0158		
	Sample Date:		20-JUL-00			20-JUL-00			20-JUL-00			20-JUL-00			20-JUL-00			20-JUL-00			20-JUL-00			20-JUL-00			20-JUL-00			20-JUL-00			20-JUL-00			20-JUL-00		
	Sample Depth:		2 - 3			0.5 - 1.5			1.5 - 2.5			0.5 - 1.5			1.5 - 2.5			0.5 - 1.5			0.5 - 1			0.5 - 1.5			0.5 - 1.5			0.5 - 1			0.5 - 1			0 - 1		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			-			0.284			-			-			-			0.362			-			-			-			-			-		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			0.324			-			0.728			-			0.62			-			-			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	-			0.316			-			-			-			-			-			-			-			-			-			-		
Nitrobenzene	mg/kg	20	-			-			-			-			-			-			0.872			-			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			0.178	J		0.167	J		-			-			-			0.404			-			-			-			-			-		

Table 2-9

Summary of Nitroaromatic Analytical Detections in Soil
Building 111, Mono House
TNT Area A- RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

	Sample Type:		Screening			Screening			Screening			Screening			Confirmation			Confirmation			Confirmation			Screening		
	Location Code:		TNTA-SO108			TNTA-SO109			TNTA-SO110			TNTA-SO111			TNTA-SO111			TNTA-SO111			TNTA-SO111			TNTA-SO305		
	Sample No:		AA0108			AA0109			AA0110			AA0111			AA0441			AA0468			AA0469			AA0305		
	Sample Date:		20-JUL-00			20-JUL-00			20-JUL-00			20-JUL-00			22-SEP-00			28-SEP-00			28-SEP-00			15-AUG-00		
Parameter	Sample Depth:		1 - 2			0.5 - 1.5			0.5 - 1.5			1 - 2						4 - 6			8 - 10			2 - 3		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			0.518			1.31			1.31			-			0.373			-			0.654		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			0.58			0.842			0.53			-			-			-			0.344		
Dinitrotoluene, total	mg/kg	0.72	-			0.397			0.606			**1.24**			-			**3.14**			0.17			**0.739**		
Nitrobenzene	mg/kg	20	-			-			-			-			-			0.0778	J	J	-			-		
Nitrotoluene, 2-	mg/kg	370	-			-			-			-			-			1.41			0.38			-		
Nitrotoluene, 3-	mg/kg	370	-			-			-			-			-			0.476			-			-		
Nitrotoluene, 4-	mg/kg	370	-			-			-			-			-			0.376			0.423			-		
Tetryl	mg/kg		-			-			-			-			-			-			-			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			0.164	J		-			-			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			-			0.18	J		0.191	J		-			0.213			-			0.377		

	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO306			TNTA-SO307			TNTA-SO314			TNTA-SO361			TNTA-SO362			TNTA-SO405			TNTA-SO406		
	Sample No:		AA0306			AA0307			AA0314			AA0361			AA0362			AA0405			AA0406		
	Sample Date:		15-AUG-00			15-AUG-00			15-AUG-00			12-SEP-00			12-SEP-00			21-SEP-00			21-SEP-00		
Parameter	Sample Depth:		0.5 - 1.5			1 - 2			0 - 1			4 - 6			8 - 10			0.5 - 1.5			0.5 - 1.5		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			-			-			2.87			-			0.137	J		2.39		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			-			1.75			-			1.84			2.73		
Dinitrotoluene, total	mg/kg	0.72	-			-			-			**12**			-			-			**2.65**		
Nitrobenzene	mg/kg	20	-			-			-			-			-			-			-		
Nitrotoluene, 2-	mg/kg	370	-			-			-			2.69			0.614			-			-		
Nitrotoluene, 3-	mg/kg	370	-			-			-			0.902			-			-			0.252	J	
Nitrotoluene, 4-	mg/kg	370	-			-			-			1.07			0.449	J		-			-		
Tetryl	mg/kg	-	-			-			-			0.798			-			-			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			-			-			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			-			-			0.483			-			0.16	J		0.482		

Table 2-10

Summary of Nitroaromatic Analytical Detections in Soil
Building 112, Bi-Tri House
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Parameter	Sample Type:		Screening			Confirmation			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO123						TNTA-SO124			TNTA-SO125			TNTA-SO126			TNTA-SO127		
	Sample No:		AA0123			AA0442			AA0124			AA0125			AA0126			AA0127		
	Sample Date:		19-JUL-00			22-SEP-00			19-JUL-00			19-JUL-00			19-JUL-00			19-JUL-00		
	Sample Depth:		2 - 3						2 - 3			3 - 4			3 - 4			2 - 3		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	**5.31**			-			-			0.371			**3.66**			0.173	J	
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	**7.99**			-			0.169	J		-			-			0.185	J	
Dinitrobenzene, 1,3-	mg/kg	6.1	-			-			-			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	-			-			0.14	J		0.267			**4.22**			-		
Nitrotoluene, 2-	mg/kg	370	-			-			-			-			-			-		
Nitrotoluene, 3-	mg/kg	370	0.427	J		-			-			-			-			-		
Nitrotoluene, 4-	mg/kg	370	-			-			-			-			-			-		
RDX	mg/kg	180	-			-			-			-			-			-		
Tetryl	mg/kg		0.249	J		-			-			-			-			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	0.114	J		-			-			-			0.27			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	**39.1**			-			-			-			**29.9**			0.312		

Parameter	Sample Type:		Screening			Confirmation			Confirmation			Confirmation			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO128						TNTA-SO128			TNTA-SO128			TNTA-SO129			TNTA-SO130			TNTA-SO131			TNTA-SO132		
	Sample No:		AA0128			AA0445			AA0470			AA0471			AA0129			AA0130			AA0131			AA0132		
	Sample Date:		19-JUL-00			25-SEP-00			28-SEP-00			28-SEP-00			19-JUL-00			19-JUL-00			19-JUL-00			19-JUL-00		
	Sample Depth:		1.5 - 2.5						4 - 6			8 - 10			1.5 - 2.5			3 - 4			2.5 - 3.5			2.5 - 3.5		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			1.78			**3.96**			1.62			0.194	J		-			-			-		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			1.24			1.18			2.43			0.162	J		-			-			-		
Dinitrobenzene, 1,3-	mg/kg	6.1	0.204	J		-			-			-			-			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	**865**			-			0.549			0.645			0.143	J		0.125	J		-			-		
Nitrotoluene, 2-	mg/kg	370	-			-			0.276			0.235			-			-			-			-		
Nitrotoluene, 3-	mg/kg	370	-			-			0.823			0.335			-			-			-			-		
Nitrotoluene, 4-	mg/kg	370	-			-			0.555			0.278			-			-			-			-		
RDX	mg/kg	180	0.598			-			-			-			-			-			-			-		
Tetryl	mg/kg		0.11	J		-			-			-			-			-			-			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	0.977			-			-			0.562			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	**1298**			3.99			7.89			8.57			-			0.574			-			-		

Table 2-10

Summary of Nitroaromatic Analytical Detections in Soil
Building 112, Bi-Tri House
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Parameter	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO253			TNTA-SO254			TNTA-SO255			TNTA-SO256			TNTA-SO257			TNTA-SO258			TNTA-SO259			TNTA-SO323		
	Sample No:		AA0253			AA0254			AA0255			AA0256			AA0257			AA0258			AA0259			AA0323		
	Sample Date:		16-AUG-00			16-AUG-00			16-AUG-00			16-AUG-00			16-AUG-00			16-AUG-00			16-AUG-00			15-AUG-00		
	Sample Depth:		1.6 - 2.6			1 - 2			1.6 - 2.6			1 - 2			2 - 3			2 - 3.5			0.5 - 1.5			0 - 1		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	0.926			**4.81**			0.805			-			-			-			0.357			-		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	0.717			**3.64**			1.12			-			-			0.398			0.23	J		-		
Dinitrobenzene, 1,3-	mg/kg	6.1	-			-			-			-			-			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	-			0.555			0.269			-			-			-			0.141	J		0.533		
Nitrotoluene, 2-	mg/kg	370	-			-			-			-			-			-			-			-		
Nitrotoluene, 3-	mg/kg	370	-			0.382	J		-			-			-			-			-			-		
Nitrotoluene, 4-	mg/kg	370	-			-			-			-			-			-			-			-		
RDX	mg/kg	180	-			-			-			-			-			-			-			-		
Tetryl	mg/kg		-			-			-			-			-			-			-			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			0.237			-			-			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	1.71			**284**			**20.1**			-			-			-			0.188	J		-		

Parameter	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening			Screening			Confirmation			Screening			Screening		
	Location Code:		TNTA-SO324			TNTA-SO325			TNTA-SO363			TNTA-SO364			TNTA-SO407			TNTA-SO408			TNTA-SO409						TNTA-SO487			TNTA-SO488		
	Sample No:		AA0324			AA0325			AA0363			AA0364			AA0407			AA0408			AA0409			AA0481			AA0487			AA0488		
	Sample Date:		15-AUG-00			15-AUG-00			12-SEP-00			12-SEP-00			21-SEP-00			21-SEP-00			21-SEP-00			11-OCT-00			13-OCT-00			13-OCT-00		
	Sample Depth:		0 - 1			0 - 1			4 - 6			8 - 10			0.5 - 1.5			0.5 - 1.5			0.5 - 1.5						1.5 - 2.5			1 - 2		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	0.344			**12.6**			1.76			1.46			0.656			1.4			0.296			0.739			0.176			-		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	0.552			**12.4**			2.4			0.594			0.688			1.9			0.33			0.59			0.0615	J		-		
Dinitrobenzene, 1,3-	mg/kg	6.1	-			-			0.0872	J		0.0657	J		-			-			-			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	0.263			**15.6**			0.327			0.215	J		0.164	J		0.413			0.364			-			-			-		
Nitrotoluene, 2-	mg/kg	370	-			-			-			-			-			-			-			-			-			-		
Nitrotoluene, 3-	mg/kg	370	-			-			1.06			-			-			-			-			-			-			-		
Nitrotoluene, 4-	mg/kg	370	-			-			-			-			-			-			-			-			-			-		
RDX	mg/kg	180	-			-			-			-			-			-			-			-			-			-		
Tetryl	mg/kg		-			-			-			-			-			-			-			-			-			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			0.162	J		.281			0.492			-			-			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	0.165	J		**558**			**64.4**			5.97			0.982			2.25			**29.3**			0.704			-			-		

Table 2-11

Summary of Nitroaromatic Analytical Detections in Soil
Building 113, Fortifier House
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Parameter	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO117			TNTA-SO118			TNTA-SO119			TNTA-SO120			TNTA-SO121			TNTA-SO122			TNTA-SO322			TNTA-SO365			TNTA-SO366		
	Sample No:		AA0117			AA0118			AA0119			AA0120			AA0121			AA0122			AA0322			AA0365			AA0366		
	Sample Date:		19-JUL-00			19-JUL-00			19-JUL-00			19-JUL-00			19-JUL-00			19-JUL-00			17-AUG-00			12-SEP-00			12-SEP-00		
	Sample Depth:		2 - 3			1.5 - 2.5			2.5 - 3.5			2 - 3			3 - 4			1 - 2			0 - 1			4 - 6			8 - 10		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			-			-			0.173	J		1.05			-			-			0.261			-		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			-			0.122	J		0.519			-			-			0.246	J		-		
Dinitrotoluene, total	mg/kg	0.72	-			-			-			-			-			-			-			0.124	J		0.174	J	
Nitrotoluene, 3-	mg/kg	370	-			-			-			-			0.201	J		-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			-			-			-			10.4			-			-			0.298			0.0851	J	

Table 2-12
Summary of Nitroaromatic Analytical Detections in Soil
Building 116, Wash House, Line 1
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO189			TNTA-SO190			TNTA-SO191			TNTA-SO192			TNTA-SO193			TNTA-SO194			TNTA-SO195		
	Sample No:		AA0189			AA0190			AA0191			AA0192			AA0193			AA0194			AA0195		
	Sample Date:		24-JUL-00			24-JUL-00			24-JUL-00			24-JUL-00			24-JUL-00			24-JUL-00			24-JUL-00		
Parameter	Sample Depth:		1 - 2			1 - 2			1 - 2			0.5 - 1.5			.1 - 1.1			.5 - 1.5			0 - 1		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			-			0.251			-			-			-			-		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			0.373			-			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	-			-			-			-			-			-			-		
Nitrobenzene	mg/kg	20	0.128	J		-			-			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			-			0.435			-			-			-			-		

	Sample Type:		Screening			Confirmation			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO196						TNTA-SO197			TNTA-SO198			TNTA-SO199			TNTA-SO200			TNTA-SO201		
	Sample No:		AA0196			AA0446			AA0197			AA0198			AA0199			AA0200			AA0201		
	Sample Date:		24-JUL-00			25-SEP-00			24-JUL-00			24-JUL-00			24-JUL-00			24-JUL-00			24-JUL-00		
Parameter	Sample Depth:		1 - 2						1 - 2			1 - 2			1 - 2			1 - 2			1 - 2		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	0.547			-			-			-			-			-			0.291		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	1.06			-			-			-			-			-			0.403		
Dinitrotoluene, total	mg/kg	0.72	-			0.188			-			-			-			-			-		
Nitrobenzene	mg/kg	20	-			-			-			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	0.436			-			-			-			-			-			1.3		

	Sample Type:		Confirmation			Confirmation			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO201			TNTA-SO201			TNTA-SO202			TNTA-SO403			TNTA-SO404			TNTA-SO410			TNTA-SO411		
	Sample No:		AA0472			AA0473			AA0202			AA0403			AA0404			AA0410			AA0411		
	Sample Date:		26-SEP-00			26-SEP-00			24-JUL-00			15-SEP-00			16-SEP-00			21-SEP-00			21-SEP-00		
Parameter	Sample Depth:		4 - 6			8 - 10			0.5 - 1.5			4 - 6			8 - 10			1 - 2			1 - 2		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	0.0915			-			-			-			**7.13**			0.553			0.154	J	
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	0.358			-			0.221	J		0.132	J		**12.5**			1.11			0.234	J	
Dinitrotoluene, total	mg/kg	0.72	-			0.133			-			0.128	J		-			-			-		
Nitrobenzene	mg/kg	20	-			-			-			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	0.0875	J	J	0.169			0.373			-			6.93			-			-		

Table 2-13

Summary of Nitroaromatic Analytical Detections in Soil
Building 119, Acid and Fume Recovery
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

	Sample Type:		Screening			Screening			Screening			Screening			Confirmation			Confirmation			Screening			Screening		
	Location Code:		TNTA-SO102			TNTA-SO103			TNTA-SO104			TNTA-SO105			TNTA-SO105			TNTA-SO105			TNTA-SO106			TNTA-SO107		
	Sample No:		AA0102			AA0103			AA0104			AA0105			AA0440			AA0466			AA0106			AA0107		
	Sample Date:		24-JUL-00			24-JUL-00			24-JUL-00			24-JUL-00			25-SEP-00			28-SEP-00			24-JUL-00			24-JUL-00		
Parameter	Sample Depth:		2 - 3			2 - 3			2 - 3			2 - 3						4 - 6			2.5 - 3.5			2 - 3		
NITROAROMATICS	Unit	PRG	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			0.185	J		-			1.63			9.91			10.6			-			0.195	J	
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			-			1.88			-			33.6			-			0.397		
Dinitrobenzene, 1,3-	mg/kg	6.1				-			-			-			-			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	-			1.18			0.383			21			275	D		356			0.856			2.5		
Nitrobenzene	mg/kg	20																								
Nitrotoluene, 2-	mg/kg	370	-			-			-			1.26			27.1			582			-			-		
Nitrotoluene, 3-	mg/kg	370	-			-			-			0.396	J		5.43			59			-			-		
Nitrotoluene, 4-	mg/kg	370	-			-			-			-			3.54			464			-			-		
RDX	mg/kg	180	-			-			-			-			-			-			-			-		
Tetryl	mg/kg		-			-			-			0.303	J		-			-			-			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			-			-			-			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			0.151	J		-			1.85			21			0.817			0.217	J		0.36		

	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO281			TNTA-SO282			TNTA-SO283			TNTA-SO284			TNTA-SO285			TNTA-SO286			TNTA-SO287			TNTA-SO288		
	Sample No:		AA0281			AA0282			AA0283			AA0284			AA0285			AA0286			AA0287			AA0288		
	Sample Date:		15-AUG-00			15-AUG-00			15-AUG-00			15-AUG-00			15-AUG-00			15-AUG-00			15-AUG-00			15-AUG-00		
Parameter	Sample Depth:		1 - 2			1 - 2			1 - 2			1 - 2			2 - 3			1.6 - 2.6			1 - 2			1 - 2		
NITROAROMATICS	Unit	PRG	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			-			-			0.357			-			-			-			1.27		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			-			0.379			-			-			-			1.23		
Dinitrobenzene, 1,3-	mg/kg	6.1	-			-			-			-			-			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	0.315			-			0.456			5.79			2.02			-			-			8.14		
Nitrobenzene	mg/kg	20	-			-			-			-			-			-			-			-		
Nitrotoluene, 2-	mg/kg	370	-			-			-			-			-			-			-			-		
Nitrotoluene, 3-	mg/kg	370	-			-			-			0.387	J		-			-			-			-		
Nitrotoluene, 4-	mg/kg	370	-			-			-			-			-			-			-			-		
RDX	mg/kg	180	-			-			-			-			-			-			-			-		
Tetryl	mg/kg		-			-			-			0.459	J		-			-			-			0.876		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			-			-			-			-			-			-			0.262		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			-			-			1.49			0.353			-			-			2.1		

Table 2-13

Summary of Nitroaromatic Analytical Detections in Soil
Building 119, Acid and Fume Recovery
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Parameter	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO289			TNTA-SO290			TNTA-SO315			TNTA-SO316			TNTA-SO317			TNTA-SO318			TNTA-SO367			TNTA-SO368			TNTA-SO412		
	Sample No:		AA0289			AA0290			AA0315			AA0316			AA0317			AA0318			AA0367			AA0368			AA0412		
	Sample Date:		15-AUG-00			15-AUG-00			15-AUG-00			15-AUG-00			15-AUG-00			15-AUG-00			12-SEP-00			12-SEP-00			22-SEP-00		
	Sample Depth:		0.5 - 1.5			1 - 2			0 - 1			0 - 1			0 - 1			0 - 1			4 - 6			8 - 9			0 - 0.6		
NITROAROMATICS	Unit	PRG	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			-			-			-			-			-			27.5			4.74			-		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			-			-			-			-			46.4			3.77			-		
Dinitrobenzene, 1 3-	mg/kg	6.1	-			-			-			-			-			-			0.297			-			-		
Dinitrotoluene, total	mg/kg	0.72	-			-			4.21			-			-			-			689			258			-		
Nitrobenzene	mg/kg	20	-			-			-			-			-			-			1.06			-			-		
Nitrotoluene, 2-	mg/kg	370	-			-			0.633			-			-			-			1407			429			-		
Nitrotoluene, 3-	mg/kg	370	-			-			0.239	J		-			-			-			160			36.5			-		
Nitrotoluene, 4-	mg/kg	370	-			-			-			-			-			-			1196			325			-		
RDX	mg/kg	180	-			-			-			-			-			-			-			0.181	J		-		
Tetryl	mg/kg		-			-			-			-			-			-			27.6			0.871			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			-			-			-			-			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			-			-			-			-			-			1.56			4.22			-		

Parameter	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO414			TNTA-SO415			TNTA-SO416			TNTA-SO417			TNTA-SO482			TNTA-SO483			TNTA-SO484			TNTA-SO485			TNTA-SO486		
	Sample No:		AA0414			AA0415			AA0416			AA0417			AA0482			AA0483			AA0484			AA0485			AA0486		
	Sample Date:		21-SEP-00			21-SEP-00			21-SEP-00			21-SEP-00			13-OCT-00			13-OCT-00			13-OCT-00			13-OCT-00			13-OCT-00		
	Sample Depth:		1 - 2			1 - 2			1 - 2			0.5 - 1.5			1 - 2			1 - 2			1.5 - 2.5			1.5 - 2.5			1.5 - 2.5		
NITROAROMATICS	Unit	PRG	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			0.537			0.235	J		-			-			-			-			-			-		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			0.325			0.331			-			-			-			-			-			-		
Dinitrobenzene, 1,3-	mg/kg	6.1	-			-			-			-			-			-			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	0.112	J		5.34			1.21			0.143	J		0.618			-			0.071	J		-			-		
Nitrobenzene	mg/kg	20	-			-			-			-			-			-			-			-			-		
Nitrotoluene, 2-	mg/kg	370	-			1.05			-			-			-			-			-			-			-		
Nitrotoluene, 3-	mg/kg	370	-			0.301	J		-			-			-			-			-			-			-		
Nitrotoluene, 4-	mg/kg	370	-			0.611			-			-			-			-			-			-			-		
RDX	mg/kg	180	-			-			-			-			-			-			-			-			-		
Tetryl	mg/kg		-			-			-			-			-			-			-			-			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			-			-			-			-			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			0.295			-			-			-			-			-			-			-		

Table 2-14

Summary of Nitroaromatic Analytical Detections in Soil
Building 122, Bi-Tri House
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO168			TNTA-SO169			TNTA-SO170			TNTA-SO171			TNTA-SO172			TNTA-SO173			TNTA-SO174			TNTA-SO175		
	Sample No:		AA0168			AA0169			AA0170			AA0171			AA0172			AA0173			AA0174			AA0175		
	Sample Date:		22-JUL-00			22-JUL-00			22-JUL-00			22-JUL-00			22-JUL-00			22-JUL-00			22-JUL-00			22-JUL-00		
Parameter	Sample Depth:		0 - 1			0 - 1			0 - 1			0 - 1			0 - 1			0 - 1			0 - 1			0 - 1		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Nitrobenzene	mg/kg	20	0.161	J		-			-			-			-			-			-			-		

Table 2-15

Summary of Nitroaromatic Analytical Detections in Soil
Building 123, Fortifier House
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Parameter	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO162			TNTA-SO163			TNTA-SO164			TNTA-SO165			TNTA-SO166			TNTA-SO167		
	Sample No:		AA0162			AA0163			AA0164			AA0165			AA0166			AA0167		
	Sample Date:		22-JUL-00			22-JUL-00			22-JUL-00			22-JUL-00			22-JUL-00			22-JUL-00		
	Sample Depth:		0 - 1			0 - 1			0 - 1			0 - 1			0 - 1			0 - 1		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			-			0.329			-			-			1.01		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			-			-			-			1.69		
Dinitrotoluene, total	mg/kg	0.72	-			-			0.494			-			0.193	J		-		
Trinitrotoluene, 2,4,6-	mg/kg	16	0.147	J		0.158	J		0.328			-			0.251			0.451		

Table 2-16

Summary of Nitroaromatic Analytical Detections in Soil
Building 126, Wash House, Line 2
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Parameter		Sample Type:	Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening		
		Location Code:	TNTA-SO203			TNTA-SO204			TNTA-SO205			TNTA-SO206			TNTA-SO207			TNTA-SO208			TNTA-SO209			TNTA-SO210			TNTA-SO211		
		Sample No:	AA0203			AA0204			AA0205			AA0206			AA0207			AA0208			AA0209			AA0210			AA0211		
		Sample Date:	25-JUL-00			25-JUL-00			25-JUL-00			25-JUL-00			25-JUL-00			25-JUL-00			25-JUL-00			25-JUL-00			25-JUL-00		
		Sample Depth:	1.5 - 2.5			2 - 3			0.5 - 1.5			1 - 2			1 - 2			1 - 2			1 - 2			1 - 2			1 - 2		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	0.744			-			1.04			-			-			0.184	J		-			-			-		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	0.888			-			1.02			-			-			0.195	J		-			-			-		
Dinitrobenzene, 1,3-	mg/kg	6.1	-			-			-			-			-			-			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	-			-			-			-			-			-			-			-			-		
Nitrobenzene	mg/kg	20	-			-			-			-			-			-			-			-			-		
Nitrotoluene, 2-	mg/kg	370	-			-			-			-			-			-			-			-			-		
Nitrotoluene, 3-	mg/kg	370	-			-			-			-			-			-			-			-			-		
Nitrotoluene, 4-	mg/kg	370	-			-			-			-			-			-			-			-			-		
Tetryl	mg/kg		-			-			-			-			-			-			-			-			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			-			0.184	J		-			-			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	1.44			-			**51.9**			-			0.14	J		0.132	J		-			0.31			-		

Parameter		Sample Type:	Screening			Screening			Screening			Screening			Screening			Screening			Screening			Confirmation			Confirmation		
		Location Code:	TNTA-SO212			TNTA-SO213			TNTA-SO214			TNTA-SO215			TNTA-SO216			TNTA-SO260			TNTA-SO261			TNTA-SO261			TNTA-SO261		
		Sample No:	AA0212			AA0213			AA0214			AA0215			AA0216			AA0260			AA0261			AA0447			AA0474		
		Sample Date:	25-JUL-00			25-JUL-00			25-JUL-00			25-JUL-00			25-JUL-00			17-AUG-00			17-AUG-00			25-SEP-00			26-SEP-00		
		Sample Depth:	1 - 2			0 - 1			1.5 - 2.5			0 - 1			0 - 1			0.25 - 1.2			1.5 - 2.5			1.5 - 2.5			4 - 6		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	0.334			-			-			-			-			-			**5.11**			0.358			-		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	0.552			-			-			-			-			-			**4.97**			0.467			-		
Dinitrobenzene, 1,3-	mg/kg	6.1	-			-			-			-			-			-			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	-			-			-			-			-			-			-			-			-		
Nitrobenzene	mg/kg	20	-			-			-			-			-			-			-			0.0713	J	J	-		
Nitrotoluene, 2-	mg/kg	370	-			-			-			-			-			-			-			-			-		
Nitrotoluene, 3-	mg/kg	370	-			-			-			-			-			-			-			-			-		
Nitrotoluene, 4-	mg/kg	370	-			-			-			-			-			-			-			-			-		
Tetryl	mg/kg		-			-			-			-			-			-			-			-			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			-			-			-			-			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	0.235	J		0.267			-			-			-			-			**170**			**62.8**	D	D	4.81		

Table 2-16

Summary of Nitroaromatic Analytical Detections in Soil
Building 126, Wash House, Line 2
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Parameter	Sample Type:		Confirmation			Screening			Screening			Confirmation			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO261			TNTA-SO262			TNTA-SO263						TNTA-SO264			TNTA-SO265			TNTA-SO266			TNTA-SO267			TNTA-SO268		
	Sample No:		AA0475			AA0262			AA0263			AA0448			AA0264			AA0265			AA0266			AA0267			AA0268		
	Sample Date:		26-SEP-00			17-AUG-00			17-AUG-00			25-SEP-00			17-AUG-00			17-AUG-00			17-AUG-00			17-AUG-00			17-AUG-00		
	Sample Depth:		8 - 10			1 - 2			2 - 3						1 - 2			1 - 2			1 - 2			2.5 - 3.5			0.5 - 1.5		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			0.291			**6.76**			0.599			0.165	J		0.679			-			3.21			0.751		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			0.624			**19.6**			0.878			0.217	J		1.1			-			**11.1**			0.614		
Dinitrobenzene, 1,3-	mg/kg	6.1	-			-			0.134	J		-			-			-			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	-			-			**1.34**			0.114			0.671			-			-			**0.765**			-		
Nitrobenzene	mg/kg	20	-			-			-			-			-			-			-			-			-		
Nitrotoluene, 2-	mg/kg	370	-			-			-			-			-			-			-			-			-		
Nitrotoluene, 3-	mg/kg	370	-			-			0.631			-			-			-			-			-			-		
Nitrotoluene, 4-	mg/kg	370	-			-			-			-			-			-			-			-			-		
Tetryl	mg/kg		-			-			1.38			-			-			-			-			0.798			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			-			1.21			-			-			-			-			1.02			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	**259**	D		0.653			**150**			0.72			1.36			0.408			-			**62.9**			**24.3**		

Parameter	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO269			TNTA-SO270			TNTA-SO369			TNTA-SO370			TNTA-SO371			TNTA-SO372			TNTA-SO418			TNTA-SO419					
	Sample No:		AA0269			AA0270			AA0369			AA0370			AA0371			AA0372			AA0418			AA0419					
	Sample Date:		17-AUG-00			17-AUG-00			13-Sep-00			13-Sep-00			15-SEP-00			15-SEP-00			22-SEP-00			21-SEP-00					
	Sample Depth:		1 - 2			0.5 - 1.5			4 - 6			8 - 10			4 - 6			8 - 10			0 - 1			1 - 2					
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**			
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	0.133	J		-			0.206	J		0.467			-			-			**20.7**			-					
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	0.157	J		-			0.211	J		1.76			-			-			**14.2**			-					
Dinitrobenzene, 1,3-	mg/kg	6.1	-			-			-			-			-			-			-			-					
Dinitrotoluene, total	mg/kg	0.72	-			-			0.351			-			-			-			**1.33**			-					
Nitrobenzene	mg/kg	20	-			-			-			-			-			-			-			-					
Nitrotoluene, 2-	mg/kg	370	-			-			0.502			-			-			-			-			-					
Nitrotoluene, 3-	mg/kg	370	-			-			-			-			-			-			-			-					
Nitrotoluene, 4-	mg/kg	370	-			-			0.358	J		-			-			-			-			-					
Tetryl	mg/kg		-			-			-			-			-			-			-			-					
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			-			-			-			-			-			0.299			-					
Trinitrotoluene, 2,4,6-	mg/kg	16	0.333			0.195	J		**28.2**			**62.3**			-			1.04			**785**			0.335					

Table 2-16

Summary of Nitroaromatic Analytical Detections in Soil
Building 126, Wash House, Line 2
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Parameter	Sample Type:		Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO420			TNTA-SO421			TNTA-SO422			TNTA-SO423			TNTA-SO424		
	Sample No:		AA0420			AA0421			AA0422			AA0423			AA0424		
	Sample Date:		22-SEP-00			21-SEP-00			21-SEP-00			21-SEP-00			22-SEP-00		
	Sample Depth:		0 - 1			1 - 2			1 - 2			1 - 2			0 - 1		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	0.154	J		0.228	J		**0.230**			-			0.127	J	
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	0.249	J		0.577			0.236			0.126	J		0.299		
Dinitrobenzene, 1,3-	mg/kg	6.1	-			-			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	-			-			0.0902	J		0.279			-		
Nitrobenzene	mg/kg	20	-			-			-			-			-		
Nitrotoluene, 2-	mg/kg	370	-			-			-			-			-		
Nitrotoluene, 3-	mg/kg	370	-			-			-			-			-		
Nitrotoluene, 4-	mg/kg	370	-			-			-			-			-		
Tetryl	mg/kg		-			-			-			-			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	0.395			0.339			0.724			**0.480**			-		

Table 2-17

Summary of Nitroaromatic Analytical Detections in Soil
Building 128, Nailing House
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Parameter	Sample Type:		Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO142			TNTA-SO143			TNTA-SO144			TNTA-SO145			TNTA-SO146		
	Sample No:		AA0142			AA0143			AA0144			AA0145			AA0146		
	Sample Date:		24-JUL-00			24-JUL-00			24-JUL-00			24-JUL-00			24-JUL-00		
	Sample Depth:		0 - 1			0 - 1			0 - 1			0 - 1			0 - 1		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			-			-			0.388			0.912		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			-			0.607			1.5		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			-			-			1.12			1.24		

Table 2-18

Summary of Nitroaromatic Analytical Detections in Soil
Building 129, Acid and Fume Recovery
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Parameter	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening			Confirmation		
	Location Code:		TNTA-SO112			TNTA-SO113			TNTA-SO114			TNTA-SO115			TNTA-SO116			TNTA-SO301			TNTA-SO302			TNTA-SO303					
	Sample No:		AA0112			AA0113			AA0114			AA0115			AA0116			AA0301			AA0302			AA0303			AA0452		
	Sample Date:		20-JUL-00			20-JUL-00			20-JUL-00			20-JUL-00			20-JUL-00			15-AUG-00			15-AUG-00			15-AUG-00			26-SEP-00		
	Sample Depth:		1 - 2			3.6 - 4.6			3.6 - 4.6			3.6 - 4.6			3.6 - 4.6			1.5 - 2.5			1.5 - 2.5			2 - 3					
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			-			-			0.721			-			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	-			-			0.294			-			**1.08**			-			-			**27.7**			-		
Nitrotoluene, 2-	mg/kg	370	-			-			-			-			-			-			-			-			-		

Parameter	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO304			TNTA-SO313			TNTA-SO342			TNTA-SO343			TNTA-SO344			TNTA-SO373			TNTA-SO374		
	Sample No:		AA0304			AA0313			AA0342			AA0343			AA0344			AA0373			AA0374		
	Sample Date:		15-AUG-00			15-AUG-00			22-SEP-00			22-SEP-00			22-SEP-00			12-SEP-00			12-SEP-00		
	Sample Depth:		2 - 3			0 - 1			1 - 1.5			1 - 1.5			1 - 1.5			4 - 6			8 - 10		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			-			-			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	0.14	J		-			-			-			-			-			-		
Nitrotoluene, 2-	mg/kg	370	-			-			-			-			-			-			0.225	J	

Table 2-19

Summary of Nitroaromatic Analytical Detections in Soil
Building 131, Mono House
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Parameter	Sample Type:		Screening			Screening			Confirmation			Confirmation			Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO061			TNTA-SO062			TNTA-SO062			TNTA-SO062			TNTA-SO063			TNTA-SO064			TNTA-SO345			TNTA-SO346			TNTA-SO389			TNTA-SO390		
	Sample No:		AA0061			AA0062			AA0461			AA0462			AA0063			AA0064			AA0345			AA0346			AA0389			AA0390		
	Sample Date:		21-JUL-00			21-JUL-00			29-SEP-00			29-SEP-00			21-JUL-00			21-JUL-00			22-SEP-00			22-SEP-00			15-SEP-00			15-SEP-00		
	Sample Depth:		0.5 - 1.5			0.4 - 1.4			4 - 6			6 - 8			0.5 - 1.5			1.5 - 2.5			0.75 - 1.7			1.5 - 2.5			4 - 6			8 - 10		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			-			2.24			**9.44**			-			-			-			-			2			2.61		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			1.05			**9.49**			-			-			-			-			1.28			-		
Dinitrotoluene, total	mg/kg	0.72	-			-			**3.43**			**61.8**			-			-			-			-			**7.06**			**118**		
Nitrobenzene	mg/kg	20	-			-			-			-			-			-			-			-			-			0.126	J	
Nitrotoluene, 2-	mg/kg	370	-			-			0.528			152			-			-			-			-			1.64			278		
Nitrotoluene, 3-	mg/kg	370	-			-			-			16.9			-			-			-			-			0.273	J		22.2		
Nitrotoluene, 4-	mg/kg	370	-			-			0.249			98.4			-			-			-			-			0.618			160		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			-			1.31			15.9			-			-			-			-			2.88			5.35		

Table 2-20

Summary of Nitroaromatic Analytical Detections in Soil
Building 132, Bi-Tri House
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Parameter	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO046			TNTA-SO047			TNTA-SO048			TNTA-SO049			TNTA-SO050			TNTA-SO051		
	Sample No:		AA0046			AA0047			AA0048			AA0049			AA0050			AA0051		
	Sample Date:		24-JUL-00			24-JUL-00			24-JUL-00			24-JUL-00			24-JUL-00			24-JUL-00		
	Sample Depth:		2.5 - 3.5			2 - 3			2.5 - 3.5			2 - 3			2 - 3			2.5 - 3.5		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			0.159	J		-			-			-			0.53		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			0.217	J		-			-			-			0.584		
Dinitrotoluene, total	mg/kg	0.72	-			-			-			-			-			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			-			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			0.249			0.37			-			-			1.04		

Parameter	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO052			TNTA-SO053			TNTA-SO054			TNTA-SO320			TNTA-SO391			TNTA-SO392		
	Sample No:		AA0052			AA0053			AA0054			AA0320			AA0391			AA0392		
	Sample Date:		24-JUL-00			24-JUL-00			24-JUL-00			17-AUG-00			15-SEP-00			15-SEP-00		
	Sample Depth:		2.5 - 3.5			2 - 3			2 - 3			0 - 1			4 - 6			8 - 10		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	1.18			0.194	J		1.07			0.249	J		0.224	J		-		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	1.65			0.194	J		1.57			0.365			0.289			-		
Dinitrotoluene, total	mg/kg	0.72	0.377			0.219	J		0.482			0.344			0.234	J		-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	0.131	J		-			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	5.04			0.204	J		4.08			0.507			0.219	J		-		

Table 2-21

Summary of Nitroaromatic Analytical Detections in Soil
Building 133, Fortifier House
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Parameter	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO042			TNTA-SO043			TNTA-SO044			TNTA-SO045			TNTA-SO319			TNTA-SO347			TNTA-SO348			TNTA-SO393			TNTA-SO394		
	Sample No:		AA0042			AA0043			AA0044			AA0045			AA0319			AA0347			AA0348			AA0393			AA0394		
	Sample Date:		24-JUL-00			24-JUL-00			24-JUL-00			24-JUL-00			17-AUG-00			22-SEP-00			22-SEP-00			15-SEP-00			15-SEP-00		
	Sample Depth:		3 - 4			3 - 4			3 - 4			3 - 4			0 - 1			3 - 3.5			3 - 3.5			4 - 6			8 - 10		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			-			-			0.162	J		0.127	J		-			4.76			-			-		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			-			0.184	J		-			-			5.52			-			-		
Dinitrotoluene, total	mg/kg	0.72	-			-			-			-			-			-			0.939			-			-		
Nitrobenzene	mg/kg	20	-			-			-			-			-			0.189	J		-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			-			-			0.13	J		0.215	J		-			18.8			-			-		

Table 2-22

Summary of Nitroaromatic Analytical Detections in Soil
Building 136, Wash House, Line 3
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO176			TNTA-SO177			TNTA-SO178			TNTA-SO179			TNTA-SO180			TNTA-SO181			TNTA-SO182			TNTA-SO183			TNTA-SO184		
	Sample No:		AA0176			AA0177			AA0178			AA0179			AA0180			AA0181			AA0182			AA0183			AA0184		
	Sample Date:		24-JUL-00			24-JUL-00			24-JUL-00			24-JUL-00			25-JUL-00			24-JUL-00			24-JUL-00			24-JUL-00			24-JUL-00		
Parameter	Sample Depth:		0 - 1			0.5 - 1.5			0 - 1			1 - 2			0.5 - 1.5			1.5 - 2.5			1 - 2			0.5 - 1.5			0.5 - 1.5		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			-			-			-			-			-			-			-			-		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			-			0.12	J		-			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			-			-			-			-			-			-			-			-		

	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening			Confirmation			Screening		
	Location Code:		TNTA-SO185			TNTA-SO186			TNTA-SO187			TNTA-SO188			TNTA-SO333			TNTA-SO334						TNTA-SO335		
	Sample No:		AA0185			AA0186			AA0187			AA0188			AA0333			AA0334			AA0453			AA0335		
	Sample Date:		24-JUL-00			24-JUL-00			25-JUL-00			24-JUL-00			23-AUG-00			23-AUG-00			25-SEP-00			23-AUG-00		
Parameter	Sample Depth:		1 - 2			0.5 - 1			1 - 2			0.5 - 1.5			0.5 - 1.5			1 - 2						1 - 2		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			-			-			-			-			0.135	J		-			-		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			-			-			-			0.289			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			0.165	J		-			-			-			-			-			-		

	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO336			TNTA-SO337			TNTA-SO338			TNTA-SO339			TNTA-SO340			TNTA-SO341			TNTA-SO395			TNTA-SO396		
	Sample No:		AA0336			AA0337			AA0338			AA0339			AA0340			AA0341			AA0395			AA0396		
	Sample Date:		23-AUG-00			23-AUG-00			23-AUG-00			23-AUG-00			23-AUG-00			23-AUG-00			15-SEP-00			15-SEP-00		
Parameter	Sample Depth:		0.5 - 1.5			0.5 - 1.5			0.5 - 1.5			0.5 - 1.5			0.5 - 1.5			0.5 - 1.5			4 - 6			8 - 10		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			-			-			-			-			-			-			-		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			-			-			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			-			0.239	J		-			-			-			-			-		

Table 2-23

Summary of Nitroaromatic Analytical Detections in Soil
Building 139, Acid and Fume Recovery
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Parameter	Sample Type:		Screening			Screening			Screening			Screening			Screening			Confirmation			Screening			Screening			Screening		
	Location Code:		TNTA-SO036			TNTA-SO037			TNTA-SO038			TNTA-SO039			TNTA-SO040						TNTA-SO041			TNTA-SO291			TNTA-SO292		
	Sample No:		AA0036			AA0037			AA0038			AA0039			AA0040			AA0432			AA0041			AA0291			AA0292		
	Sample Date:		21-JUL-00			21-JUL-00			21-JUL-00			21-JUL-00			21-JUL-00			25-SEP-00			21-JUL-00			16-AUG-00			16-AUG-00		
	Sample Depth:		1 - 2			2.5 - 3.5			0.5 - 1.5			0.5 - 1.5			2 - 3						1 - 2			1.5 - 2.5			1 - 2		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			-			-			-			0.75			2.43			-			-			-		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			-			-			1.1			-			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	-			-			-			-			**2.5**			**40.8**			-			0.324			0.126	J	
Nitrotoluene, 2-	mg/kg	370	-			-			-			-			-			1.05			-			-			-		
Nitrotoluene, 3-	mg/kg	370	-			-			-			-			-			0.199	J	J	-			-			-		
Nitrotoluene, 4-	mg/kg	370	-			-			-			-			-			0.827			-			-			-		
Tetryl	mg/kg		-			-			-			-			0.634			-			-			-			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			-			-			-			-			0.902			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			-			-			-			2.79			7.21			-			-			-		

Parameter	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO293			TNTA-SO294			TNTA-SO295			TNTA-SO296			TNTA-SO312			TNTA-SO326			TNTA-SO375			TNTA-SO376		
	Sample No:		AA0293			AA0294			AA0295			AA0296			AA0312			AA0326			AA0375			AA0376		
	Sample Date:		16-AUG-00			16-AUG-00			16-AUG-00			16-AUG-00			17-AUG-00			19-AUG-00			13-SEP-00			13-SEP-00		
	Sample Depth:		1 - 2			1.6 - 2.6			1 - 2			1.5 - 2.5			0 - 1			3 - 4			4 - 6			8 - 10		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			-			-			-			-			-			-			-		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			-			-			-			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	-			-			-			0.297			-			-			0.108	J		0.305		
Nitrotoluene, 2-	mg/kg	370	-			-			-			-			-			-			-			5.4		
Nitrotoluene, 3-	mg/kg	370	-			-			-			-			-			-			-			0.149	J	
Nitrotoluene, 4-	mg/kg	370	-			-			-			-			-			-			-			1.69		
Tetryl	mg/kg		-			-			-			-			-			-			-			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			-			-			-			-			-			-			0.0984	J	
Trinitrotoluene, 2,4,6-	mg/kg	16	-			-			-			0.515			-			-			0.317			-		

Table 2-24

Summary of Nitroaromatic Analytical Detections in Soil
Building 141, Mono House
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO001			TNTA-SO002			TNTA-SO003			TNTA-SO004			TNTA-SO005			TNTA-SO006			TNTA-SO007			TNTA-SO008			TNTA-SO065		
	Sample No:		AA0001			AA0002			AA0003			AA0004			AA0005			AA0006			AA0007			AA0008			AA0065		
	Sample Date:		21-JUL-00			21-JUL-00			21-JUL-00			21-JUL-00			22-JUL-00			21-JUL-00			21-JUL-00			21-JUL-00			21-JUL-00		
Parameter	Sample Depth:		0.1 - 1.1			0.5 - 1.5			2.5 - 3.5			1.5 - 2.5			1 - 2			1.5 - 2.5			1.5 - 2.5			2.5 - 3.5			2.5 - 3.5		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			-			1.1			-			-			-			-			-			-		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			0.713			-			-			-			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	0.136	J		-			**1.35**			-			-			-			-			-			-		
Nitrotoluene, 2-	mg/kg	370	-			-			-			-			-			-			-			-			-		
Nitrotoluene, 3-	mg/kg	370	-			-			0.266	J		-			-			-			-			-			-		
Nitrotoluene, 4-	mg/kg	370	-			-			-			-			-			-			-			-			-		
Trinitrotoluene, 2,4 6-	mg/kg	16	-			-			0.407			-			-			-			-			-			-		

	Sample Type:		Screening			Confirmation			Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO297						TNTA-SO298			TNTA-SO299			TNTA-SO300			TNTA-SO349			TNTA-SO377			TNTA-SO378		
	Sample No:		AA0297			AA0451			AA0298			AA0299			AA0300			AA0349			AA0377			AA0378		
	Sample Date:		16-AUG-00			25-SEP-00			16-AUG-00			16-AUG-00			16-AUG-00			22-SEP-00			13-SEP-00			13-SEP-00		
Parameter	Sample Depth:		1 - 2						1 - 2			1 - 2			1 - 2			0 - 1			4 - 6			8 - 10		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	**4.81**			**4.22**			-			-			-			**10**			0.245			-		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	**5.66**			**4.83**			-			-			-			**15.6**			0.524			-		
Dinitrotoluene, total	mg/kg	0.72	**2.34**			**7.36**			0.394			0.49			0.349			**2.8**			0.281			-		
Nitrotoluene, 2-	mg/kg	370	-			0.374			-			-			-			0.721			-			0.312	J	
Nitrotoluene, 3-	mg/kg	370	-			-			-			-			-			-			-			-		
Nitrotoluene, 4-	mg/kg	370	-			-			-			-			-			0.346	J		-			-		
Trinitrotoluene, 2,4.6-	mg/kg	16	**17.9**			11.5			-			-			-			**40.7**			-			-		

Table 2-25

Summary of Nitroaromatic Analytical Detections in Soil
Building 142, Bi-Tri House
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Parameter	Sample Type:		Screening			Confirmation			Confirmation			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO016						TNTA-SO016			TNTA-SO017			TNTA-SO018			TNTA-SO019			TNTA-SO020			TNTA-SO021		
	Sample No:		AA0016			AA0428			AA0427			AA0017			AA0018			AA0019			AA0020			AA0021		
	Sample Date:		20-JUL-00			25-SEP-00			25-SEP-00			20-JUL-00			20-JUL-00			20-JUL-00			20-JUL-00			20-JUL-00		
	Sample Depth:		2 - 3						0 - 1			1.5 - 2.5			0.2 - 1.2			1 - 2			0.5 - 1.5			1.5 - 2.5		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	3.18			1.87			0.132			0.166	J		2.05			0.256			0.6			0.202	J	
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			**3.53**			-			0.153	J		-			-			1.11			-		
Dinitrotoluene, total	mg/kg	0.72	**3.54**			0.534			**1.46**			0.169	J		**2.46**			0.35			**0.939**			0.249	J	
Nitrotoluene, 3-	mg/kg	370	-			0.16	J	J	-			-			-			-			-			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	0.112	J		0.0665	J	J	-			-			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	**31.2**			0.896			0.806			0.176	J		2.48			0.555			8.51			-		

Parameter	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO022			TNTA-SO023			TNTA-SO024			TNTA-SO025			TNTA-SO233			TNTA-SO234			TNTA-SO235			TNTA-SO236		
	Sample No:		AA0022			AA0023			AA0024			AA0025			AA0233			AA0234			AA0235			AA0236		
	Sample Date:		20-JUL-00			20-JUL-00			20-JUL-00			20-JUL-00			17-AUG-00			17-AUG-00			17-AUG-00			17-AUG-00		
	Sample Depth:		1.5 - 2.5			1.5 - 2.5			0.5 - 1.5			1.5 - 2			1 - 2			2 - 3			0.5 - 1.5			0.5 - 1.5		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	0.404			-			0.183	J		-			1.19			-			1.08			-		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			-			-			1.77			-			1.77			-		
Dinitrotoluene, total	mg/kg	0.72	0.354			-			-			-			0.136	J		-			0.152	J		-		
Nitrotoluene, 3-	mg/kg	370	-			-			-			-			-			-			-			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			-			-			-			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	0.433			-			6.67			-			2.21			0.124	J		0.619			-		

Parameter	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO237			TNTA-SO238			TNTA-SO239			TNTA-SO240			TNTA-SO241			TNTA-SO242			TNTA-SO311			TNTA-SO379			TNTA-SO380		
	Sample No:		AA0237			AA0238			AA0239			AA0240			AA0241			AA0242			AA0311			AA0379			AA0380		
	Sample Date:		17-AUG-00			17-AUG-00			17-AUG-00			17-AUG-00			17-AUG-00			17-AUG-00			17-AUG-00			13-SEP-00			13-SEP-00		
	Sample Depth:		0.5 - 1.5			2 - 3			1 - 2			1 - 2			1 - 2			0.5 - 1.5			0 - 1			4 - 6			8 - 10		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			0.898			-			-			-			-			-			0.144	J		-		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			1.26			-			-			-			-			-			0.237	J		-		
Dinitrotoluene, total	mg/kg	0.72	-			0.343			-			-			0.134	J		0.136	J		-			0.111	J		-		
Nitrotoluene, 3-	mg/kg	370	-			-			-			-			-			-			-			-			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			-			-			-			-			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			5.93			-			-			-			-			-			-			-		

Table 2-26

Summary of Nirtoaromatic Analytical Detections in Soil
Building 143, Fortifier House
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO026			TNTA-SO027			TNTA-SO028			TNTA-SO029			TNTA-SO030			TNTA-SO031		
	Sample No:		AA0026			AA0027			AA0028			AA0029			AA0030			AA0031		
	Sample Date:		21-JUL-00			21-JUL-00			21-JUL-00			21-JUL-00			21-JUL-00			21-JUL-00		
Parameter	Sample Depth:		2 - 3			1.6 - 2.6			1.6 - 2.6			2 - 3			1 - 2			0 - 1		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			-			-			-			-			-		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			-			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	-			-			-			-			-			0.158	J	
Trinitrotoluene, 2,4,6-	mg/kg	16	-			-			-			-			-			-		

	Sample Type:		Screening			Screening			Screening			Screening			Confirmation			Screening			Screening		
	Location Code:		TNTA-SO032			TNTA-SO033			TNTA-SO034			TNTA-SO035			TNTA-SO035			TNTA-SO217			TNTA-SO327		
	Sample No:		AA0032			AA0033			AA0034			AA0035			AA0431			AA0217			AA0327		
	Sample Date:		14-AUG-00			14-AUG-00			14-AUG-00			14-AUG-00			25-SEP-00			14-AUG-00			22-AUG-00		
Parameter	Sample Depth:		1.6 - 2.6			0.5 - 1.5			1.6 - 2.6			1.6 - 2.6			1.5 - 2.5			1.5 - 2.5			0.5 - 1.5		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			-			-			**3.7**			0.409			-			-		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			0.148	J		-			**6.49**			0.501			-			-		
Dinitrotoluene, total	mg/kg	0.72	-			0.321			-			**2.16**			0.349			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			0.48			0.276			8.9			0.245			-			0.215	J	

	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO328			TNTA-SO329			TNTA-SO330			TNTA-SO350			TNTA-SO351			TNTA-SO352			TNTA-SO381			TNTA-SO382		
	Sample No:		AA0328			AA0329			AA0330			AA0350			AA0351			AA0352			AA0381			AA0382		
	Sample Date:		22-AUG-00			22-AUG-00			22-AUG-00			22-SEP-00			22-SEP-00			22-SEP-00			13-SEP-00			13-SEP-00		
Parameter	Sample Depth:		0.5 - 1.5			0.5 - 1.5			0 - 1			1.5 - 2.5			1.5 - 2.5			1.5 - 2.5			4 - 6			8 - 10		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			0.135	J		0.599			-			-			-			-			-		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			0.264			1.12			-			-			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	-			0.133	J		0.387			0.134	J		-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			0.522			0.934			-			-			-			-			-		

Table 2-27

Summary of Nitroaromatic Analytical Detections in Soil
Building 146, Wash House, Line 4
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Parameter	Sample Type:		Screening			Screening			Screening			Confirmation			Confirmation			Screening			Confirmation			Screening		
	Location Code:		TNTA-SO078			TNTA-SO079			TNTA-SO080			TNTA-SO080			TNTA-SO080			TNTA-SO081						TNTA-SO082		
	Sample No:		AA0078			AA0079			AA0080			AA0463			AA0464			AA0081			AA0434			AA0082		
	Sample Date:		21-JUL-00			21-JUL-00			21-JUL-00			29-SEP-00			29-SEP-00			21-JUL-00			25-SEP-00			21-JUL-00		
	Sample Depth:		1.5 - 2.5			2 - 3			0.5 - 1			4 - 6			8 - 10			0.8 - 1.8			0.8 - 1.8			2 - 3		
NITROAROMATICS	Unit	PRG	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	0.243			1.54			-			**16**			0.551			-			**5.84**			-		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			**3.97**			1.3			**32.6**			1.22			2.74			**9.59**			-		
Dinitrobenzene, 1,3-	mg/kg	6.1	-			-			1.18			-			-			1.03			-			-		
Dinitrotoluene, total	mg/kg	0.72	0.203			-			**9.18**			-			-			**14.1**			-			-		
HMX	mg/kg	3100	-			-			-			-			-			0.6			-			-		
Nitrobenzene	mg/kg	20	-			-			0.613			0.119			0.136			0.278			-			-		
RDX	mg/kg	180	-			-			-			-			-			-			-			-		
Tetryl	mg/kg		-			-			-			-			-			-			-			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			1.02			4.66			0.123			0.0761	J	J	4.29			0.178			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	0.204			**103**			**1596**			**530**			**92.5**			**2385**			**163**	D		0.647		

Parameter	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO083			TNTA-SO084			TNTA-SO085			TNTA-SO086			TNTA-SO087			TNTA-SO088			TNTA-SO089			TNTA-SO090		
	Sample No:		AA0083			AA0084			AA0085			AA0086			AA0087			AA0088			AA0089			AA0090		
	Sample Date:		22-JUL-00			22-JUL-00			22-JUL-00			22-JUL-00			21-JUL-00			21-JUL-00			21-JUL-00			21-JUL-00		
	Sample Depth:		1.5 - 2.5			1.5 - 2.5			1.5 - 2.5			1.5 - 2.5			0 - 1			0 - 1			0 - 1			0 - 1		
NITROAROMATICS	Unit	PRG	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			-			-			-			-			-			-			-		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			-			-			-			-			-			-		
Dinitrobenzene, 1,3-	mg/kg	6.1	-			-			-			-			-			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	-			-			-			-			0.329			-			-			-		
HMX	mg/kg	3100	-			-			-			-			-			-			-			-		
Nitrobenzene	mg/kg	20	-			-			-			-			-			-			-			-		
RDX	mg/kg	180	-			-			-			-			-			-			-			-		
Tetryl	mg/kg		-			-			0.412			-			-			-			-			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			-			-			-			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	0.194	J		-			-			-			-			-			-			-		

Parameter	Sample Type:		Screening			Screening			Screening			Screening			Screening			Confirmation			Screening			Screening		
	Location Code:		TNTA-SO091			TNTA-SO222			TNTA-SO223			TNTA-SO224			TNTA-SO225						TNTA-SO226			TNTA-SO227		
	Sample No:		AA0091			AA0222			AA0223			AA0224			AA0225			AA0480			AA0226			AA0227		
	Sample Date:		21-JUL-00			14-AUG-00			14-AUG-00			14-AUG-00			14-AUG-00			11-OCT-00			14-AUG-00			14-AUG-00		
	Sample Depth:		1 - 2			2 - 2.5			2 - 2.5			1.6 - 2.6			2 - 3						2 - 3			1.6 - 2.6		
NITROAROMATICS	Unit	PRG	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ	Result	LQ	VQ
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			**4.01**			0.308			0.179	J		**47.6**			**7.45**			0.679			0.274		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			**4.73**			0.52			0.195	J		**4.64**			**20.7**			1.01			0.361		
Dinitrobenzene, 1,3-	mg/kg	6.1	-			-			-			-			0.487			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	-			**0.902**			-			-			**5.65**			-			-			-		
HMX	mg/kg	3100	-			-			-			-			-			-			-			-		
Nitrobenzene	mg/kg	20	-			-			-			-			0.178	J		-			-			-		
RDX	mg/kg	180	-			0.653			-			-			2.48			-			-			-		
Tetryl	mg/kg		-			-			-			-			-			-			-			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			0.689			-			-			1.38			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			**469**			2.55			0.46			**734**			**205**			2.09			-		

Table 2-27

Summary of Nitroaromatic Analytical Detections in Soil
Building 146, Wash House, Line 4
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Parameter		Sample Type:	Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening		
		Location Code:	TNTA-SO228			TNTA-SO229			TNTA-SO230			TNTA-SO231			TNTA-SO232			TNTA-SO308			TNTA-SO309			TNTA-SO310		
		Sample No:	AA0228			AA0229			AA0230			AA0231			AA0232			AA0308			AA0309			AA0310		
		Sample Date:	14-AUG-00			14-AUG-00			14-AUG-00			14-AUG-00			14-AUG-00			15-AUG-00			15-AUG-00			15-AUG-00		
		Sample Depth:	1 - 2			1 - 2			1.3 - 2.3			1.6 - 2.6			1.1 - 2.1			0 - 1			0 - 1			0 - 1		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			-			-			-			-			0.198	J		**10.5**			1.42		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			-			-			-			0.139	J		**14.1**			1.96		
Dinitrobenzene, 1,3-	mg/kg	6.1	-			-			-			-			-			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	-			-			-			-			0.211	J		-			0.359			-		
HMX	mg/kg	3100	-			-			-			-			-			-			-			-		
Nitrobenzene	mg/kg	20	-			-			-			-			-			-			-			-		
RDX	mg/kg	180	-			-			-			-			-			-			-			-		
Tetryl	mg/kg		-			-			-			-			-			-			-			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			-			-			-			-			-			0.467			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			-			-			-			-			0.126	J		**261**			1.62		

Parameter		Sample Type:	Screening			Screening			Screening			Screening			Screening		
		Location Code:	TNTA-SO331			TNTA-SO332			TNTA-SO353			TNTA-SO383			TNTA-SO384		
		Sample No:	AA0331			AA0332			AA0353			AA0383			AA0384		
		Sample Date:	23-AUG-00			23-AUG-00			22-SEP-00			13-SEP-00			13-SEP-00		
		Sample Depth:	0.3 - 1.5			0.5 - 1.5			0 - 1			4 - 6			8 - 10		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			-			2.06			0.225	J		0.556		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			**3.98**			0.24	J		1.54		
Dinitrobenzene, 1,3-	mg/kg	6.1	-			-			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	-			-			-			-			0.294		
HMX	mg/kg	3100	-			-			-			-			-		
Nitrobenzene	mg/kg	20	-			-			-			-			-		
RDX	mg/kg	180	-			-			-			-			-		
Tetryl	mg/kg		-			-			-			-			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			0.237			3.41			0.332			**85.3**		

Table 2-28

Summary of Nitroaromatic Analytical Detections in Soil
Building 148, Nailing House
TNT Area A - RI Report
Former Plum brook Ordnance Works, Sandusky, Ohio

	Sample Type:		Screening			Screening			Screening			Screening			Screening			Confirmation			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO073			TNTA-SO074			TNTA-SO075			TNTA-SO076			TNTA-SO077						TNTA-SO218			TNTA-SO219			TNTA-SO220			TNTA-SO221		
	Sample No:		AA0073			AA0074			AA0075			AA0076			AA0077			AA0433			AA0218			AA0219			AA0220			AA0221		
	Sample Date:		20-JUL-00			20-JUL-00			20-JUL-00			20-JUL-00			20-JUL-00			25-SEP-00			14-AUG-00			14-AUG-00			14-AUG-00			14-AUG-00		
Parameter	Sample Depth:		0.5 - 1.5			0.5 - 1.5			0.3 - 1.3			0.5 - 1.5			0.7 - 1.7						1 - 2			1.6 - 2.6			1.6 - 2.6			1 - 2		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			-			-			0.222	J		2.34			0.329			-			-			-			-		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			-			0.226	J		**4.55**			1.04			-			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	-			-			-			-			0.687			0.677			0.103	J		-			-			-		
Trinitrobenzene, 1,3,5-	mg/kg	1800	-			-			-			-			0.137	J		-			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			-			-			0.252			13.2			1.27			-			-			-			0.126	J	

Table 2-29

Summary of Nitroaromatic Analytical Detections in Soil
Building 149, Acid and Fume Recovery
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

	Sample Type:		Screening			Screening			Screening			Screening			Screening			Screening			Screening			Screening		
	Location Code:		TNTA-SO055			TNTA-SO056			TNTA-SO057			TNTA-SO058			TNTA-SO059			TNTA-SO060			TNTA-SO321			TNTA-SO401		
	Sample No:		AA0055			AA0056			AA0057			AA0058			AA0059			AA0060			AA0321			AA0401		
	Sample Date:		22-JUL-00			22-JUL-00			22-JUL-00			22-JUL-00			22-JUL-00			22-JUL-00			17-AUG-00			15-SEP-00		
Parameter	Sample Depth:		1.5 - 2.5			1.2 - 2.2			1.5 - 2.5			1.5 - 2.5			1.3 - 2.3			1.5 - 2.5			0 - 1			4 - 6		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Dinitrotoluene, total	mg/kg	0.72	-			-			-			-			0.682			-			0.171	J		-		
Nitrobenzene	mg/kg	20	-			-			-			-			-			-			0.209	J		-		

Table 2-30

Summary of Analytical Detections in Surface Water
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Parameter	Location Code:	TNTA-SW02			TNTA-SW03			TNTA-SW04			TNTA-SW05			TNTA-SW06			TNTA-SW07			TNTA-SW09			TNTA-SW10			TNTA-SW14			TNTA-SW080		
	Sample No:	AA2002			AA2003			AA2004			AA2005			AA2006			AA2007			AA2009			AA2010			AA2016			AA2018		
	Sample Date:	20-SEP-00			20-SEP-00			20-SEP-00			20-SEP-00			20-SEP-00			20-SEP-00			20-SEP-00			20-SEP-00			18-OCT-00			17-JUL-00		
NITROAROMATICS	**Unit**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	µg/L	2.34			-			-			-			-			-			0.165	J	J	-			-			58.6		
Amino-4,6-dinitrotoluene, 2-	µg/L	1.96			-			-			-			-			-			-			-			-			64.7		
Trinitrobenzene, 1,3,5-	µg/L	-			-			-			-			-			-			-			-			-			466		
Trinitrotoluene, 2,4,6-	µg/L	-			-			-			-			-			-			-			-			-			11000		
VOLATILES																															
Acetone	µg/L	-		R	-		R	-		R	-		R	-		R	2.95	J	J	-		R	-		R	13.3		J	NA		
Carbon disulfide	µg/L	11.5			4.41			1.04			4.69			6.45			3.59			1.59			6.8			-		UJ	NA		
Methylene chloride	µg/L	3.51		B	3.69		B	3.65		B	3.75		B	2.05		B	3.55		B	3.74		B	3.32		B	1	B	B	NA		
SEMIVOLATILES																															
Di-n-butyl phthalate	µg/L	-			-			-			-			1.3	J	J	1.17	J	J	-			-			-			NA		
METALS																															
Aluminum	µg/L	92.1	J	J	2880			72.6	J	J	400			101	J	J	195	J	J	608			1500			892			NA		
Arsenic	µg/L	-			3.75	J	J	-			-			-			-			-			-			3.69	B	B	NA		
Barium	µg/L	22.5			53.9			22.7			26.9			24.2			23.2			29.4			47.8			42.4			NA		
Beryllium	µg/L	-			0.134	J	J	-			-			0.109	J	J	0.135	J	J	0.204	J	J	0.24	J	J	0.123	B	J	NA		
Cadmium	µg/L	0.78	J	B	-			0.75	J	B	-			-			-			-			-			-			NA		
Calcium	µg/L	138000			164000			168000			152000			35700			37500			52300			86200			64600			NA		
Chromium	µg/L	0.857	J	B	3.76	J	B	-			2.51	J	B	4.49	J	J	-			2.33	J	B	4.37	J	J	2.72	B	J	NA		
Cobalt	µg/L	-			3.34	J	J	-			-			-			-			1.3	J	J	6.19			1.57	B	J	NA		
Copper	µg/L	2.42	J	J	5.02			1.62	J	J	2.63	J	J	6.63			1.75	J	J	3.21	J	J	6.02			8.93			NA		
Iron	µg/L	193		B	9850		J	39.6	J	B	581		J	687		J	190		J	848		J	2010		J	1330			NA		
Lead	µg/L	1.51	J	J	5.49			-			1.74	J	J	2.55	J	J	1.7	J	J	-			2.45	J	J	-			NA		
Magnesium	µg/L	44400			34900			29300			35000			8970			9430			15100			30600			20600			NA		
Manganese	µg/L	237			1030			30.2			75.8			48.6			24.9			90.5			266			57.7			NA		
Nickel	µg/L	-			5.7		B	-			-			-			-			3.43	J	B	15			6.76			NA		
Potassium	µg/L	1830			2320			5550			2680			2000			2040			2670			3620			3720			NA		
Selenium	µg/L	-			-			-			-			-			-			2.63	J	J	-			-			NA		
Silver	µg/L	0.941	J	J	-			0.781	J	J	-			-			-			-			0.779	J	J	1.35	B	B	NA		
Sodium	µg/L	7710		J	12700		J	54300		J	9290		J	10100		J	10400		J	14700		J	18200		J	22700			NA		
Vanadium	µg/L	0.935	J	J	6.23			-			1.59	J	J	-			-			1.38	J	J	2.45	J	J	3.31	B	J	NA		
Zinc	µg/L	36.8			61.7			11.2	J	J	7.69	J	J	-			5.03	J	J	6.25	J	J	19.9			13.3	B	J	NA		

Table 2-31

Summary of Analytical Detections in Sediment
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Parameter		Location Code:	TNTA-SD01			TNTA-SD02			TNTA-SD03			TNTA-SD04			TNTA-SD05			TNTA-SD06			TNTA-SD07			TNTA-SD08		
		Sample No:	AA1001			AA1002			AA1003			AA1004			AA1005			AA1006			AA1007			AA1008		
		Sample Date:	19-SEP-00			20-SEP-00			20-SEP-00			20-SEP-00			20-SEP-00			20-SEP-00			20-SEP-00			19-SEP-00		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	-			-			0.3840			-			0.1100			1.19			0.0707	J	J	0.0859	J	J
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	-			-			0.7310			-			0.0963			2.92			-			0.0630	J	J
Dinitrotoluene, total	mg/kg	0.72	0.2370			-			-			-			0.3640			0.5760			0.5550			0.1330		
Nitrobenzene	mg/kg	20	-			-			-			-			-			-			-			-		
Nitrotoluene, 2-	mg/kg	370	-			-			-			-			-			-			0.1680	J	J	-		
Trinitrotoluene, 2,4,6-	mg/kg	16	-			-			0.7730			-			0.6850			4.6			0.1400			0.1320		
VOLATILES																										
Acetone	mg/kg	1600	-			0.0202			0.0170			0.0086	J	J	0.0207			0.0163			0.0145			-		
Carbon disulfide	mg/kg	360	-			-			-			-			-			-			0.0102			-		
Methylene chloride	mg/kg	8.9	0.0046	J	J	0.0625		B	0.0454		B	0.0283		B	0.0433		B	0.0340		B	0.0356		B	0.0037	J	J
SEMIVOLATILES																										
Acenaphthene	mg/kg	3700	-			-			-			-			-			-			-			-		
Acenaphthylene	mg/kg		-			-			-			-			-			-			-			-		
Anthracene	mg/kg	22000	-			-			-			-			-			-			-			-		
Benzo(a)anthracene	mg/kg	0.62	-			-			-			-			-			0.2860	J	J	-			-		
Benzo(a)pyrene	mg/kg	0.062	-			-			-			-			0.0440	J	J	0.136	J	J	-			-		
Benzo(b)fluoranthene	mg/kg	0.62	-			-			-			-			-			0.1820	J	J	-			-		
Benzo(ghi)perylene	mg/kg		-			-			-			-			-			-			-			-		
Benzo(k)fluoranthene	mg/kg	6.2	-			-			-			-			-			-			-			-		
Bis(2-ethylhexyl)phthalate	mg/kg	35	-			0.0216	J	J	-			-			-			-			-			-		
Carbazole	mg/kg	24	-			-			-			-			-			-			-			-		
Chrysene	mg/kg	62	-			-			-			-			-			0.1630	J	J	-			-		
Dibenz(a,h)anthracene	mg/kg	0.062	-			-			-			-			-			-			-			-		
Dinitrotoluene, 2,4-	mg/kg	0.72	0.1470	J	J	-			-			-			-			-			0.1160	J	J	-		
Dinitrotoluene, 2,6-	mg/kg	0.72	0.0844	J	J	-			0.0492	J	J	-			-			-			0.0535	J	J	-		
Fluoranthene	mg/kg	2300	-			-			-			-			-			0.6880			-			-		
Fluorene	mg/kg	2600	-			-			-			-			-			-			-			-		
Indeno(1,2,3-cd)pyrene	mg/kg	0.62	-			-			-			-			-			-			-			-		
Phenanthrene	mg/kg		-			-			-			-			-			0.1070	J	J	-			-		
Pyrene	mg/kg	2300	-			-			-			-			-			0.4580			-			-		

Table 2-31

Summary of Analytical Detections in Sediment
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Parameter		Location Code:	TNTA-SD01			TNTA-SD02			TNTA-SD03			TNTA-SD04			TNTA-SD05			TNTA-SD06			TNTA-SD07			TNTA-SD08		
		Sample No:	AA1001			AA1002			AA1003			AA1004			AA1005			AA1006			AA1007			AA1008		
		Sample Date:	19-SEP-00			20-SEP-00			20-SEP-00			20-SEP-00			20-SEP-00			20-SEP-00			20-SEP-00			19-SEP-00		
PCBs	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Aroclor 1260	mg/kg	0.22	0.0844	J	J	-			0.1210		J	-			**0.7310**			-			-			0.0204	J	J
METALS																										
Aluminum	mg/kg	76000	3020			8800			7220			7730			10500			12200			14100			14300		
Arsenic	mg/kg	0.39	**4.97**			**4.82**			**6.8**			**2.09**			**21.1**			**5.88**			**2.82**			**3.30**		
Barium	mg/kg	5400	24.7			26.8			41.3			18.6			46.2			35.1			38.4			60.7		
Beryllium	mg/kg	150	0.172	J	J	0.448		B	0.441		B	0.452		B	0.772			0.636			0.689			0.87		
Cadmium	mg/kg	37	0.372	J	B	-			-			-			0.164	J	J	-			-			0.551	J	B
Calcium	mg/kg		64900		J	18600			2730			4080			8820			61600			38100			5490		J
Chromium	mg/kg	210	8.08			14.3			11.3			12.8			17.4			21.3			24.2			24.1		
Cobalt	mg/kg	4700	2.9			11.2			5.69			4.27			12.2			16.9			15			9.17		
Copper	mg/kg	2900	7.68		B	15.7			12.7			5.38			18.4			14.6			13.9			9.17		B
Iron	mg/kg	23000	13200			14900			16600			11700			**40600**			21700			21100			19000		
Lead	mg/kg	48.6	13.1			10.5			47			5.8			48.6			10.7			8.87			9		
Magnesium	mg/kg		9510			6520			1650			1950			2630			6750			6910			3430		
Manganese	mg/kg	1800	169			277			205			97.5			243			973			615			149		
Mercury	mg/kg	23	0.036	J	J	-			0.035	J	J	0.025	J	J	0.05			-			-			0.207		
Nickel	mg/kg	1600	7.22		B	27.6			15.3			12.6			28.6			44			44.7			26.2		
Potassium	mg/kg		524		J	1740			566			1140			1290			3030			2900			2170		J
Selenium	mg/kg	390	-			-			-			-			1.13	J	B	-			-			0.851	J	J
Silver	mg/kg	390	-			-			-			-			-			-			-			-		
Sodium	mg/kg		252	J	J	89.8	J	J	71.6	J	J	108	J	J	-			179	J	J	149	J	J	177	J	J
Vanadium	mg/kg	550	15.3			20.5			18.8			18.1			29			17			18.8			29.4		
Zinc	mg/kg	23000	18.4			53.7			44.2			27.5			109			78.5			76.5			55.7		

Table 2-31

Summary of Analytical Detections in Sediment
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

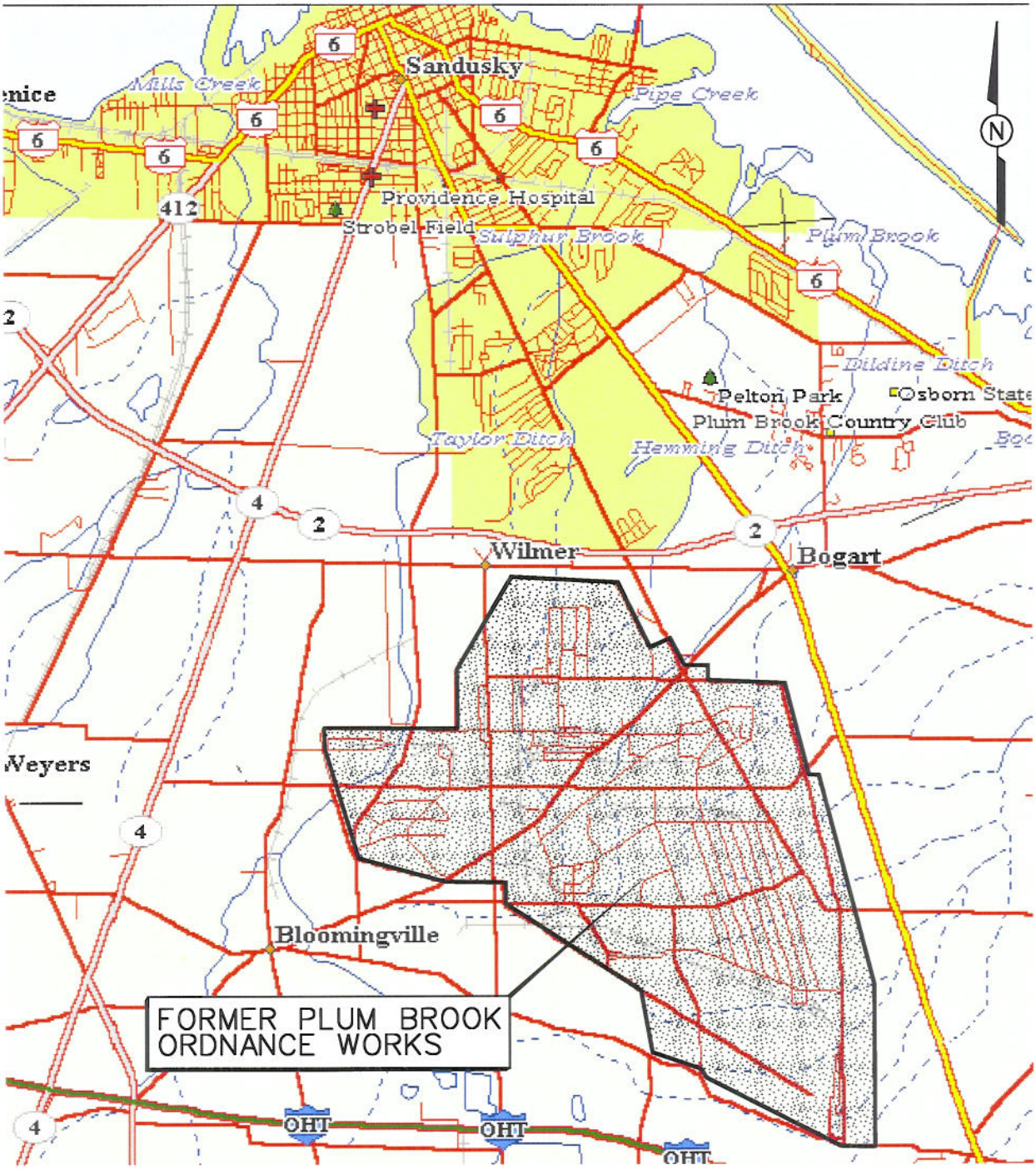
Parameter		Location Code:	TNTA-SD09			TNTA-SD10			TNTA-SD11			TNTA-SD12			TNTA-SD13			TNTA-SD14			TNTA-SD15		
		Sample No:	AA1009			AA1010			AA1013			AA1014			AA1015			AA1016			AA1017		
		Sample Date:	20-SEP-00			20-SEP-00			20-SEP-00			20-SEP-00			20-SEP-00			20-SEP-00			20-SEP-00		
NITROAROMATICS	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Amino-2,6-dinitrotoluene, 4-	mg/kg	3.3	0.7140			-			-			-			-			-			-		
Amino-4,6-dinitrotoluene, 2-	mg/kg	3.3	2.65			-			-			-			-			-			-		
Dinitrotoluene, total	mg/kg	0.72	-			0.0455	J	J	-			-			-			-			-		
Nitrobenzene	mg/kg	20	-			-			0.0501	J	J	0.0765	J	J	0.2700			0.0631	J	J	0.0550	J	J
Nitrotoluene, 2-	mg/kg	370	-			-			-			-			-			-			-		
Trinitrotoluene, 2,4,6-	mg/kg	16	1.93			0.0635	J	J	-			-			-			-			-		
VOLATILES																							
Acetone	mg/kg	1600	0.0119	J	J	-			0.0283			0.0284			0.0168			0.0283			-		
Carbon disulfide	mg/kg	360	-			-			0.0026	J	J	-			-			0.0046	J	J	-		
Methylene chloride	mg/kg	8.9	0.0344		B	0.0277		B	0.0357		B	0.0240		B	0.0202		B	0.0203		B	0.0141		B
SEMIVOLATILES																							
Acenaphthene	mg/kg	3700	-			-			0.1090	J	J	-			-			-			-		
Acenaphthylene	mg/kg		-			-			0.2980	J	J	-			-			-			-		
Anthracene	mg/kg	22000	-			-			0.6000	J	J	-			-			-			-		
Benzo(a)anthracene	mg/kg	0.62	-			-			**2.81**			0.0881	J	J	-			-			0.0683	J	J
Benzo(a)pyrene	mg/kg	0.062	-			-			**1.93**			**0.077**	J	J	-			0.0578	J	J	**0.0791**	J	J
Benzo(b)fluoranthene	mg/kg	0.62	-			-			**2.34**			-			-			-			0.1040	J	J
Benzo(ghi)perylene	mg/kg		-			-			0.8610			-			-			-			-		
Benzo(k)fluoranthene	mg/kg	6.2	-			-			1.11			-			-			-			-		
Bis(2-ethy hexyl)phthalate	mg/kg	35	-			-			-			0.0686	J	J	0.0354	J	J	-			-		
Carbazole	mg/kg	24	-			-			0.0896	J	J	-			-			-			-		
Chrysene	mg/kg	62	-			-			2.92			0.0742	J	J	-			-			0.0664	J	J
Dibenz(a,h)anthracene	mg/kg	0.062	-			-			**0.327**	J	J	-			-			-			-		
Dinitrotoluene, 2,4-	mg/kg	0.72	-			-			-			-			-			-			-		
Dinitrotoluene, 2,6-	mg/kg	0.72	-			-			-			-			-			-			-		
Fluoranthene	mg/kg	2300	-			-			5.95			0.1610	J	J	-			0.1430	J	J	0.1750	J	J
Fluorene	mg/kg	2600	-			-			0.2230	J	J	-			-			-			-		
Indeno(1,2,3-cd)pyrene	mg/kg	0.62	-			-			**0.778**			-			-			-			-		
Phenanthrene	mg/kg		-			-			3.58			-			-			-			0.1010	J	J
Pyrene	mg/kg	2300	-			-			4.74			0.119	J	J	-			-			0.1320	J	J

Table 2-31

Summary of Analytical Detections in Sediment
TNT Area A - RI Report
Former Plum Brook Ordnance Works, Sandusky, Ohio

Parameter		Location Code:	TNTA-SD09			TNTA-SD10			TNTA-SD11			TNTA-SD12			TNTA-SD13			TNTA-SD14			TNTA-SD15		
		Sample No:	AA1009			AA1010			AA1013			AA1014			AA1015			AA1016			AA1017		
		Sample Date:	20-SEP-00			20-SEP-00			20-SEP-00			20-SEP-00			20-SEP-00			20-SEP-00			20-SEP-00		
PCBs	**Unit**	**PRG**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**	**Result**	**LQ**	**VQ**
Aroclor 1260	mg/kg	0.22	-			-			0.116	J	J	0.059	J	J	0.029	J	J	-			0.019	J	J
METALS																							
Aluminum	mg/kg	76000	11400			11800			10400			9860			10500			11400			9750		
Arsenic	mg/kg	0.39	**25**			**10.5**			**6.69**			**3.53**			**6.48**			**6.67**			**3.66**		
Barium	mg/kg	5400	177			110			63.6			62.3			60.5			68.2			70		
Beryllium	mg/kg	150	1.56			1.28			0.732			0.528			0.665			0.695			0.525		
Cadmium	mg/kg	37	1.16			0.268	J	J	0.673	J	J	0.228	J	J	0.487	J	J	0.584	J	J	0.274	J	J
Calcium	mg/kg		24500			68700			15800			6300			14500			10200			5360		
Chromium	mg/kg	210	20.1			19.1			20.8			15.8			25.6			31.8			16.4		
Cobalt	mg/kg	4700	84.9			60			17.6			7.87			13.4			12.2			7.39		
Copper	mg/kg	2900	26.5			20.3			29.5			21.8			27.6			28.7			20.1		
Iron	mg/kg	23000	**58300**			**27600**			21900			14500			18600			20200			13400		
Lead	mg/kg	48.6	**59**			14.5			31.3			13.4			25.3			32.4			31.4		
Magnesium	mg/kg		5280			5820			4850			3230			4850			4210			2680		
Manganese	mg/kg	1800	**2770**			**2480**			331			178			273			277			144		
Mercury	mg/kg	23	-			-			0.117			0.037	J	J	0.087			0.097			0.044	J	J
Nickel	mg/kg	1600	117			99.6			49.9			24.8			39.3			39.6			21.1		
Potassium	mg/kg		2090			2470			1380			1010			1290			1400			860		
Selenium	mg/kg	390	-			-			-			1.23	J	J	1.39	J	B	-			-		
Silver	mg/kg	390	-			0.557	J	J	-			-			-			-			-		
Sodium	mg/kg		-			99.3	J	J	168	J	J	-			174	J	J	-			132	J	J
Vanadium	mg/kg	550	26.4			17.8			19.7			20.6			20.3			20.6			20.1		
Zinc	mg/kg	23000	201			118			107			54.5			115			107			56		

FIGURES



NOT TO SCALE

FIGURE 1-1
VICINITY MAP

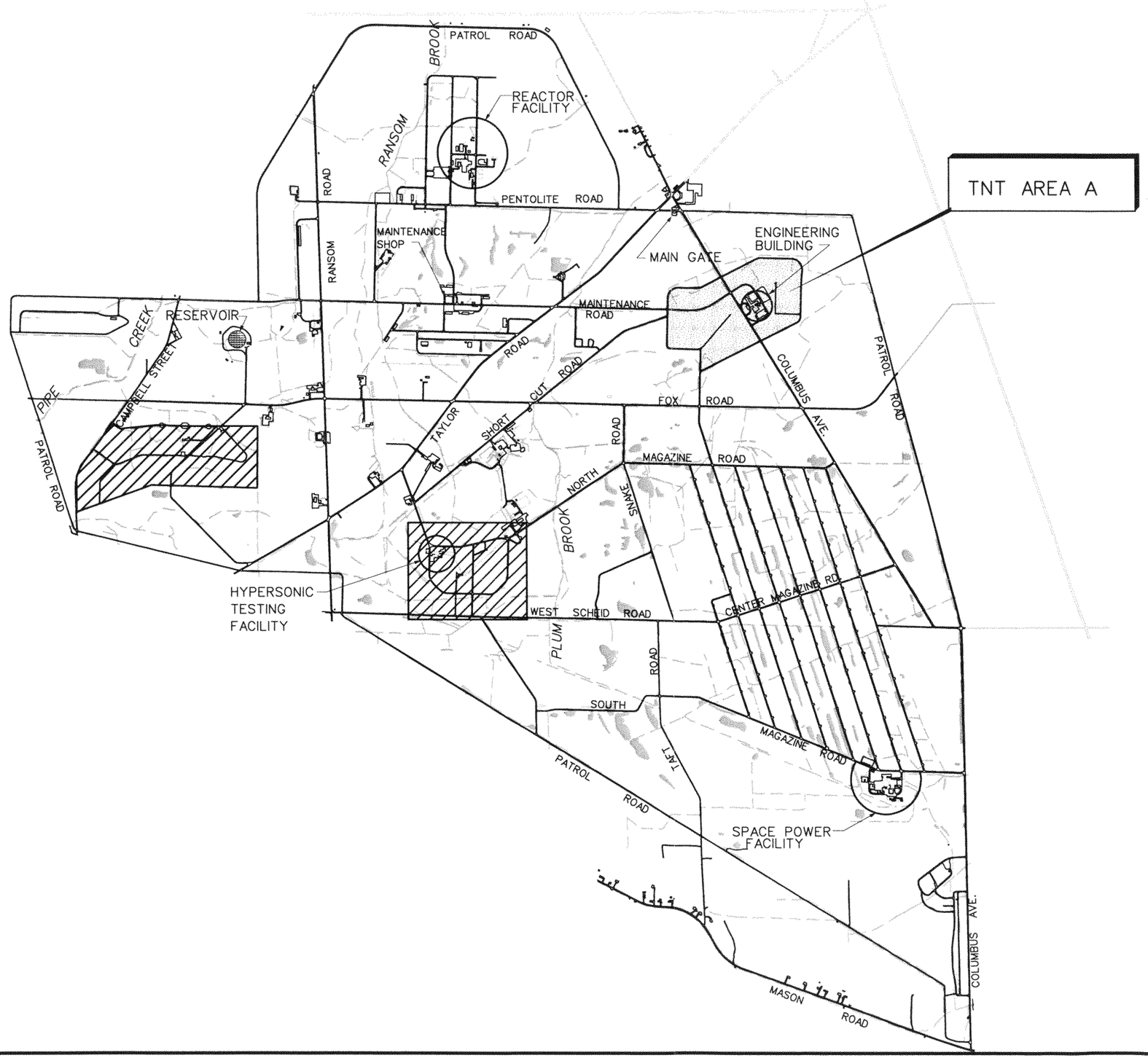
FORMER PLUM BROOK ORDNANCE WORKS
SANDUSKY, OHIO

IT CORPORATION
A Member of The IT Group

STARTING DATE: 12/16/97	DATE LAST REV.: 10/30/01	DRAFT. CHCK. BY:	INITIATOR: D. KESSLER	DWG. NO.: \77370IES.001
DRAWN BY: D. BILLINGSLEY	DRAWN BY: bvanderg	ENGR. CHCK. BY: D. KESSLER	PROJ. MGR.:M.SPANGBERG	PROJ. NO.:773701

01:08:56 10/30/01

bvanderg
c:\cadd\design\77370ies.001



LEGEND:

- BUILDINGS
- STREAMS OR DITCHES
- ROAD
- SURFACE WATER
- AREA OF CONCERN
- TNT MANUFACTURING AREA

SCALE

0 2400 4800 FEET

FIGURE 1-2
TNT AREA A LOCATION MAP

FORMER PLUM BROOK ORDNANCE WORKS
NASA PLUM BROOK STATION
SANDUSKY, OHIO

IT CORPORATION
A Member of The IT Group

STARTING DATE: 01/03/01	DATE LAST REV.:	DRAFT. CHCK. BY:	INITIATOR: D. KESSLER	DWG. NO.:...\807111es.034
DRAWN BY: B. VANDERGRIFF	DRAWN BY:	ENGR. CHCK. BY: M. GUNDERSON	PROJ. MGR.: M.SPANGBERG	PROJ. NO.: 807111

03-15-04
01/03/01
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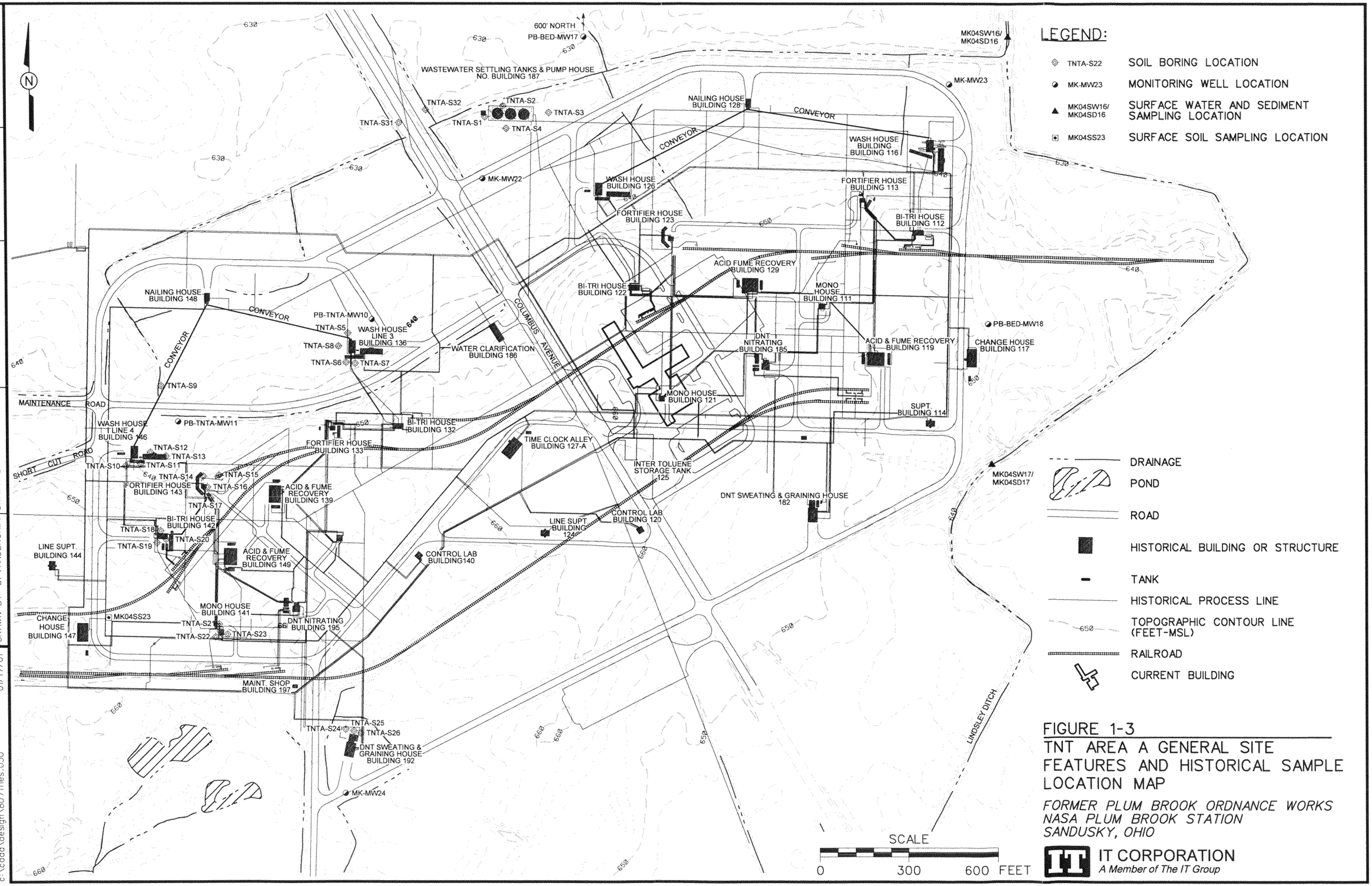

FIGURE 1-3
TNT AREA A GENERAL SITE FEATURES AND HISTORICAL SAMPLE LOCATION MAP

FORMER PLUM BROOK ORDNANCE WORKS
NASA PLUM BROOK STATION
SANDUSKY, OHIO

IT CORPORATION
A Member of The IT Group

DWG. NO.:...\807111es.030 | PROJ. NO.: 807111
INITIATOR: D. KESSLER | PROJ. MGR.: SPANGBERG
DRAFT. CHCK. BY: C. TUMLIN | ENGR. CHCK. BY: M. GUNDERSON
DATE LAST REV.: | DRAWN BY:
STARTING DATE: 12/12/00 | DRAWN BY: B. VANDERGRIFF
08:27:10 01/17/01
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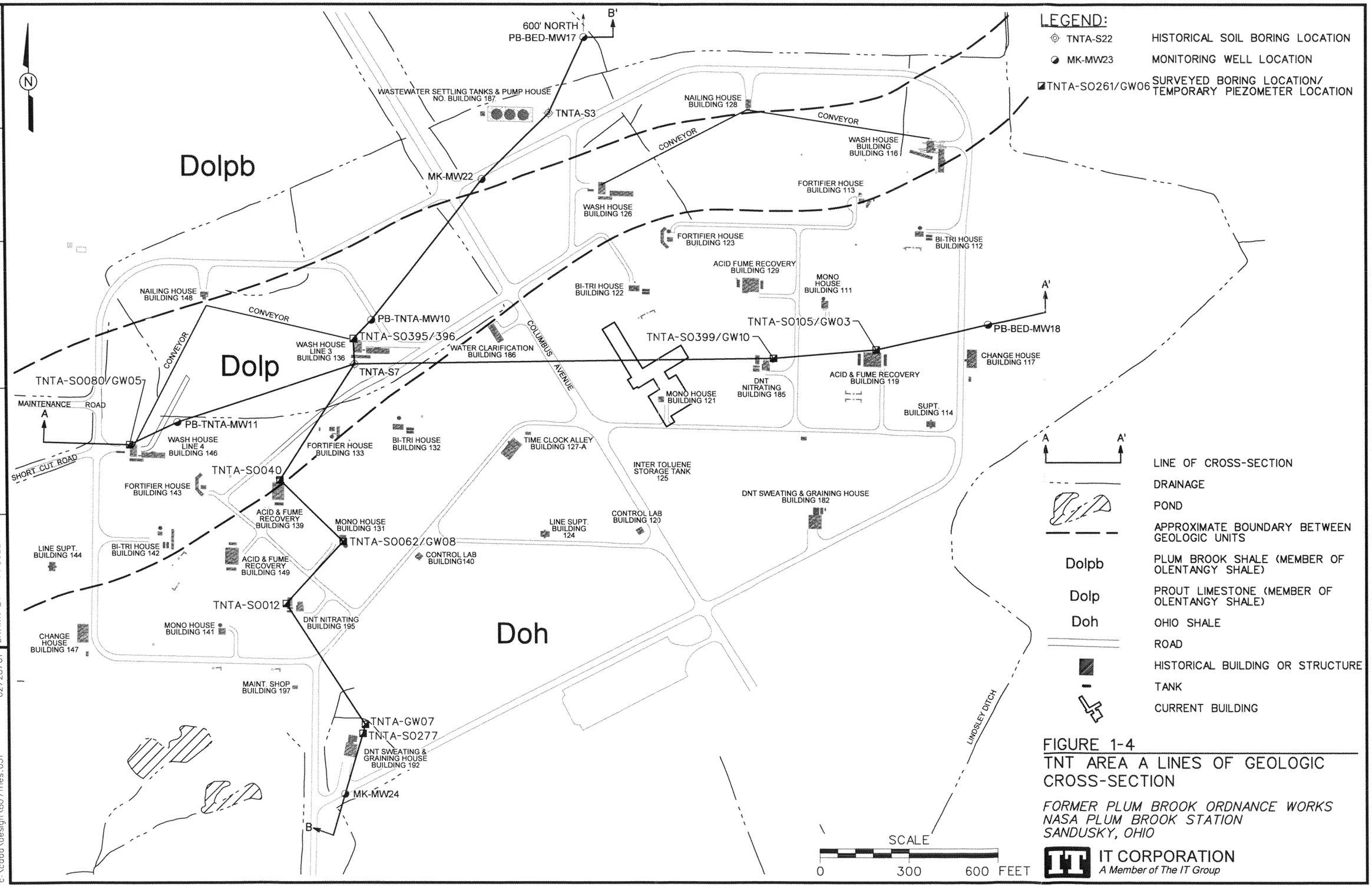

FIGURE 1-4
TNT AREA A LINES OF GEOLOGIC CROSS-SECTION

FORMER PLUM BROOK ORDNANCE WORKS
NASA PLUM BROOK STATION
SANDUSKY, OHIO

IT CORPORATION
A Member of The IT Group

DRAFT. CHCK. BY: C. TUMLIN | INITIATOR: HAGEGEORGE | DWG. NO.: ...\807111es.031
ENGR. CHCK. BY: HAGEGEORGE | PROJ. MGR.: SPANGBERG | PROJ. NO.: 807111
STARTING DATE: 4/25/00 | DATE LAST REV.:
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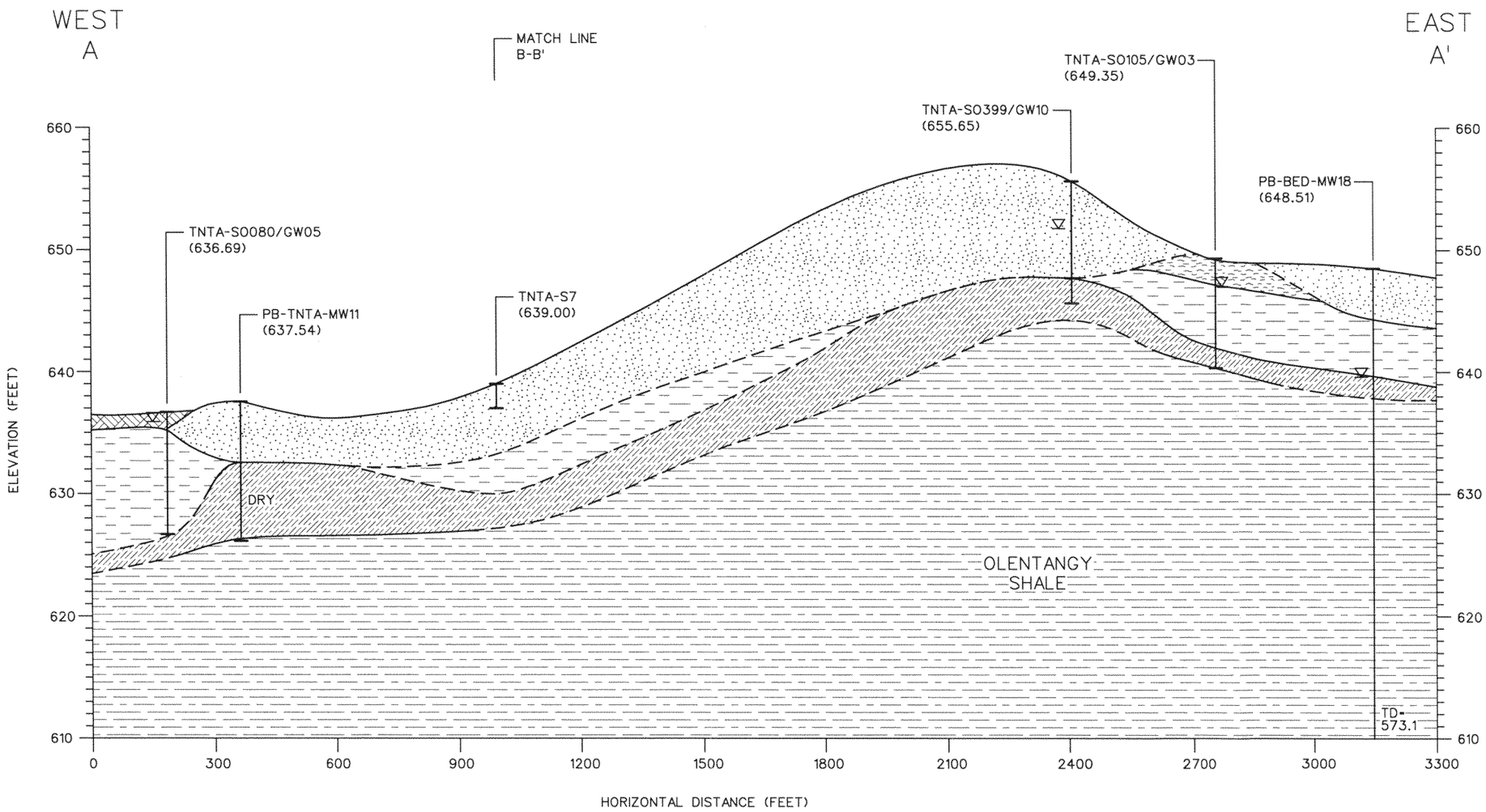

LEGEND:

- SHALE
- WEATHERED SHALE
- PEAT
- SILTY CLAY
- SILT
- SAND (SOME SILT)

▽ APPROXIMATE GROUNDWATER ELEVATION DURING DRILLING

(660.89) GROUND SURFACE ELEVATION

TD-559.36 ELEVATION OF TOTAL BOREHOLE DEPTH

NOTES:

ALL ELEVATIONS ARE REFERENCED TO OHIO STATE PLANE COORDINATE SYSTEM, NAD 1983, NGVD 1929.

HORIZONTAL SCALE

0 300 600 FEET

VERTICAL SCALE

0 10 20 FEET

FIGURE 1-5
TNT AREA A
GEOLOGIC CROSS-SECTION A-A'

FORMER PLUM BROOK ORDNANCE WORKS
NASA PLUM BROOK STATION
SANDUSKY, OHIO

IT CORPORATION
A Member of The IT Group

STARTING DATE: 01/10/01 | DATE LAST REV.: | DRAFT. CHCK. BY: C. TUMLIN | INITIATOR: R. ELLIS | DWG. NO.:...\807111es.036
DRAWN BY: B. VANDERGRIFF | DRAWN BY: | ENGR. CHCK. BY: R. ELLIS | PROJ. MGR.: SPANGBERG | PROJ. NO.: 807111

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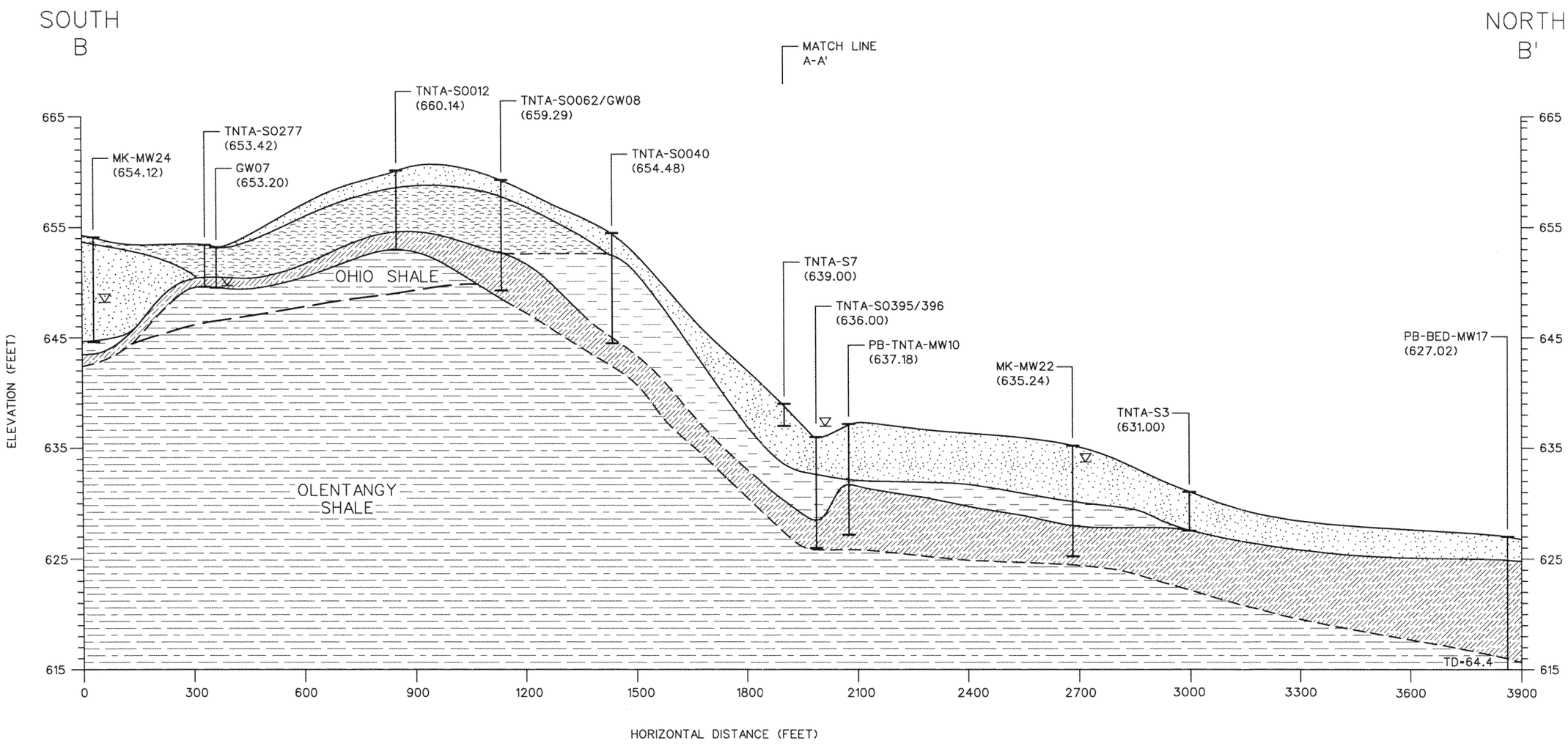

LEGEND:

- SHALE
- WEATHERED SHALE
- SILTY CLAY
- SILT
- SAND (SOME SILT)
- APPROXIMATE BOUNDARY BETWEEN BEDROCK GEOLOGIC UNITS
- APPROXIMATE GROUNDWATER ELEVATION DURING DRILLING
- (660.89) GROUND SURFACE ELEVATION
- TD-64.4 ELEVATION OF TOTAL BOREHOLE DEPTH

NOTES:

ALL ELEVATIONS ARE REFERENCED TO OHIO STATE PLANE COORDINATE SYSTEM, NAD 1983, NGVD 1929.

HORIZONTAL SCALE

0 300 600 FEET

VERTICAL SCALE

0 10 20 FEET

FIGURE 1-6
TNT AREA A
GEOLOGIC CROSS-SECTION B-B'

FORMER PLUM BROOK ORDNANCE WORKS
NASA PLUM BROOK STATION
SANDUSKY, OHIO

IT CORPORATION
A Member of The IT Group

STARTING DATE: 01/10/01	DATE LAST REV.:	INITIATOR: R. ELLIS	DWG. NO.:...\807111es.037
DRAWN BY: B. VANDERGRIFF	DRAWN BY:	PROJ. MGR.: SPANGBERG	PROJ. NO.: 807111
		DRAFT. CHCK. BY: C. TUMLIN	
		ENGR. CHCK. BY: R. ELLIS	

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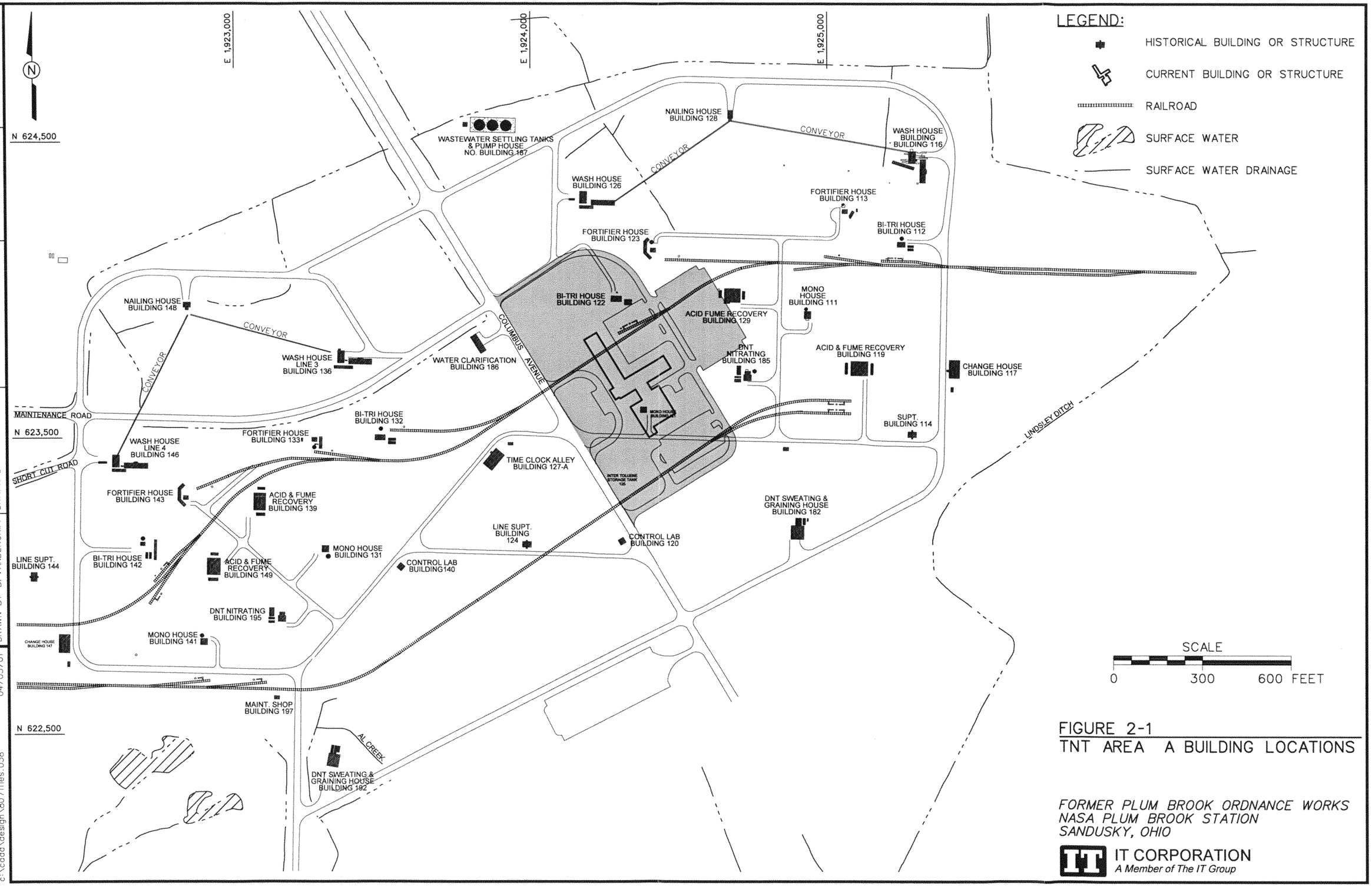

FIGURE 2-1
TNT AREA A BUILDING LOCATIONS

FORMER PLUM BROOK ORDNANCE WORKS
NASA PLUM BROOK STATION
SANDUSKY, OHIO

IT CORPORATION
A Member of The IT Group

DWG. NO.:...\807111es.038
PROJ. NO.: 807111
INITIATOR: M. GUNDERSON
PROJ. MGR.: SPANGBERG
DRAFT. CHCK. BY: C. TUMLIN
ENGR. CHCK. BY: M. GUNDERSON
DATE LAST REV.:
DRAWN BY:
STARTING DATE: 04/03/01
DRAWN BY: B. VANDERGRIFF
04:14:37
04/03/01
bvanderg
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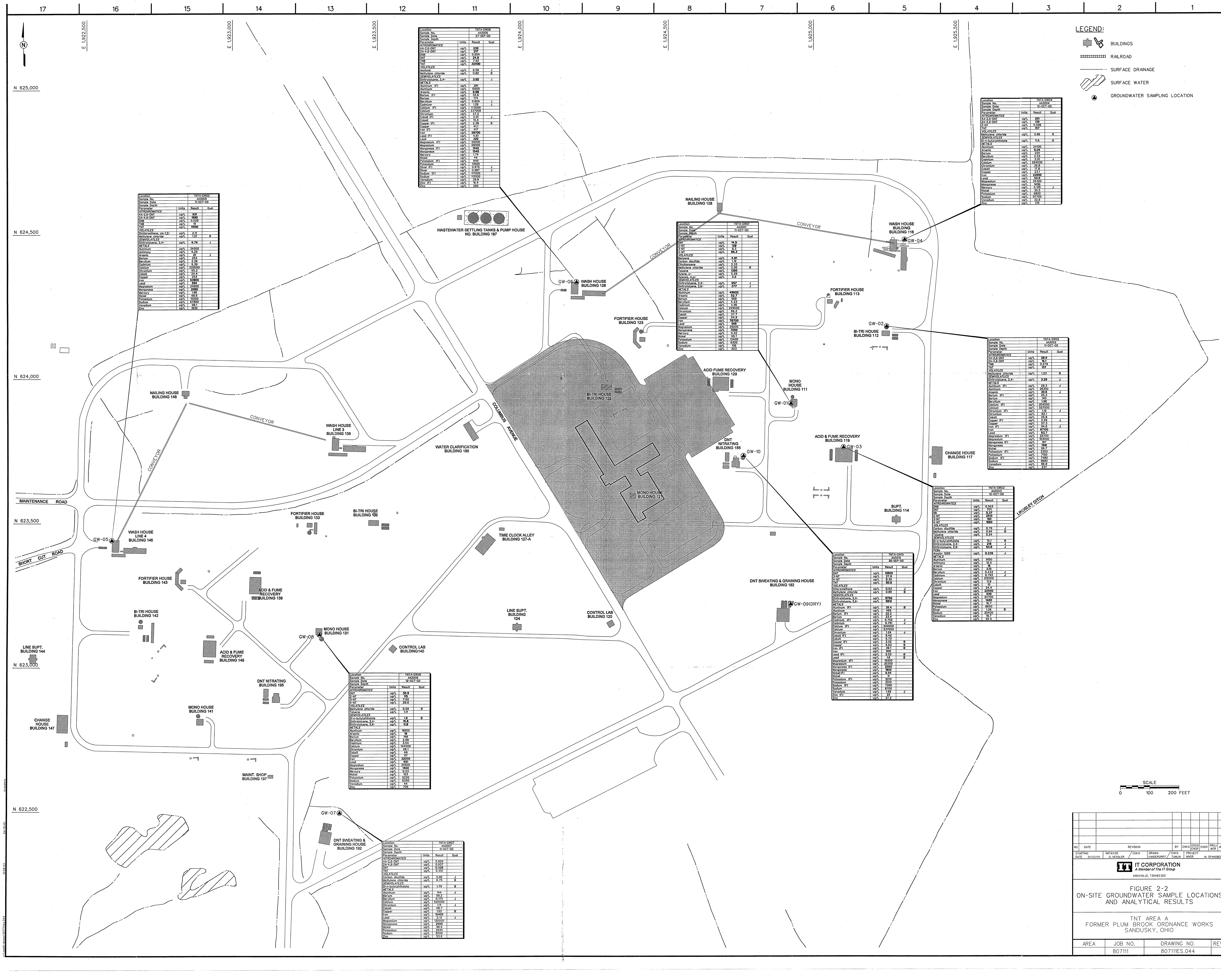


Location		TNTA-GW06	
Sample No.		AA3006	
Sample Date		27-SEP-00	
Sample Depth			
Parameter	Units	Result	Qual
NITROAROMATICS			
4A-2,6-DNT	ug/L	**230**	
2A-4,6-DNT	ug/L	**217**	
DNB	ug/L	0.654	
DNT	ug/L	**24.6**	
TNB	ug/L	7.93	
TNT	ug/L	**32400**	
VOLATILES			
Acetone	ug/L	6.59	J
Methylene chloride	ug/L	0.82	B
SEMIVOLATILES			
Dinitrotoluene, 2,4-	ug/L	**3.92**	J
METALS			
Aluminum (F)	ug/L	281	
Aluminum	ug/L	15600	
Arsenic	ug/L	**8.88**	
Barium (F)	ug/L	52.6	
Barium	ug/L	174	
Beryllium	ug/L	0.854	J
Cadmium	ug/L	1.26	J
Calcium (F)	ug/L	173000	
Calcium	ug/L	237000	
Chromium	ug/L	27.2	
Cobalt (F)	ug/L	2.01	J
Cobalt	ug/L	13.3	
Copper (F)	ug/L	2.38	B
Copper	ug/L	41.1	
Iron (F)	ug/L	417	
Iron	ug/L	**28700**	
Lead (F)	ug/L	4.61	
Lead	ug/L	**320**	
Magnesium (F)	ug/L	59300	
Magnesium	ug/L	68000	
Manganese (F)	ug/L	**1540**	
Manganese	ug/L	**1540**	
Mercury	ug/L	1.74	
Nickel	ug/L	44	
Potassium (F)	ug/L	9110	
Potassium	ug/L	13600	
Silver (F)	ug/L	0.975	J
Silver	ug/L	0.987	J
Sodium (F)	ug/L	117000	
Sodium	ug/L	113000	
Vanadium	ug/L	29.9	
Zinc (F)	ug/L	16.4	
Zinc	ug/L	260	

Location		TNTA-GW05	
Sample No.		AA3005	
Sample Date		11-OCT-00	
Sample Depth			
Parameter	Units	Result	Qual
NITROAROMATICS			
4A-2,6-DNT	ug/L	**931**	
2A-4,6-DNT	ug/L	**1890**	
DNB	ug/L	0.529	
TNB	ug/L	19	
TNT	ug/L	**11500**	
VOLATILES			
Dichloroethene, cis-1,2-	ug/L	2.11	
Methylene chloride	ug/L	1.21	B
SEMIVOLATILES			
Dinitrotoluene, 2,4-	ug/L	**4.74**	J
METALS			
Aluminum	ug/L	34500	
Antimony	ug/L	6.25	
Arsenic	ug/L	**21**	J
Barium	ug/L	253	
Beryllium	ug/L	2.26	
Cadmium	ug/L	6.39	
Calcium	ug/L	229000	
Chromium	ug/L	65.3	
Cobalt	ug/L	24.4	
Copper	ug/L	253	
Iron	ug/L	**63800**	
Lead	ug/L	**694**	
Magnesium	ug/L	34600	
Manganese	ug/L	**2080**	
Mercury	ug/L	1.86	
Nickel	ug/L	68.6	
Potassium	ug/L	15500	
Sodium	ug/L	67800	
Vanadium	ug/L	98.1	
Zinc	ug/L	1830	

Location		TNTA-GW01	
Sample No.		AA3001	
Sample Date		11-OCT-00	
Sample Depth			
Parameter	Units	Result	Qual
NITROAROMATICS			
DNT	ug/L	**14.5**	
2-NT	ug/L	**129**	
3-NT	ug/L	8.3	
4-NT	ug/L	**86.3**	
VOLATILES			
Benzene	ug/L	**4.81**	
Carbon disulfide	ug/L	1.16	
Ethylbenzene	ug/L	2.33	
Methylene chloride	ug/L	0.99	B
Toluene	ug/L	**1350**	
Xylene, o-	ug/L	5.29	
Xylenes, m,p-	ug/L	6.9	
SEMIVOLATILES			
Dinitrotoluene, 2,4-	ug/L	**957**	J
Dinitrotoluene, 2,6-	ug/L	**377**	J
METALS			
Aluminum	ug/L	**48600**	
Arsenic	ug/L	**52.7**	
Barium	ug/L	669	
Beryllium	ug/L	4.23	
Cadmium	ug/L	5.96	
Calcium	ug/L	229000	
Chromium	ug/L	66.3	
Cobalt	ug/L	37.7	
Copper	ug/L	54.9	
Iron	ug/L	**78700**	
Lead	ug/L	**566**	
Magnesium	ug/L	29200	
Manganese	ug/L	**7050**	
Mercury	ug/L	0.22	
Nickel	ug/L	65.1	
Potassium	ug/L	13400	
Sodium	ug/L	6300	
Vanadium	ug/L	106	
Zinc	ug/L	923	

Location		TNTA-GW04	
Sample No.		AA3004	
Sample Date		12-OCT-00	
Sample Depth			
Parameter	Units	Result	Qual
NITROAROMATICS			
4A-2,6-DNT	ug/L	**201**	
2A-4,6-DNT	ug/L	**139**	
2-NT	ug/L	0.599	
TNT	ug/L	**157**	
VOLATILES			
Methylene chloride	ug/L	0.86	B
SEMIVOLATILES			
Di-n-butyl phthalate	ug/L	11.6	B
METALS			
Aluminum	ug/L	24100	
Arsenic	ug/L	**8.04**	
Barium	ug/L	229	
Beryllium	ug/L	2.03	
Cadmium	ug/L	2.01	J
Calcium	ug/L	264000	
Chromium	ug/L	26.8	
Cobalt	ug/L	17.8	
Copper	ug/L	23.1	
Iron	ug/L	**22800**	
Lead	ug/L	**50.5**	
Magnesium	ug/L	34300	
Manganese	ug/L	**1430**	
Mercury	ug/L	0.126	J
Nickel	ug/L	30.5	
Potassium	ug/L	6800	
Sodium	ug/L	97700	
Vanadium	ug/L	32.9	
Zinc	ug/L	219	

Location		TNTA-GW02	
Sample No.		AA3002	
Sample Date		11-OCT-00	
Sample Depth			
Parameter	Units	Result	Qual
NITROAROMATICS			
4A-2,6-DNT	ug/L	**28.9**	
2A-4,6-DNT	ug/L	**16.1**	
TNB	ug/L	0.279	
TNT	ug/L	**137**	
VOLATILES			
Methylene chloride	ug/L	1.23	B
SEMIVOLATILES			
Dinitrotoluene, 2,4-	ug/L	**3.29**	J
METALS			
Aluminum (F)	ug/L	29.3	J
Aluminum	ug/L	26300	
Arsenic	ug/L	**30.6**	J
Barium (F)	ug/L	25.3	
Barium	ug/L	140	
Beryllium	ug/L	1.98	
Calcium (F)	ug/L	204000	
Calcium	ug/L	557000	
Chromium (F)	ug/L	1.15	J
Chromium	ug/L	62.1	
Cobalt	ug/L	25.8	
Copper (F)	ug/L	2.59	J
Copper	ug/L	57.3	
Iron (F)	ug/L	94.6	J
Iron	ug/L	**67100**	
Lead	ug/L	**63.7**	
Magnesium (F)	ug/L	25700	
Magnesium	ug/L	103000	
Manganese (F)	ug/L	187	
Manganese	ug/L	**1910**	
Nickel	ug/L	66.7	
Potassium (F)	ug/L	2350	
Potassium	ug/L	7150	
Sodium (F)	ug/L	7480	
Sodium	ug/L	9680	
Vanadium	ug/L	86.8	
Zinc	ug/L	237	

Location		TNTA-GW03	
Sample No.		AA3003	
Sample Date		12-OCT-00	
Sample Depth			
Parameter	Units	Result	Qual
NITROAROMATICS			
DNB	ug/L	0.563	
DNT	ug/L	**771**	
NB	ug/L	**5.37**	
2-NT	ug/L	**2510**	
3-NT	ug/L	**190**	
4-NT	ug/L	**1880**	
VOLATILES			
Carbon disulfide	ug/L	0.79	J
Methylene chloride	ug/L	0.94	B
Toluene	ug/L	5.24	
SEMIVOLATILES			
Di-n-butyl phthalate	ug/L	10.1	B
Dinitrotoluene, 2,4-	ug/L	**218**	J
Dinitrotoluene, 2,6-	ug/L	**50.8**	J
PCBs			
Aroclor 1260	ug/L	**0.239**	J
METALS			
Aluminum	ug/L	9150	
Antimony	ug/L	12.5	
Arsenic	ug/L	**16**	
Barium	ug/L	236	
Beryllium	ug/L	0.433	J
Cadmium	ug/L	0.793	J
Calcium	ug/L	212000	
Chromium	ug/L	11.9	
Cobalt	ug/L	10	
Copper	ug/L	24.4	
Iron	ug/L	**22500**	
Lead	ug/L	**1010**	
Magnesium	ug/L	24700	
Manganese	ug/L	**1480**	
Nickel	ug/L	16.7	
Potassium	ug/L	8650	
Silver	ug/L	1.26	B
Sodium	ug/L	20400	
Vanadium	ug/L	19.7	
Zinc	ug/L	92.5	

Location		TNTA-GW10	
Sample No.		AA3010	
Sample Date		26-SEP-00	
Sample Depth			
Parameter	Units	Result	Qual
NITROAROMATICS			
DNT	ug/L	**13800**	
3-NT	ug/L	27.8	
4-NT	ug/L	8.35	
TNT	ug/L	**50.9**	
VOLATILES			
Chloromethane	ug/L	**0.53**	J
Methylene chloride	ug/L	0.89	B
SEMIVOLATILES			
Dinitrotoluene, 2,4-	ug/L	**5750**	
Dinitrotoluene, 2,6-	ug/L	**5610**	
METALS			
Aluminum (F)	ug/L	38.4	B
Aluminum	ug/L	465	
Barium (F)	ug/L	22.2	
Barium	ug/L	23.4	
Cadmium (F)	ug/L	0.702	J
Cadmium	ug/L	0.751	J
Calcium (F)	ug/L	240000	
Calcium	ug/L	237000	
Chromium	ug/L	1.24	J
Cobalt (F)	ug/L	5.42	
Cobalt	ug/L	5.73	
Copper (F)	ug/L	3.52	B
Copper	ug/L	4.53	B
Iron (F)	ug/L	39.1	B
Iron	ug/L	906	
Lead (F)	ug/L	2.03	B
Lead	ug/L	1.6	B
Magnesium (F)	ug/L	19300	
Magnesium	ug/L	20300	
Manganese (F)	ug/L	**2060**	
Manganese	ug/L	**1900**	
Nickel (F)	ug/L	8.84	
Nickel	ug/L	11	
Potassium (F)	ug/L	2210	
Potassium	ug/L	2210	
Sodium (F)	ug/L	7390	
Sodium	ug/L	6700	
Vanadium	ug/L	1.59	J
Zinc (F)	ug/L	25	
Zinc	ug/L	37.2	

Location		TNTA-GW08	
Sample No.		AA3008	
Sample Date		12-OCT-00	
Sample Depth			
Parameter	Units	Result	Qual
NITROAROMATICS			
DNT	ug/L	**30.9**	
2-NT	ug/L	**115**	
3-NT	ug/L	7.62	
4-NT	ug/L	28.6	
VOLATILES			
Methylene chloride	ug/L	0.59	B
Toluene	ug/L	1.11	
SEMIVOLATILES			
Di-n-butyl phthalate	ug/L	1.8	B
Dinitrotoluene, 2,4-	ug/L	**15.6**	
Dinitrotoluene, 2,6-	ug/L	**11.8**	
METALS			
Aluminum	ug/L	19600	
Arsenic	ug/L	**19**	
Barium	ug/L	198	
Beryllium	ug/L	2.99	
Cadmium	ug/L	3.54	
Calcium	ug/L	144000	
Chromium	ug/L	28.1	
Cobalt	ug/L	49	
Copper	ug/L	117	
Iron	ug/L	**32000**	
Lead	ug/L	**451**	
Magnesium	ug/L	20600	
Manganese	ug/L	**1460**	
Mercury	ug/L	0.23	
Nickel	ug/L	103	
Potassium	ug/L	5220	
Sodium	ug/L	6350	
Vanadium	ug/L	44	
Zinc	ug/L	706	

Location		TNTA-GW07	
Sample No.		AA3007	
Sample Date		11-OCT-00	
Sample Depth			
Parameter	Units	Result	Qual
NITROAROMATICS			
4A-2,6-DNT	ug/L	0.629	
2A-4,6-DNT	ug/L	0.937	
DNT	ug/L	0.526	
TNT	ug/L	0.451	
VOLATILES			
Carbon disulfide	ug/L	0.86	J
Methylene chloride	ug/L	0.75	B
SEMIVOLATILES			
Di-n-butyl phthalate	ug/L	1.79	B
METALS			
Aluminum	ug/L	144	J
Barium	ug/L	59.2	
Beryllium	ug/L	0.175	J
Calcium	ug/L	525000	
Chromium	ug/L	1.11	J
Cobalt	ug/L	48.7	
Copper	ug/L	1.62	B
Iron	ug/L	15400	
Lead	ug/L	2.13	J
Magnesium	ug/L	130000	
Manganese	ug/L	2560	
Nickel	ug/L	98.9	
Potassium	ug/L	2930	
Sodium	ug/L	8550	
Zinc	ug/L	53.6	

NO	DATE	REVISION	BY	CHKD	DSGN ENGR	ENGR	PROJ MGR	APPR

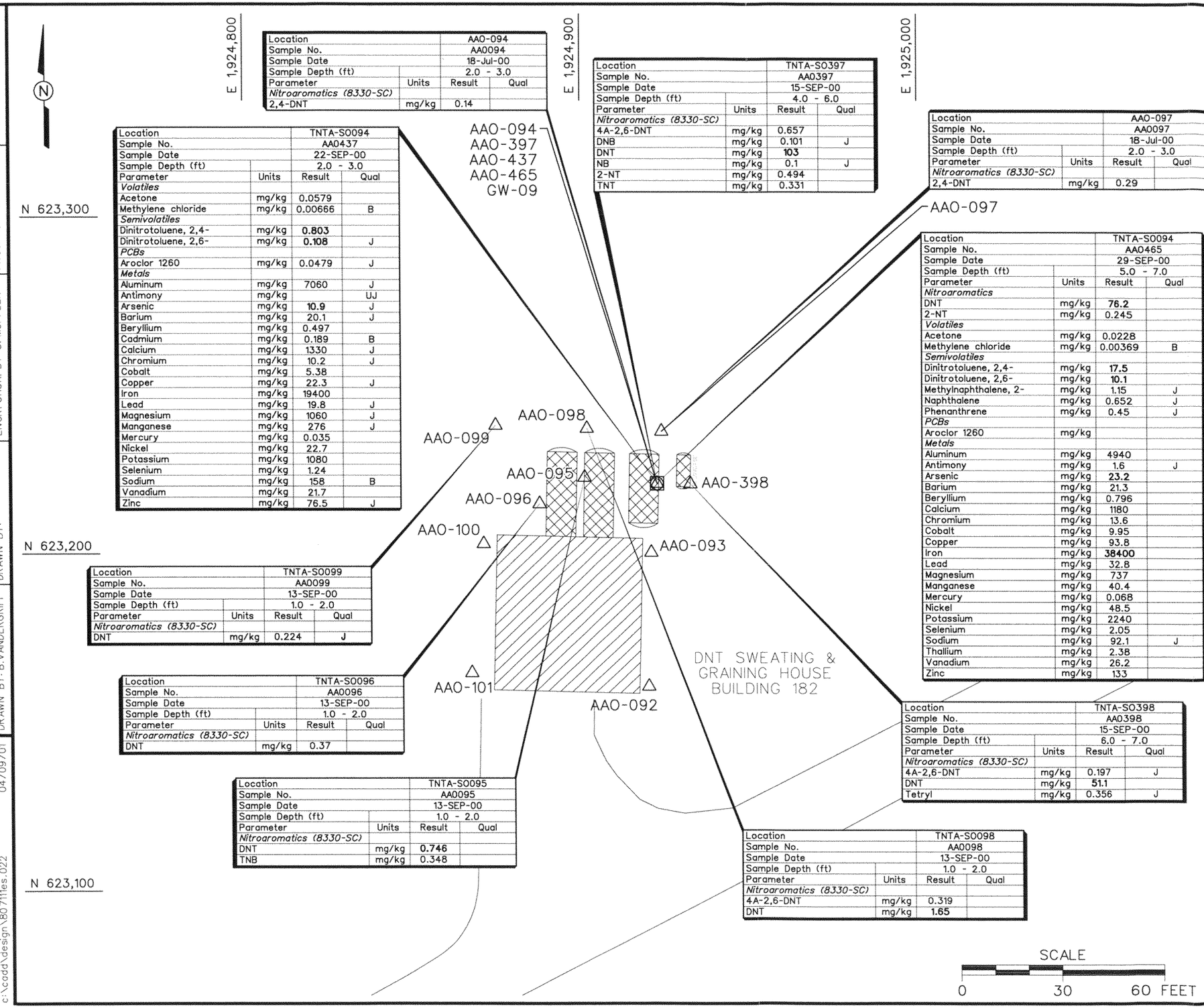
STARTING DATE 01/23/01 | INITIATOR D. KESSLER | CHKD | DRAWN VANDERGRIFF | CHKD TUMLIN | PROJECT MNGR M. SPANGBERG

IT CORPORATION
A Member of The IT Group
KNOXVILLE, TENNESSEE

FIGURE 2-2
ON-SITE GROUNDWATER SAMPLE LOCATIONS AND ANALYTICAL RESULTS

TNT AREA A
FORMER PLUM BROOK ORDNANCE WORKS
SANDUSKY, OHIO

AREA	JOB NO.	DRAWING NO.	REV
	807111	807111ES.044	



Location		AA0-094	
Sample No.		AA0094	
Sample Date		18-Jul-00	
Sample Depth (ft)		2.0 - 3.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.14	

Location		TNTA-S0094	
Sample No.		AA0437	
Sample Date		22-SEP-00	
Sample Depth (ft)		2.0 - 3.0	
Parameter	Units	Result	Qual
Volatiles			
Acetone	mg/kg	0.0579	
Methylene chloride	mg/kg	0.00666	B
Semivolatiles			
Dinitrotoluene, 2,4-	mg/kg	**0.803**	
Dinitrotoluene, 2,6-	mg/kg	**0.108**	J
PCBs			
Aroclor 1260	mg/kg	0.0479	J
Metals			
Aluminum	mg/kg	7060	J
Antimony	mg/kg		UJ
Arsenic	mg/kg	**10.9**	J
Barium	mg/kg	20.1	J
Beryllium	mg/kg	0.497	
Cadmium	mg/kg	0.189	B
Calcium	mg/kg	1330	J
Chromium	mg/kg	10.2	J
Cobalt	mg/kg	5.38	
Copper	mg/kg	22.3	J
Iron	mg/kg	19400	
Lead	mg/kg	19.8	J
Magnesium	mg/kg	1060	J
Manganese	mg/kg	276	J
Mercury	mg/kg	0.035	
Nickel	mg/kg	22.7	
Potassium	mg/kg	1080	
Selenium	mg/kg	1.24	
Sodium	mg/kg	158	B
Vanadium	mg/kg	21.7	
Zinc	mg/kg	76.5	J

Location		TNTA-S0397	
Sample No.		AA0397	
Sample Date		15-SEP-00	
Sample Depth (ft)		4.0 - 6.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
4A-2,6-DNT	mg/kg	0.657	
DNB	mg/kg	0.101	J
DNT	mg/kg	**103**	
NB	mg/kg	0.1	J
2-NT	mg/kg	0.494	
TNT	mg/kg	0.331	

Location		AA0-097	
Sample No.		AA0097	
Sample Date		18-Jul-00	
Sample Depth (ft)		2.0 - 3.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.29	

Location		TNTA-S0094	
Sample No.		AA0465	
Sample Date		29-SEP-00	
Sample Depth (ft)		5.0 - 7.0	
Parameter	Units	Result	Qual
Nitroaromatics			
DNT	mg/kg	**76.2**	
2-NT	mg/kg	0.245	
Volatiles			
Acetone	mg/kg	0.0228	
Methylene chloride	mg/kg	0.00369	B
Semivolatiles			
Dinitrotoluene, 2,4-	mg/kg	**17.5**	
Dinitrotoluene, 2,6-	mg/kg	**10.1**	
Methylnaphthalene, 2-	mg/kg	1.15	J
Naphthalene	mg/kg	0.652	J
Phenanthrene	mg/kg	0.45	J
PCBs			
Aroclor 1260	mg/kg		
Metals			
Aluminum	mg/kg	4940	
Antimony	mg/kg	1.6	J
Arsenic	mg/kg	**23.2**	
Barium	mg/kg	21.3	
Beryllium	mg/kg	0.796	
Calcium	mg/kg	1180	
Chromium	mg/kg	13.6	
Cobalt	mg/kg	9.95	
Copper	mg/kg	93.8	
Iron	mg/kg	**38400**	
Lead	mg/kg	32.8	
Magnesium	mg/kg	737	
Manganese	mg/kg	40.4	
Mercury	mg/kg	0.068	
Nickel	mg/kg	48.5	
Potassium	mg/kg	2240	
Selenium	mg/kg	2.05	
Sodium	mg/kg	92.1	J
Thallium	mg/kg	2.38	
Vanadium	mg/kg	26.2	
Zinc	mg/kg	133	

Location		TNTA-S0099	
Sample No.		AA0099	
Sample Date		13-SEP-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
DNT	mg/kg	0.224	J

Location		TNTA-S0096	
Sample No.		AA0096	
Sample Date		13-SEP-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
DNT	mg/kg	0.37	

Location		TNTA-S0398	
Sample No.		AA0398	
Sample Date		15-SEP-00	
Sample Depth (ft)		6.0 - 7.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
4A-2,6-DNT	mg/kg	0.197	J
DNT	mg/kg	**51.1**	
Tetryl	mg/kg	0.356	J

Location		TNTA-S0095	
Sample No.		AA0095	
Sample Date		13-SEP-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
DNT	mg/kg	**0.746**	
TNB	mg/kg	0.348	

Location		TNTA-S0098	
Sample No.		AA0098	
Sample Date		13-SEP-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
4A-2,6-DNT	mg/kg	0.319	
DNT	mg/kg	**1.65**	

LEGEND:

△ AA0-092	SCREENING SOIL SAMPLING LOCATION
○ GW-09	GROUNDWATER SAMPLING LOCATION
□ AA0-437	CONFIRMATION SOIL SAMPLING LOCATION
	TANK
	BUILDING

NOTES:

1. ANALYTICAL RESULTS EXCEEDING REGION 9 PRELIMINARY REMEDIATION GOALS ARE SHOWN IN BOLD TEXT.
2. SAMPLES WITH NO POSTED DATA ARE BELOW QUANTITATION LIMITS FOR ALL NITROAROMATICS.
3. ALL CONFIRMATION SAMPLING LOCATIONS WERE SURVEYED.
4. NITROAROMATICS (8330-SC) INDICATES SCREENING ANALYSES.
5. SAMPLING DEPTHS

SAMPLE	DEPTH (FT)
AA0092	2.0 - 3.0
AA0093	2.5 - 3.5
AA0094	2.0 - 3.0
AA0095	1.0 - 2.0
AA0096	1.0 - 2.0
AA0097	2.0 - 3.0
AA0098	1.0 - 2.0
AA0099	1.0 - 2.0
AA0100	1.0 - 2.0
AA0101	1.0 - 2.0
AA0397	4.0 - 6.0
AA0398	6.0 - 7.0
AA0437	2.0 - 3.0
AA0438	2.0 - 3.0
AA0439	2.0 - 3.0
AA0465	5.0 - 7.0

FIGURE 2-3
TNT AREA A
BUILDING 182 DNT SWEATING & GRAINING HOUSE
SAMPLE LOCATIONS AND ANALYTICAL RESULTS

PLUM BROOK ORDNANCE WORKS
NASA PLUM BROOK STATION
SANDUSKY, OHIO

IT CORPORATION
A Member of The IT Group

DWG. NO.: ...\807111es.022 | PROJ. NO.: 807111
INITIATOR: GUNDERSON | PROJ. MGR.: SPANGBERG
DRAFT. CHCK. BY: C. TUMLIN | ENGR. CHCK. BY: S. MUFFLER
DATE LAST REV.: | DRAWN BY:
STARTING DATE: 08/16/00 | DRAWN BY: B.VANDERGRIFF
01:03:37 04/09/01
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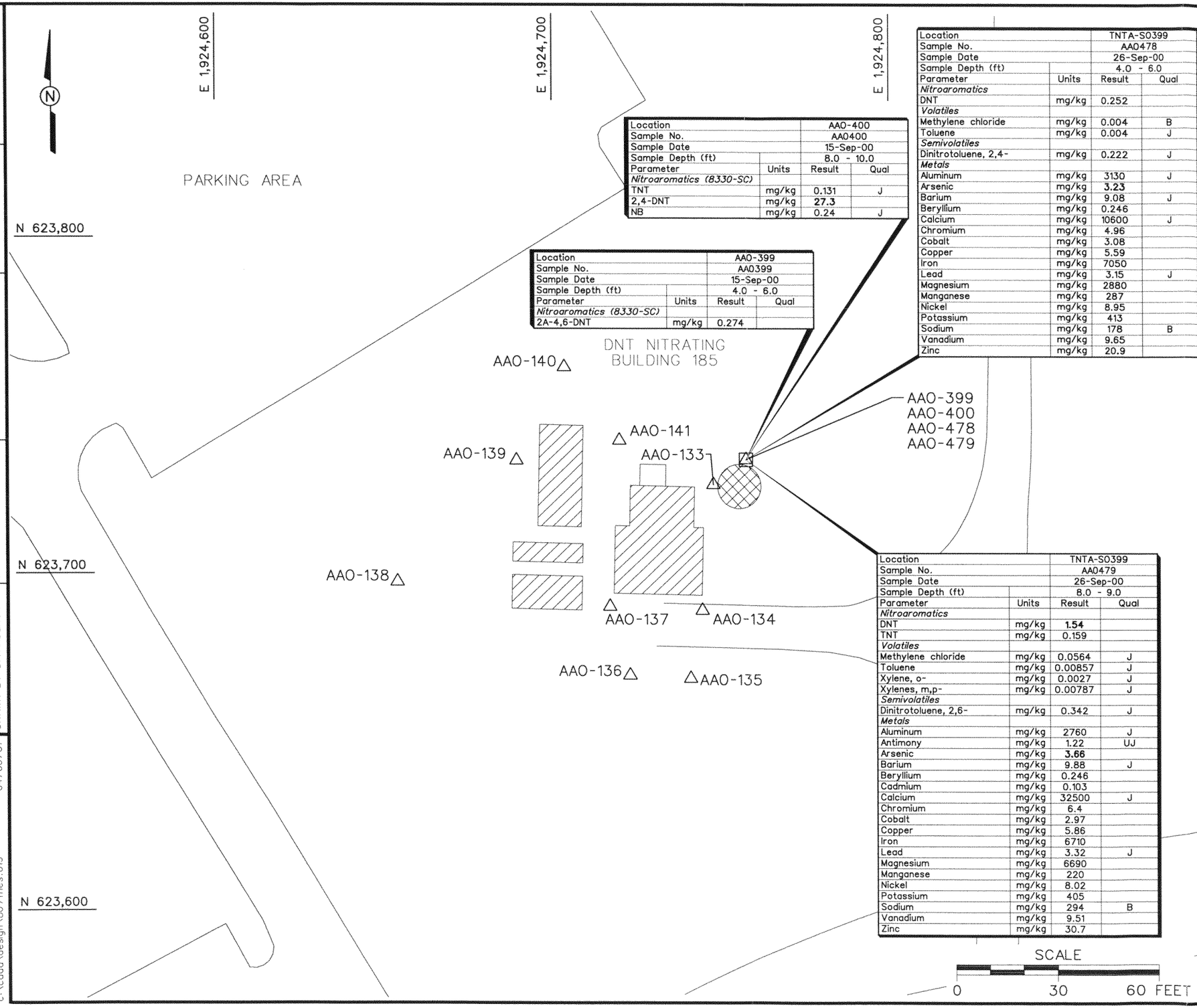

Location		AA0-400	
Sample No.		AA0400	
Sample Date		15-Sep-00	
Sample Depth (ft)		8.0 - 10.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.131	J
2,4-DNT	mg/kg	**27.3**	
NB	mg/kg	0.24	J

Location		AA0-399	
Sample No.		AA0399	
Sample Date		15-Sep-00	
Sample Depth (ft)		4.0 - 6.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2A-4,6-DNT	mg/kg	0.274	

Location		TNTA-S0399	
Sample No.		AA0478	
Sample Date		26-Sep-00	
Sample Depth (ft)		4.0 - 6.0	
Parameter	Units	Result	Qual
Nitroaromatics			
DNT	mg/kg	0.252	
Volatiles			
Methylene chloride	mg/kg	0.004	B
Toluene	mg/kg	0.004	J
Semivolatiles			
Dinitrotoluene, 2,4-	mg/kg	0.222	J
Metals			
Aluminum	mg/kg	3130	J
Arsenic	mg/kg	**3.23**	
Barium	mg/kg	9.08	J
Beryllium	mg/kg	0.246	
Calcium	mg/kg	10600	J
Chromium	mg/kg	4.96	
Cobalt	mg/kg	3.08	
Copper	mg/kg	5.59	
Iron	mg/kg	7050	
Lead	mg/kg	3.15	J
Magnesium	mg/kg	2880	
Manganese	mg/kg	287	
Nickel	mg/kg	8.95	
Potassium	mg/kg	413	
Sodium	mg/kg	178	B
Vanadium	mg/kg	9.65	
Zinc	mg/kg	20.9	

Location		TNTA-S0399	
Sample No.		AA0479	
Sample Date		26-Sep-00	
Sample Depth (ft)		8.0 - 9.0	
Parameter	Units	Result	Qual
Nitroaromatics			
DNT	mg/kg	**1.54**	
TNT	mg/kg	0.159	
Volatiles			
Methylene chloride	mg/kg	0.0564	J
Toluene	mg/kg	0.00857	J
Xylene, o-	mg/kg	0.0027	J
Xylenes, m,p-	mg/kg	0.00787	J
Semivolatiles			
Dinitrotoluene, 2,6-	mg/kg	0.342	J
Metals			
Aluminum	mg/kg	2760	J
Antimony	mg/kg	1.22	UJ
Arsenic	mg/kg	**3.66**	
Barium	mg/kg	9.88	J
Beryllium	mg/kg	0.246	
Cadmium	mg/kg	0.103	
Calcium	mg/kg	32500	J
Chromium	mg/kg	6.4	
Cobalt	mg/kg	2.97	
Copper	mg/kg	5.86	
Iron	mg/kg	6710	
Lead	mg/kg	3.32	J
Magnesium	mg/kg	6690	
Manganese	mg/kg	220	
Nickel	mg/kg	8.02	
Potassium	mg/kg	405	
Sodium	mg/kg	294	B
Vanadium	mg/kg	9.51	
Zinc	mg/kg	30.7	

LEGEND:

△ AA0-133 — SCREENING SOIL SAMPLING LOCATION

□ AA0-478 — CONFIRMATION SOIL SAMPLING LOCATION

TANK

BUILDING

NOTES:

1. ANALYTICAL RESULTS EXCEEDING REGION 9 PRELIMINARY REMEDIATION GOALS ARE SHOWN IN BOLD TEXT.
2. SAMPLES WITH NO POSTED DATA ARE BELOW QUANTITATION LIMITS FOR ALL NITROAROMATICS.
3. ALL CONFIRMATION SAMPLING LOCATIONS WERE SURVEYED.
4. NITROAROMATICS (8330-SC) INDICATES SCREENING ANALYSES.
5. SAMPLING DEPTHS

SAMPLE	DEPTH (FT)
AA0133	1.0 - 2.0
AA0134	1.5 - 2.5
AA0135	2.0 - 3.0
AA0136	1.5 - 2.5
AA0137	1.2 - 2.2
AA0138	1.5 - 2.5
AA0139	1.0 - 2.0
AA0140	1.0 - 2.0
AA0141	1.0 - 2.0
AA0399	4.0 - 6.0
AA0400	8.0 - 10.0
AA0478	4.0 - 6.0
AA0479	8.0 - 10.0

FIGURE 2-4
TNT AREA A
BUILDING 185 DNT NITRATING
SAMPLE LOCATIONS AND
ANALYTICAL RESULTS

PLUM BROOK ORDNANCE WORKS
NASA PLUM BROOK STATION
SANDUSKY, OHIO

IT CORPORATION
A Member of The IT Group

DWG. NO.: ...\807111es.019 | PROJ. NO.: 807111
INITIATOR: GUNDERSON | PROJ. MGR.: SPANGBERG
DRAFT. CHCK. BY: C. TUMLIN | ENGR. CHCK. BY: S. MUFFLER
DATE LAST REV.: | DRAWN BY:
STARTING DATE: 08/16/00 | DRAWN BY: B.VANDERGRIFF
04:07:00 04/06/01
bvanderg
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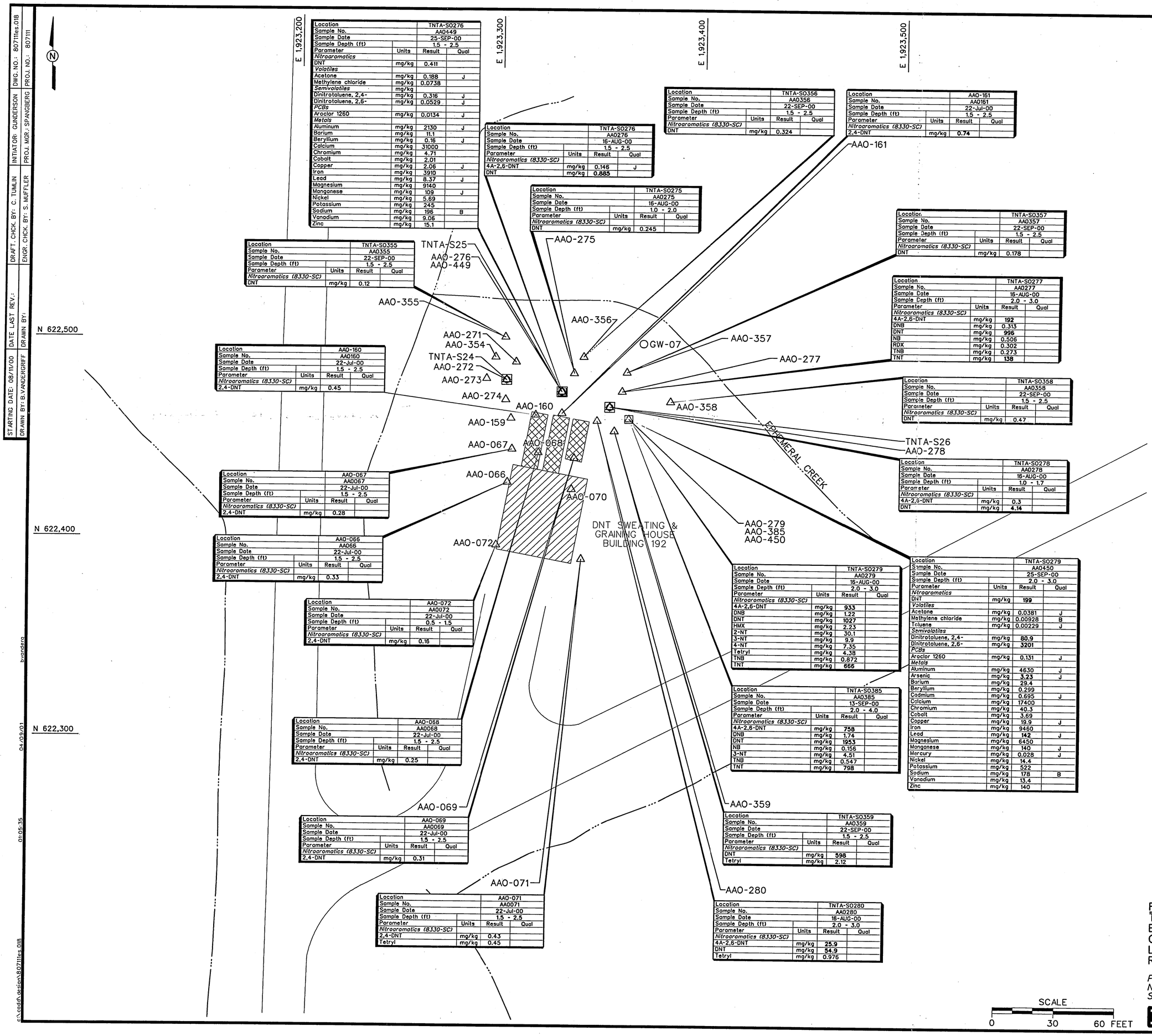

Location		TNTA-S0276	
Sample No.		AA0449	
Sample Date		25-SEP-00	
Sample Depth (ft)		1.5 - 2.5	
Parameter	Units	Result	Qual
Nitroaromatics			
DNT	mg/kg	0.411	
Volatiles			
Acetone	mg/kg	0.188	J
Methylene chloride	mg/kg	0.0738	
Semivolatiles	mg/kg		
Dinitrotoluene, 2,4-	mg/kg	0.316	J
Dinitrotoluene, 2,6-	mg/kg	0.0529	J
PCBs			
Aroclor 1260	mg/kg	0.0134	J
Metals			
Aluminum	mg/kg	2130	J
Barium	mg/kg	11.1	
Beryllium	mg/kg	0.16	J
Calcium	mg/kg	31000	
Chromium	mg/kg	4.71	
Cobalt	mg/kg	2.01	
Copper	mg/kg	2.06	J
Iron	mg/kg	3910	
Lead	mg/kg	8.37	J
Magnesium	mg/kg	9140	
Manganese	mg/kg	109	J
Nickel	mg/kg	5.69	
Potassium	mg/kg	245	
Sodium	mg/kg	196	B
Vanadium	mg/kg	9.06	
Zinc	mg/kg	15.1	

Location		TNTA-S0276	
Sample No.		AA0276	
Sample Date		16-AUG-00	
Sample Depth (ft)		1.5 - 2.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
4A-2,6-DNT	mg/kg	0.146	J
DNT	mg/kg	0.885	

Location		TNTA-S0275	
Sample No.		AA0275	
Sample Date		16-AUG-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
DNT	mg/kg	0.245	

Location		TNTA-S0355	
Sample No.		AA0355	
Sample Date		22-SEP-00	
Sample Depth (ft)		1.5 - 2.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
DNT	mg/kg	0.12	

Location		AAO-160	
Sample No.		AA0160	
Sample Date		22-Jul-00	
Sample Depth (ft)		1.5 - 2.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.45	

Location		AAO-067	
Sample No.		AA0067	
Sample Date		22-Jul-00	
Sample Depth (ft)		1.5 - 2.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.28	

Location		AAO-066	
Sample No.		AA066	
Sample Date		22-Jul-00	
Sample Depth (ft)		1.5 - 2.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.33	

Location		AAO-072	
Sample No.		AA0072	
Sample Date		22-Jul-00	
Sample Depth (ft)		0.5 - 1.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.16	

Location		AAO-068	
Sample No.		AA0068	
Sample Date		22-Jul-00	
Sample Depth (ft)		1.5 - 2.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.25	

Location		AAO-069	
Sample No.		AA0069	
Sample Date		22-Jul-00	
Sample Depth (ft)		1.5 - 2.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.31	

Location		AAO-071	
Sample No.		AA0071	
Sample Date		22-Jul-00	
Sample Depth (ft)		1.5 - 2.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.43	
Tetryl	mg/kg	0.45	

Location		TNTA-S0356	
Sample No.		AA0356	
Sample Date		22-SEP-00	
Sample Depth (ft)		1.5 - 2.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
DNT	mg/kg	0.324	

Location		AAO-161	
Sample No.		AA0161	
Sample Date		22-Jul-00	
Sample Depth (ft)		1.5 - 2.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.74	

Location		TNTA-S0357	
Sample No.		AA0357	
Sample Date		22-SEP-00	
Sample Depth (ft)		1.5 - 2.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
DNT	mg/kg	0.178	

Location		TNTA-S0277	
Sample No.		AA0277	
Sample Date		16-AUG-00	
Sample Depth (ft)		2.0 - 3.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
4A-2,6-DNT	mg/kg	192	
DNB	mg/kg	0.313	
DNT	mg/kg	996	
NB	mg/kg	0.506	
RDX	mg/kg	0.302	
TNB	mg/kg	0.273	
TNT	mg/kg	138	

Location		TNTA-S0358	
Sample No.		AA0358	
Sample Date		22-SEP-00	
Sample Depth (ft)		1.5 - 2.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
DNT	mg/kg	0.47	

Location		TNTA-S0278	
Sample No.		AA0278	
Sample Date		16-AUG-00	
Sample Depth (ft)		1.0 - 1.7	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
4A-2,6-DNT	mg/kg	0.3	
DNT	mg/kg	4.14	

Location		TNTA-S0279	
Sample No.		AA0279	
Sample Date		16-AUG-00	
Sample Depth (ft)		2.0 - 3.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
4A-2,6-DNT	mg/kg	933	
DNB	mg/kg	1.22	
DNT	mg/kg	1027	
HMX	mg/kg	2.23	
2-NT	mg/kg	30.1	
3-NT	mg/kg	9.9	
4-NT	mg/kg	7.35	
Tetryl	mg/kg	4.38	
TNB	mg/kg	0.872	
TNT	mg/kg	666	

Location		TNTA-S0279	
Sample No.		AA0450	
Sample Date		25-SEP-00	
Sample Depth (ft)		2.0 - 3.0	
Parameter	Units	Result	Qual
Nitroaromatics			
DNT	mg/kg	199	
Volatiles			
Acetone	mg/kg	0.0381	J
Methylene chloride	mg/kg	0.00928	B
Toluene	mg/kg	0.00229	J
Semivolatiles			
Dinitrotoluene, 2,4-	mg/kg	80.9	
Dinitrotoluene, 2,6-	mg/kg	3201	
PCBs			
Aroclor 1260	mg/kg	0.131	J
Metals			
Aluminum	mg/kg	4630	J
Arsenic	mg/kg	3.23	J
Barium	mg/kg	29.4	
Beryllium	mg/kg	0.299	
Cadmium	mg/kg	0.695	J
Calcium	mg/kg	17400	
Chromium	mg/kg	40.3	
Cobalt	mg/kg	3.69	
Copper	mg/kg	19.9	J
Iron	mg/kg	9460	
Lead	mg/kg	142	J
Magnesium	mg/kg	6450	
Manganese	mg/kg	140	J
Mercury	mg/kg	0.028	J
Nickel	mg/kg	14.4	
Potassium	mg/kg	522	
Sodium	mg/kg	178	B
Vanadium	mg/kg	13.4	
Zinc	mg/kg	140	

Location		TNTA-S0385	
Sample No.		AA0385	
Sample Date		13-SEP-00	
Sample Depth (ft)		2.0 - 4.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
4A-2,6-DNT	mg/kg	758	
DNB	mg/kg	1.74	
DNT	mg/kg	1953	
NB	mg/kg	0.156	
3-NT	mg/kg	4.51	
TNB	mg/kg	0.547	
TNT	mg/kg	798	

Location		TNTA-S0359	
Sample No.		AA0359	
Sample Date		22-SEP-00	
Sample Depth (ft)		1.5 - 2.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
DNT	mg/kg	598	
Tetryl	mg/kg	2.12	

Location		TNTA-S0280	
Sample No.		AA0280	
Sample Date		16-AUG-00	
Sample Depth (ft)		2.0 - 3.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
4A-2,6-DNT	mg/kg	25.9	
DNT	mg/kg	54.9	
Tetryl	mg/kg	0.976	

LEGEND:

△ AAO-066	SCREENING SOIL SAMPLING LOCATION
○ GW-07	GROUNDWATER SAMPLING LOCATION
□ AAO-450	CONFIRMATION SOIL SAMPLING LOCATION
⊡ TNTA-S24	HISTORICAL SOIL BORING LOCATION WITH EXPLOSIVES DETECTION
	TANK
	BUILDING

NOTES:

1. ANALYTICAL RESULTS EXCEEDING REGION 9 PRELIMINARY REMEDIATION GOALS ARE SHOWN IN BOLD TEXT.
2. SAMPLES WITH NO POSTED DATA ARE BELOW QUANTITATION LIMITS FOR ALL NITROAROMATICS.
3. ALL CONFIRMATION SAMPLING LOCATIONS WERE SURVEYED.
4. NITROAROMATICS (8330-SC) INDICATES SCREENING ANALYSES.
5. SAMPLING DEPTHS

SAMPLE	DEPTH (FT)
AA0066	1.5 - 2.5
AA0067	1.5 - 2.5
AA0068	1.3 - 2.3
AA0069	1.0 - 2.0
AA0070	1.6 - 2.6
AA0071	1.5 - 2.5
AA0072	1.5 - 2.5
AA0159	1.5 - 2.5
AA0160	1.5 - 2.5
AA0161	1.5 - 2.5
AA0271	1.6 - 2.6
AA0272	2.0 - 3.0
AA0273	2.0 - 3.0
AA0274	2.0 - 3.0
AA0275	1.0 - 2.0
AA0276	1.5 - 2.5
AA0277	2.0 - 3.0
AA0278	1.0 - 1.75
AA0279	2.0 - 3.0
AA0280	2.0 - 3.0
AA0354	1.5 - 2.5
AA0355	1.5 - 2.5
AA0356	1.5 - 2.5
AA0357	1.5 - 2.5
AA0359	1.5 - 2.5
AA0385	2.0 - 4.0
AA0449	1.5 - 2.5
AA0450	2.0 - 3.0

FIGURE 2-5
TNT AREA A
BUILDING 192 DNT SWEATING & GRAINING HOUSE, SAMPLE LOCATIONS AND ANALYTICAL RESULTS

PLUM BROOK ORDNANCE WORKS
NASA PLUM BROOK STATION
SANDUSKY, OHIO

SCALE
0 30 60 FEET

IT CORPORATION
A Member of The IT Group

STARTING DATE: 08/11/00 | DATE LAST REV.: | DRAFT: CHCK. BY: C. TUMLIN | INITIATOR: GUNDERSON | DWG. NO.: 807111es.018
DRAWN BY: B.VANDERGRIFF | DRAWN BY: | ENGR. CHCK. BY: S. MUFFLER | PROJ. MGR.: SPANGBERG | PROJ. NO.: 807111

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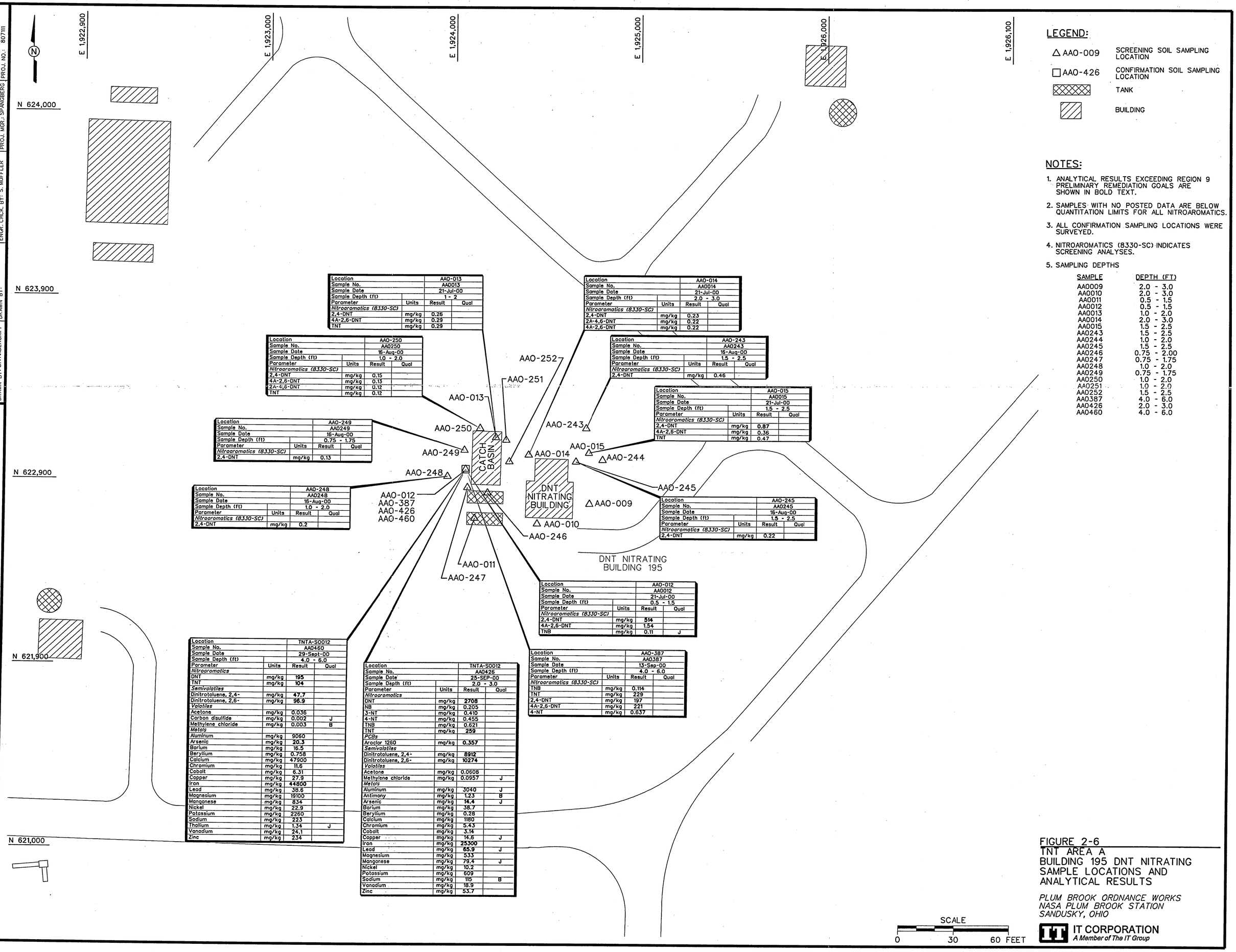

Location		AAO-013	
Sample No.		AA0013	
Sample Date		21-Jul-00	
Sample Depth (ft)		1 - 2	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.26	
4A-2,6-DNT	mg/kg	0.29	
TNT	mg/kg	0.29	

Location		AAO-014	
Sample No.		AA0014	
Sample Date		21-Jul-00	
Sample Depth (ft)		2.0 - 3.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.23	
2A-4,6-DNT	mg/kg	0.22	
4A-2,6-DNT	mg/kg	0.22	

Location		AAO-250	
Sample No.		AA0250	
Sample Date		16-Aug-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.15	
4A-2,6-DNT	mg/kg	0.13	
2A-4,6-DNT	mg/kg	0.12	
TNT	mg/kg	0.12	

Location		AAO-243	
Sample No.		AA0243	
Sample Date		16-Aug-00	
Sample Depth (ft)		1.5 - 2.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.46	

Location		AAO-015	
Sample No.		AA0015	
Sample Date		21-Jul-00	
Sample Depth (ft)		1.5 - 2.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.87	
4A-2,6-DNT	mg/kg	0.36	
TNT	mg/kg	0.47	

Location		AAO-249	
Sample No.		AA0249	
Sample Date		16-Aug-00	
Sample Depth (ft)		0.75 - 1.75	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.13	

Location		AAO-248	
Sample No.		AA0248	
Sample Date		16-Aug-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.2	

Location		AAO-245	
Sample No.		AA0245	
Sample Date		16-Aug-00	
Sample Depth (ft)		1.5 - 2.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.22	

Location		AAO-012	
Sample No.		AA0012	
Sample Date		21-Jul-00	
Sample Depth (ft)		0.5 - 1.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	**514**	
4A-2,6-DNT	mg/kg	1.54	
TNB	mg/kg	0.11	J

Location		TNTA-S0012	
Sample No.		AA0460	
Sample Date		29-Sept-00	
Sample Depth (ft)		4.0 - 6.0	
Parameter	Units	Result	Qual
Nitroaromatics			
DNT	mg/kg	**195**	
TNT	mg/kg	**104**	
Semivolatiles			
Dinitrotoluene, 2,4-	mg/kg	**47.7**	
Dinitrotoluene, 2,6-	mg/kg	**96.9**	
Volatiles			
Acetone	mg/kg	0.036	
Carbon disulfide	mg/kg	0.002	J
Methylene chloride	mg/kg	0.003	B
Metals			
Aluminum	mg/kg	9060	
Arsenic	mg/kg	**20.3**	
Barium	mg/kg	16.5	
Beryllium	mg/kg	0.758	
Calcium	mg/kg	47900	
Chromium	mg/kg	11.6	
Cobalt	mg/kg	6.31	
Copper	mg/kg	27.9	
Iron	mg/kg	**44800**	
Lead	mg/kg	38.6	
Magnesium	mg/kg	19100	
Manganese	mg/kg	834	
Nickel	mg/kg	22.9	
Potassium	mg/kg	2260	
Sodium	mg/kg	223	
Thallium	mg/kg	1.34	J
Vanadium	mg/kg	24.1	
Zinc	mg/kg	234	

Location		TNTA-S0012	
Sample No.		AA0426	
Sample Date		25-SEP-00	
Sample Depth (ft)		2.0 - 3.0	
Parameter	Units	Result	Qual
Nitroaromatics			
DNT	mg/kg	**2708**	
NB	mg/kg	0.205	
3-NT	mg/kg	0.410	
4-NT	mg/kg	0.455	
TNB	mg/kg	0.621	
TNT	mg/kg	**259**	
PCBs			
Aroclor 1260	mg/kg	**0.357**	
Semivolatiles			
Dinitrotoluene, 2,4-	mg/kg	**8912**	
Dinitrotoluene, 2,6-	mg/kg	**10274**	
Volatiles			
Acetone	mg/kg	0.0608	
Methylene chloride	mg/kg	0.0957	J
Metals			
Aluminum	mg/kg	3040	J
Antimony	mg/kg	1.23	B
Arsenic	mg/kg	**14.4**	J
Barium	mg/kg	38.7	
Beryllium	mg/kg	0.28	
Calcium	mg/kg	1180	
Chromium	mg/kg	5.43	
Cobalt	mg/kg	3.14	
Copper	mg/kg	14.6	J
Iron	mg/kg	**25300**	
Lead	mg/kg	**65.9**	J
Magnesium	mg/kg	533	
Manganese	mg/kg	79.4	J
Nickel	mg/kg	10.2	
Potassium	mg/kg	609	
Sodium	mg/kg	115	B
Vanadium	mg/kg	18.9	
Zinc	mg/kg	53.7	

Location		AAO-387	
Sample No.		AA0387	
Sample Date		13-Sep-00	
Sample Depth (ft)		4.0 - 6.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNB	mg/kg	0.114	
TNT	mg/kg	229	
2,4-DNT	mg/kg	197	
4A-2,6-DNT	mg/kg	221	
4-NT	mg/kg	0.637	

LEGEND:

△ AAO-009	SCREENING SOIL SAMPLING LOCATION
□ AAO-426	CONFIRMATION SOIL SAMPLING LOCATION
	TANK
	BUILDING

NOTES:

1. ANALYTICAL RESULTS EXCEEDING REGION 9 PRELIMINARY REMEDIATION GOALS ARE SHOWN IN BOLD TEXT.
2. SAMPLES WITH NO POSTED DATA ARE BELOW QUANTITATION LIMITS FOR ALL NITROAROMATICS.
3. ALL CONFIRMATION SAMPLING LOCATIONS WERE SURVEYED.
4. NITROAROMATICS (8330-SC) INDICATES SCREENING ANALYSES.
5. SAMPLING DEPTHS

SAMPLE	DEPTH (FT)
AA0009	2.0 - 3.0
AA0010	2.0 - 3.0
AA0011	0.5 - 1.5
AA0012	0.5 - 1.5
AA0013	1.0 - 2.0
AA0014	2.0 - 3.0
AA0015	1.5 - 2.5
AA0243	1.5 - 2.5
AA0244	1.0 - 2.0
AA0245	1.5 - 2.5
AA0246	0.75 - 2.00
AA0247	0.75 - 1.75
AA0248	1.0 - 2.0
AA0249	0.75 - 1.75
AA0250	1.0 - 2.0
AA0251	1.0 - 2.0
AA0252	1.5 - 2.5
AA0387	4.0 - 6.0
AA0426	2.0 - 3.0
AA0460	4.0 - 6.0

FIGURE 2-6
TNT AREA A
BUILDING 195 DNT NITRATING
SAMPLE LOCATIONS AND
ANALYTICAL RESULTS

PLUM BROOK ORDNANCE WORKS
NASA PLUM BROOK STATION
SANDUSKY, OHIO

IT CORPORATION
A Member of The IT Group

STARTING DATE: 08/01/00	DATE LAST REV.:	DRAFT. CHCK. BY: C. TUMLIN	INITIATOR: GUNDERSON
DRAWN BY: B.VANDERGRIFF	DRAWN BY:	ENGR. CHCK. BY: S. MUFFLER	PROJ. MGR.: SPANGBERG
			DWG. NO.: 807111ES.008
			PROJ. NO.: 807111

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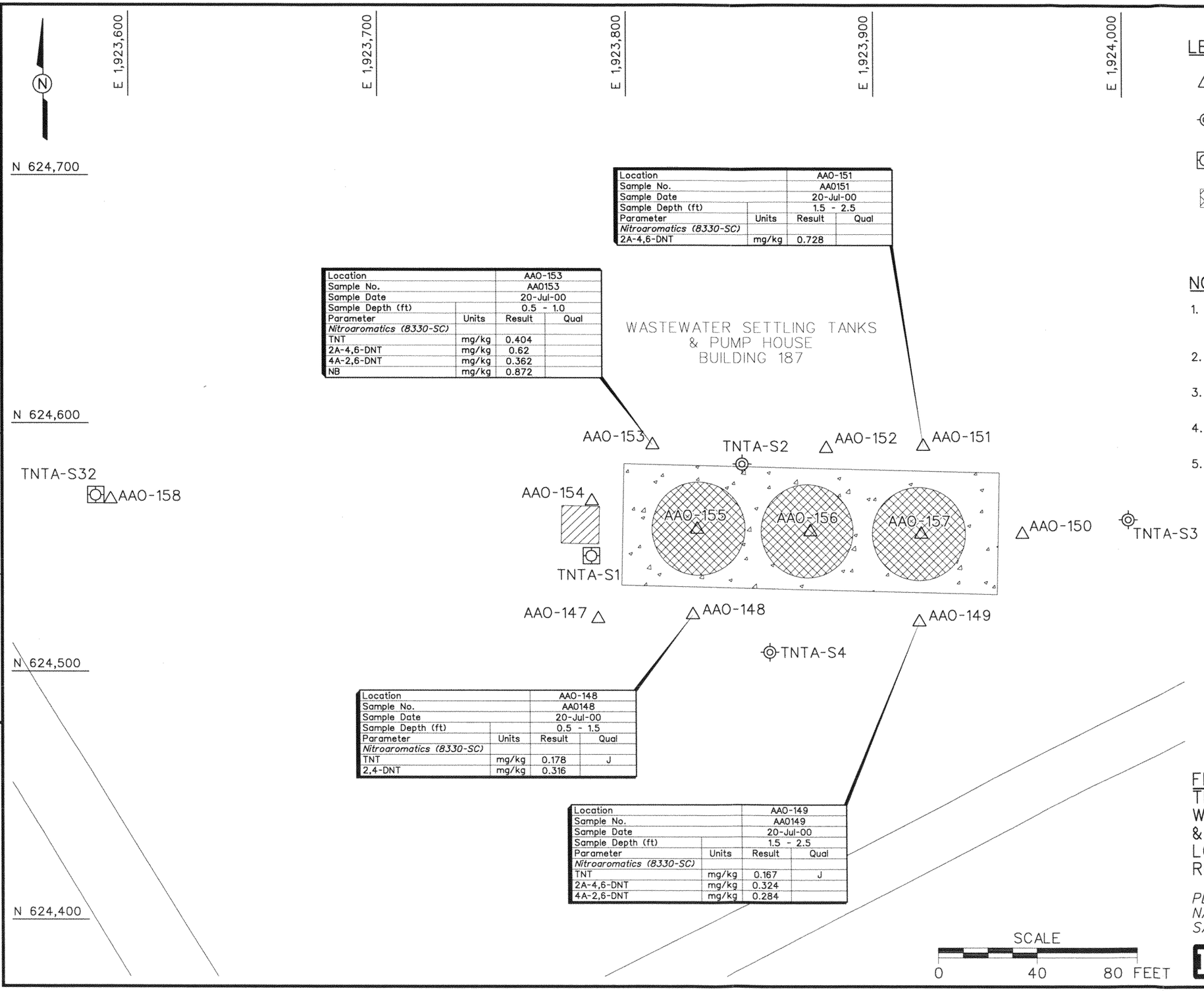

Location		AAO-151	
Sample No.		AA0151	
Sample Date		20-Jul-00	
Sample Depth (ft)		1.5 - 2.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2A-4,6-DNT	mg/kg	0.728	

Location		AAO-153	
Sample No.		AA0153	
Sample Date		20-Jul-00	
Sample Depth (ft)		0.5 - 1.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.404	
2A-4,6-DNT	mg/kg	0.62	
4A-2,6-DNT	mg/kg	0.362	
NB	mg/kg	0.872	

Location		AAO-148	
Sample No.		AA0148	
Sample Date		20-Jul-00	
Sample Depth (ft)		0.5 - 1.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.178	J
2,4-DNT	mg/kg	0.316	

Location		AAO-149	
Sample No.		AA0149	
Sample Date		20-Jul-00	
Sample Depth (ft)		1.5 - 2.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.167	J
2A-4,6-DNT	mg/kg	0.324	
4A-2,6-DNT	mg/kg	0.284	

LEGEND:

△ AAO-147	SCREENING SURFACE SOIL SAMPLING LOCATION
TNTA-S2	HISTORICAL SOIL BORING LOCATION
TNTA-S1	HISTORICAL SOIL BORING LOCATION WITH EXPLOSIVES DETECTION
	TANK
	BUILDING

NOTES:

1. ANALYTICAL RESULTS EXCEEDING REGION 9 PRELIMINARY REMEDIATION GOALS ARE SHOWN IN BOLD TEXT.
2. SAMPLES WITH NO POSTED DATA ARE BELOW QUANTITATION LIMITS FOR ALL NITROAROMATICS.
3. ALL CONFIRMATION SAMPLING LOCATIONS WERE SURVEYED.
4. NITROAROMATICS (8330-SC) INDICATES SCREENING ANALYSES.
5. SAMPLING DEPTHS

SAMPLE	DEPTH (FT)
AA0147	2.0 - 3.0
AA0148	0.5 - 1.5
AA0149	1.5 - 2.5
AA0150	0.5 - 1.5
AA0151	1.5 - 2.5
AA0152	0.5 - 1.5
AA0153	0.5 - 1.0
AA0154	0.5 - 1.5
AA0155	0.5 - 1.5
AA0156	0.5 - 1.0
AA0157	0.5 - 1.0
AA0158	0.0 - 1.0

FIGURE 2-7
TNT AREA A, BUILDING 187
WASTEWATER SETTLING TANKS
& PUMP HOUSE, SAMPLE
LOCATIONS AND ANALYTICAL
RESULTS

PLUM BROOK ORDNANCE WORKS
NASA PLUM BROOK STATION
SANDUSKY, OHIO

IT CORPORATION
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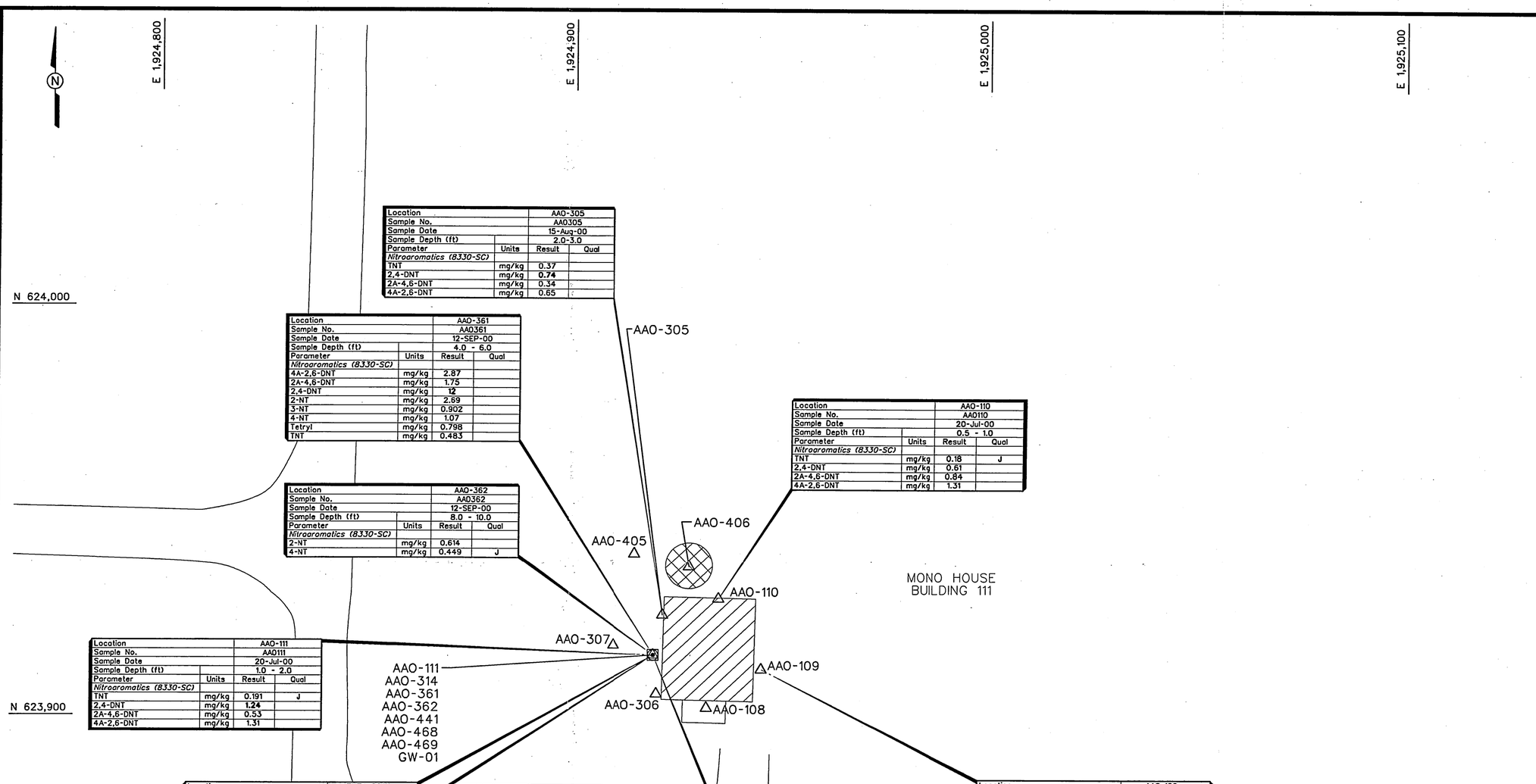
DWG. NO.:...\807111es.040
PROJ. NO.: 807111
INITIATOR: GUNDERSON
PROJ. MGR.: SPANGBERG
DRAFT. CHCK. BY: C. TUMLIN
ENGR. CHCK. BY: S. MUFFLER
DATE LAST REV.:
DRAWN BY:
STARTING DATE: 08/16/00
DRAWN BY: B.VANDERGRIFF
01:02:12
04/09/01
bvanderg
c:\cadd\design\807111es.040



Location		AAO-305	
Sample No.		AA0305	
Sample Date		15-Aug-00	
Sample Depth (ft)		2.0-3.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.37	
2,4-DNT	mg/kg	**0.74**	
2A-4,6-DNT	mg/kg	0.34	
4A-2,6-DNT	mg/kg	0.65	

Location		AAO-361	
Sample No.		AA0361	
Sample Date		12-SEP-00	
Sample Depth (ft)		4.0 - 6.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
4A-2,6-DNT	mg/kg	2.87	
2A-4,6-DNT	mg/kg	1.75	
2,4-DNT	mg/kg	**12**	
2-NT	mg/kg	2.69	
3-NT	mg/kg	0.902	
4-NT	mg/kg	1.07	
Tetryl	mg/kg	0.798	
TNT	mg/kg	0.483	

Location		AAO-362	
Sample No.		AA0362	
Sample Date		12-SEP-00	
Sample Depth (ft)		8.0 - 10.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2-NT	mg/kg	0.614	
4-NT	mg/kg	0.449	J

Location		AAO-110	
Sample No.		AA0110	
Sample Date		20-Jul-00	
Sample Depth (ft)		0.5 - 1.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.18	J
2,4-DNT	mg/kg	0.61	
2A-4,6-DNT	mg/kg	0.84	
4A-2,6-DNT	mg/kg	1.31	

Location		AAO-111	
Sample No.		AA0111	
Sample Date		20-Jul-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.191	J
2,4-DNT	mg/kg	**1.24**	
2A-4,6-DNT	mg/kg	0.53	
4A-2,6-DNT	mg/kg	1.31	

Location		TNTA-S0111	
Sample No.		AA0469	
Sample Date		28-SEP-00	
Sample Depth (ft)		8.0 - 10.0	
Parameter	Units	Result	Qual
Nitroaromatics			
DNT	mg/kg	0.17	
2-NT	mg/kg	0.38	
4-NT	mg/kg	0.423	
Volatiles			
Acetone	mg/kg	0.0221	J
Carbon disulfide	mg/kg	0.00917	
Methylene chloride	mg/kg	0.00612	B
Toluene	mg/kg	0.00196	J
Metals			
Aluminum	mg/kg	6630	J
Arsenic	mg/kg	**3.27**	
Barium	mg/kg	23	
Beryllium	mg/kg	0.398	
Calcium	mg/kg	1770	
Chromium	mg/kg	9.31	
Cobalt	mg/kg	3.64	
Copper	mg/kg	4.9	
Iron	mg/kg	10000	
Lead	mg/kg	9.55	
Magnesium	mg/kg	920	
Manganese	mg/kg	132	
Mercury	mg/kg	0.022	J
Nickel	mg/kg	8.67	
Potassium	mg/kg	425	
Sodium	mg/kg	145	B
Vanadium	mg/kg	18.2	
Zinc	mg/kg	29	

Location		TNTA-S0111	
Sample No.		AA0468	
Sample Date		28-SEP-00	
Sample Depth (ft)		4.0 - 6.0	
Parameter	Units	Result	Qual
Nitroaromatics			
4A-2,6-DNT	mg/kg	0.373	
DNT	mg/kg	**3.14**	
NB	mg/kg	0.0778	J
2-NT	mg/kg	1.41	
3-NT	mg/kg	0.476	
4-NT	mg/kg	0.376	
TNT	mg/kg	0.213	
Volatiles			
Methylene chloride	mg/kg	0.00714	B
Toluene	mg/kg	0.013	J
Semivolatiles			
Bis(2-ethylhexyl)phthalate	mg/kg	0.026	J
Dinitrotoluene, 2,4-	mg/kg	0.558	
Dinitrotoluene, 2,6-	mg/kg	0.208	J
PCBs			
Aroclor 1260	mg/kg	0.0125	J
Metals			
Aluminum	mg/kg	5670	J
Arsenic	mg/kg	**4.23**	
Barium	mg/kg	26.6	
Beryllium	mg/kg	0.346	
Cadmium	mg/kg	0.131	J
Calcium	mg/kg	3200	
Chromium	mg/kg	8.4	
Cobalt	mg/kg	2.97	
Copper	mg/kg	5.52	
Iron	mg/kg	9140	
Lead	mg/kg	21.7	
Magnesium	mg/kg	990	
Manganese	mg/kg	124	
Nickel	mg/kg	7.88	
Potassium	mg/kg	393	
Sodium	mg/kg	140	B
Vanadium	mg/kg	15.8	
Zinc	mg/kg	36.5	

Location		TNTA-S0111	
Sample No.		AA0441	
Sample Date		22-SEP-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Volatiles			
Acetone	mg/kg	0.0582	J
Butanone, 2-	mg/kg	0.0098	
Methylene chloride	mg/kg	0.00398	B
PCBs			
Aroclor 1260	mg/kg	0.133	J
Metals			
Aluminum	mg/kg	5530	J
Antimony	mg/kg	1.38	B
Arsenic	mg/kg	**4.11**	J
Barium	mg/kg	33.5	J
Beryllium	mg/kg	0.226	
Cadmium	mg/kg	0.518	B
Calcium	mg/kg	4080	J
Chromium	mg/kg	10.8	J
Cobalt	mg/kg	2.82	
Copper	mg/kg	18.4	J
Iron	mg/kg	10400	
Lead	mg/kg	122	J
Magnesium	mg/kg	1090	J
Manganese	mg/kg	230	J
Mercury	mg/kg	0.077	
Nickel	mg/kg	7.42	
Potassium	mg/kg	481	
Sodium	mg/kg	217	B
Vanadium	mg/kg	16.1	
Zinc	mg/kg	148	J

Location		AAO-109	
Sample No.		AA0109	
Sample Date		20-Jul-00	
Sample Depth (ft)		0.5 - 1.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNB	mg/kg	0.16	J
2,4-DNT	mg/kg	0.40	
2A-4,6-DNT	mg/kg	0.58	
4A-2,6-DNT	mg/kg	0.52	

LEGEND:

△ AAO-108	SCREENING SOIL SAMPLING LOCATION
• AAO-314	SURFACE SOIL SAMPLE (0 - 1 FT)
○ GW-01	GROUNDWATER SAMPLING LOCATION
□ AAO-441	CONFIRMATION SOIL SAMPLING LOCATION
	TANK
	BUILDING

NOTES:

1. ANALYTICAL RESULTS EXCEEDING REGION 9 PRELIMINARY REMEDIATION GOALS ARE SHOWN IN BOLD TEXT.
2. SAMPLES WITH NO POSTED DATA ARE BELOW QUANTITATION LIMITS FOR ALL NITROAROMATICS.
3. ALL CONFIRMATION SAMPLING LOCATIONS WERE SURVEYED.
4. NITROAROMATICS (8330-SC) INDICATES SCREENING ANALYSES.
5. SAMPLING DEPTHS

SAMPLE	DEPTH (FT)
AA0108	1.0 - 2.0
AA0109	0.5 - 1.5
AA0110	0.5 - 1.5
AA0111	1.0 - 2.0
AA0305	2.0 - 3.0
AA0306	0.5 - 1.5
AA0307	1.0 - 2.0
AA0314	0.0 - 1.0
AA0361	4.0 - 6.0
AA0362	8.0 - 10.0
AA0405	0.5 - 1.5
AA0406	0.5 - 1.5
AA0441	1.0 - 2.0
AA0468	4.0 - 6.0
AA0469	8.0 - 10.0

FIGURE 2-8
TNT AREA A
BUILDING 111 MONO HOUSE
SAMPLE LOCATIONS AND
ANALYTICAL RESULTS

PLUM BROOK ORDNANCE WORKS
NASA PLUM BROOK STATION
SANDUSKY, OHIO

SCALE
0 20 40 FEET

IT CORPORATION
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STARTING DATE: 08/10/00 | DATE LAST REV.: | DRAFT. CHCK. BY: C. TUMLIN | INITIATOR: GUNDERSON | DWG. NO.: 807111ES.015
DRAWN BY: B.VANDERGRIFF | DRAWN BY: | ENGR. CHCK. BY: S. MUFFLER | PROJ. MGR.: SPANGBERG | PROJ. NO.: 807111

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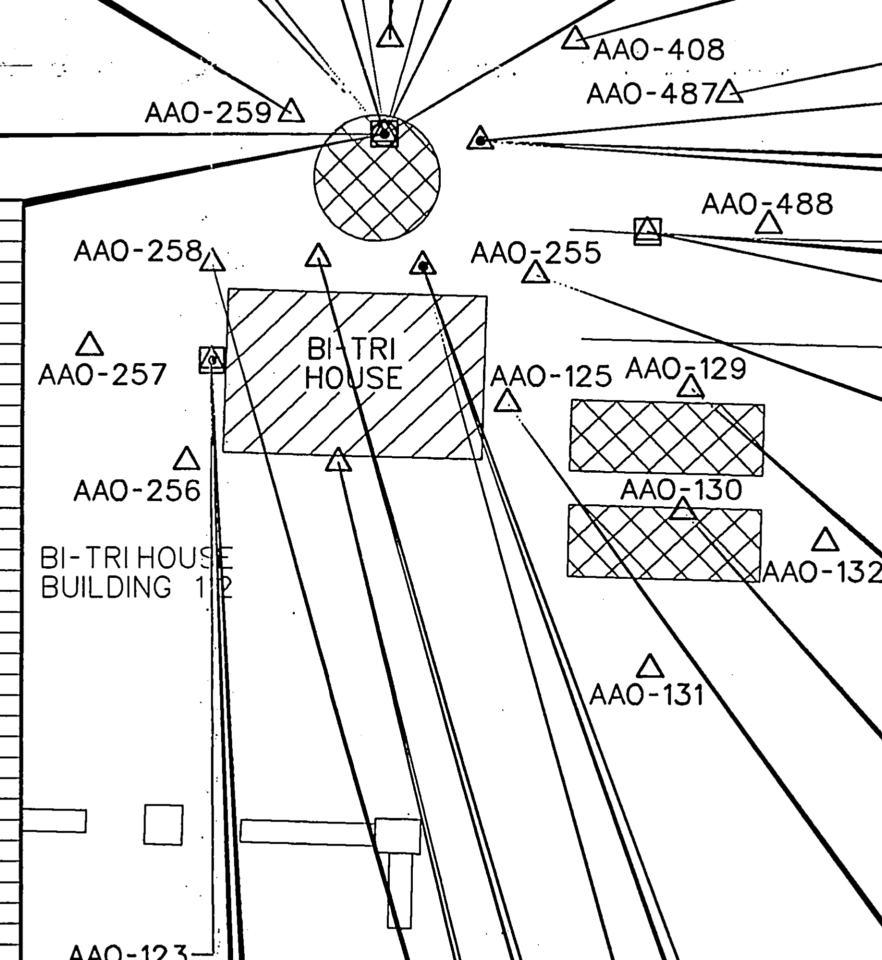
STARTING DATE: 08/01/00	DATE LAST REV.:	DRAFT. CHCK. BY: C. TUMLIN	INITIATOR: GUNDERSON	DWG. NO.: 807111ES.007
DRAWN BY: B.VANDERGRIFF	DRAWN BY:	ENGR. CHCK. BY: S. MUFFLER	PROJ. MGR.: SPANGBERG	PROJ. NO.: 807111



Location		AAO-128	
Sample No.		AA0128	
Sample Date		19-Jul-00	
Sample Depth (ft)		1.5 - 2.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNB	mg/kg	0.98	
DNB	mg/kg	0.20	J
TNT	mg/kg	**1298**	
2,4-DNT	mg/kg	**865**	
RDX	mg/kg	0.60	
Tetryl	mg/kg	0.11	J

Location		AAO-253	
Sample No.		AA0253	
Sample Date		16-Aug-00	
Sample Depth (ft)		1.6 - 2.6	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	1.71	
2A-4,6-DNT	mg/kg	0.72	
4A-2,6-DNT	mg/kg	0.93	

Location		AAO-325	
Sample No.		AA0325	
Sample Date		15-Aug-00	
Sample Depth (ft)		0.0 - 1.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNB	mg/kg	0.16	J
2,4-DNT	mg/kg	**15.60**	
2A-4,6-DNT	mg/kg	**12.4**	
4A-2,6-DNT	mg/kg	**12.60**	

Location		TNTA-S0128	
Sample No.		AA0445	
Sample Date		25-Sept-00	
Sample Depth (ft)		1.5 - 2.5	
Parameter	Units	Result	Qual
Nitroaromatics			
4A-2,6-DNT	mg/kg	1.78	J
2A-4,6-DNT	mg/kg	1.24	J
TNT	mg/kg	3.99	B
PCBs			
Aroclor 1260	mg/kg	0.0352	J
Volatiles			
Acetone	mg/kg	0.0217	
Methylene chloride	mg/kg	0.0323	B
Metals			
Aluminum	mg/kg	2980	J
Arsenic	mg/kg	**1.07**	J
Barium	mg/kg	19	
Beryllium	mg/kg	0.16	J
Calcium	mg/kg	1260	
Chromium	mg/kg	5.51	
Cobalt	mg/kg	1.54	
Copper	mg/kg	5.92	J
Iron	mg/kg	7820	
Lead	mg/kg	26.5	J
Magnesium	mg/kg	598	
Manganese	mg/kg	86.9	J
Nickel	mg/kg	4.27	
Potassium	mg/kg	348	
Sodium	mg/kg	99.6	B
Vanadium	mg/kg	11.3	
Zinc	mg/kg	20.8	

Location		TNTA-S0363	
Sample No.		AA0363	
Sample Date		12-SEP-00	
Sample Depth (ft)		4.0 - 6.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
4A-2,6-DNT	mg/kg	1.76	
2A-4,6-DNT	mg/kg	2.4	
DNB	mg/kg	0.0872	J
2,4-DNT	mg/kg	0.327	
3-NT	mg/kg	1.06	
TNB	mg/kg	0.281	
TNT	mg/kg	**64.4**	

Location		TNTA-S0364	
Sample No.		AA0364	
Sample Date		12-SEP-00	
Sample Depth (ft)		8.0 - 10.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
4A-2,6-DNT	mg/kg	1.48	
2A-4,6-DNT	mg/kg	0.594	
DNB	mg/kg	0.0657	J
2,4-DNT	mg/kg	0.215	J
TNB	mg/kg	0.492	
TNT	mg/kg	5.97	

Location		TNTA-S0128	
Sample No.		AA0471	
Sample Date		28-Sept-00	
Sample Depth (ft)		8.0 - 10.0	
Parameter	Units	Result	Qual
Nitroaromatics			
4A-2,6-DNT	mg/kg	1.62	
2A-4,6-DNT	mg/kg	2.43	
DNT	mg/kg	0.645	
2-NT	mg/kg	0.235	
3-NT	mg/kg	0.335	
4-NT	mg/kg	0.278	
TNB	mg/kg	0.562	
TNT	mg/kg	8.57	
Semivolatiles			
Dinitrotoluene, 2,4-	mg/kg	**0.831**	
Dinitrotoluene, 2,6-	mg/kg	0.248	J
Volatiles			
Acetone	mg/kg	0.051	J
Carbon disulfide	mg/kg	0.00287	J
Methylene chloride	mg/kg	0.00392	B
Metals			
Aluminum	mg/kg	4730	J
Arsenic	mg/kg	**7.59**	
Barium	mg/kg	14.5	
Beryllium	mg/kg	0.305	
Calcium	mg/kg	2240	
Chromium	mg/kg	7.23	
Cobalt	mg/kg	3.8	
Copper	mg/kg	8.14	
Iron	mg/kg	10500	
Lead	mg/kg	4.91	B
Magnesium	mg/kg	1150	
Manganese	mg/kg	217	
Nickel	mg/kg	9.48	
Potassium	mg/kg	635	
Sodium	mg/kg	231	B
Vanadium	mg/kg	16.8	
Zinc	mg/kg	38.3	

Location		AAO-408	
Sample No.		AA0408	
Sample Date		21-Sep-00	
Sample Depth (ft)		0.5 - 1.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	2.25	
2,4-DNT	mg/kg	0.41	
2A-4,6-DNT	mg/kg	1.90	
4A-2,6-DNT	mg/kg	1.40	

Location		AAO-487	
Sample No.		AA0487	
Sample Date		13-Oct-00	
Sample Depth (ft)		1.5 - 2.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2A-4,6-DNT	mg/kg	0.062	J
4A-2,6-DNT	mg/kg	0.176	

Location		AAO-259	
Sample No.		AA0259	
Sample Date		16-Aug-00	
Sample Depth (ft)		0.5 - 1.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.19	J
2,4-DNT	mg/kg	0.14	J
2A-4,6-DNT	mg/kg	0.23	J
4A-2,6-DNT	mg/kg	0.36	

Location		AAO-407	
Sample No.		AA0407	
Sample Date		21-Sep-00	
Sample Depth (ft)		0.5 - 1.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.982	
2,4-DNT	mg/kg	0.164	J
2A-4,6-DNT	mg/kg	0.688	
4A-2,6-DNT	mg/kg	0.656	

Location		TNTA-S0123	
Sample No.		AA0442	
Sample Date		22-Sept-00	
Sample Depth (ft)		2.0 - 3.0	
Parameter	Units	Result	Qual
PCBs			
Aroclor 1260	mg/kg	**0.507**	J
Volatiles			
Acetone	mg/kg	0.114	
Carbon disulfide	mg/kg	0.00218	J
Methylene chloride	mg/kg	0.00376	B
Metals			
Aluminum	mg/kg	4660	J
Arsenic	mg/kg	**3.71**	J
Barium	mg/kg	24.6	J
Beryllium	mg/kg	0.179	
Cadmium	mg/kg	1.15	
Calcium	mg/kg	13600	J
Chromium	mg/kg	7.52	J
Cobalt	mg/kg	3.05	
Copper	mg/kg	8.26	J
Iron	mg/kg	9280	
Lead	mg/kg	**115**	J
Magnesium	mg/kg	3350	J
Manganese	mg/kg	218	J
Mercury	mg/kg	0.049	
Nickel	mg/kg	8.96	
Potassium	mg/kg	572	
Sodium	mg/kg	249	B
Vanadium	mg/kg	14.7	
Zinc	mg/kg	241	J

Location		TNTA-S0128	
Sample No.		AA0470	
Sample Date		28-Sept-00	
Sample Depth (ft)		4.0 - 6.0	
Parameter	Units	Result	Qual
Nitroaromatics			
4A-2,6-DNT	mg/kg	**3.96**	
2A-4,6-DNT	mg/kg	1.18	
DNT	mg/kg	0.549	
2-NT	mg/kg	0.276	
3-NT	mg/kg	0.823	
4-NT	mg/kg	0.555	
TNT	mg/kg	7.89	
PCBs			
Aroclor 1260	mg/kg	0.0448	J
Volatiles			
Acetone	mg/kg	0.0314	J
Carbon disulfide	mg/kg	0.00185	J
Methylene chloride	mg/kg	0.00878	B
Metals			
Aluminum	mg/kg	4490	J
Arsenic	mg/kg	**2.34**	
Barium	mg/kg	23.8	
Beryllium	mg/kg	0.269	
Calcium	mg/kg	1250	
Chromium	mg/kg	6.29	
Cobalt	mg/kg	1.54	
Copper	mg/kg	5.82	
Iron	mg/kg	7420	
Lead	mg/kg	15.4	
Magnesium	mg/kg	695	
Manganese	mg/kg	107	
Mercury	mg/kg	0.021	J
Nickel	mg/kg	4.98	
Potassium	mg/kg	334	
Sodium	mg/kg	96.3	B
Vanadium	mg/kg	11.4	
Zinc	mg/kg	25.2	

Location		AAO-409	
Sample No.		AA0409	
Sample Date		21-Sep-00	
Sample Depth (ft)		0.5 - 1.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	29.3	
2,4-DNT	mg/kg	0.364	
2A-4,6-DNT	mg/kg	0.330	
4A-2,6-DNT	mg/kg	0.296	

Location		AAO-254	
Sample No.		AA0254	
Sample Date		16-Aug-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNB	mg/kg	0.24	
TNT	mg/kg	**284**	
2A-4,6-DNT	mg/kg	0.56	
4A-2,6-DNT	mg/kg	**3.64**	
Tetryl	mg/kg	**4.81**	
3-NT	mg/kg	0.38	J

Location		AAO-129	
Sample No.		AA0129	
Sample Date		19-Jul-00	
Sample Depth (ft)		1.5 - 2.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.162	J
4A-2,6-DNT	mg/kg	0.194	J

Location		AAO-255	
Sample No.		AA0255	
Sample Date		16-Aug-00	
Sample Depth (ft)		1.6 - 2.6	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	**20.1**	
2,4-DNT	mg/kg	0.27	
2A-4,6-DNT	mg/kg	1.12	
4A-2,6-DNT	mg/kg	0.81	

Location		AAO-130	
Sample No.		AA0130	
Sample Date		19-Jul-00	
Sample Depth (ft)		3 - 4	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.57	
2,4-DNT	mg/kg	0.13	J

Location		AAO-125	
Sample No.		AA0125	
Sample Date		19-Jul-00	
Sample Depth (ft)		3 - 4	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.27	
2A-4,6-DNT	mg/kg	0.37	

Location		AAO-323	
Sample No.		AA0323	
Sample Date		15-Aug-00	
Sample Depth (ft)		0.0 - 1.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.53	J

Location		AAO-123	
Sample No.		AA0123	
Sample Date		19-Jul-00	
Sample Depth (ft)		2 - 3	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNB	mg/kg	0.11	J
TNT	mg/kg	**39.1**	
2A-4,6-DNT	mg/kg	**8.0**	
4A-2,6-DNT	mg/kg	**5.3**	
Tetryl	mg/kg	0.25	J
m-Nitrotoluene	mg/kg	0.43	J

Location		AAO-126	
Sample No.		AA0126	
Sample Date		19-Jul-00	
Sample Depth (ft)		3 - 4	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNB	mg/kg	0.27	
2,4-DNT	mg/kg	**4.22**	
4A-2,6-DNT	mg/kg	**3.7**	
HMX	mg/kg	**29.9**	

Location		AAO-258	
Sample No.		AA0258	
Sample Date		16-Aug-00	
Sample Depth (ft)		2.0 - 3.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2A-4,6-DNT	mg/kg	0.40	

Location		AAO-324	
Sample No.		AA0324	
Sample Date		15-Aug-00	
Sample Depth (ft)		0.0 - 1.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.17	J
2,4-DNT	mg/kg	0.26	
2A-4,6-DNT	mg/kg	0.55	
4A-2,6-DNT	mg/kg	0.34	

Location		AAO-124	
Sample No.		AA0124	
Sample Date		19-Jul-00	
Sample Depth (ft)		2 - 3	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.14	J
2A-4,6-DNT	mg/kg	0.17	J

Location		AAO-127	
Sample No.		AA0127	
Sample Date		19-Jul-00	
Sample Depth (ft)		2 - 3	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.31	
2A-4,6-DNT	mg/kg	0.19	J
4A-2,6-DNT	mg/kg	0.17	J

LEGEND:

△ AAO-123	SCREENING SOIL SAMPLING LOCATION
• AAO-323	SURFACE SOIL SAMPLE (0 - 1 FT)
○ GW-02	GROUNDWATER SAMPLING LOCATION
□ AAO-442	CONFIRMATION SOIL SAMPLING LOCATION
(crosshatch)	TANK
(diagonal hatch)	BUILDING

NOTES:

1. ANALYTICAL RESULTS EXCEEDING REGION 9 PRELIMINARY REMEDIATION GOALS ARE SHOWN IN BOLD TEXT.
2. SAMPLES WITH NO POSTED DATA ARE BELOW QUANTITATION LIMITS FOR ALL NITROAROMATICS.
3. ALL CONFIRMATION SAMPLING LOCATIONS WERE SURVEYED.
4. NITROAROMATICS (8330-SC) INDICATES SCREENING ANALYSES.
5. SAMPLING DEPTHS

SAMPLE	DEPTH (FT)
AA0123	2.0 - 3.0
AA0124	2.0 - 3.0
AA0125	3.0 - 4.0
AA0126	3.0 - 4.0
AA0127	2.0 - 3.0
AA0128	1.5 - 2.5
AA0129	1.5 - 2.5
AA0130	3.0 - 4.0
AA0131	2.5 - 3.5
AA0132	2.5 - 3.5
AA0253	1.6 - 2.6
AA0254	1.0 - 2.0
AA0255	1.6 - 2.6
AA0256	1.0 - 2.0
AA0257	2.0 - 3.0
AA0258	2.0 - 3.5
AA0259	0.5 - 1.5
AA0323	0.0 - 1.0
AA0324	0.0 - 1.0
AA0325	0.0 - 1.0
AA0363	4.0 - 6.0
AA0364	8.0 - 10.0
AA0407	0.5 - 1.5
AA0408	0.5 - 1.5
AA0409	0.5 - 1.5
AA0442	2.0 - 3.0
AA0443	2.0 - 3.0
AA0444	2.0 - 3.0
AA0445	1.5 - 2.5
AA0470	4.0 - 6.0
AA0471	8.0 - 10.0
AA0481	0.5 - 1.5
AA0487	1.5 - 2.5
AA0488	1.0 - 2.0

SCALE
0 20 40 FEET

FIGURE 2-9
TNT AREA A
BUILDING 112 BI-TRIHOUSE
SAMPLE LOCATIONS AND
ANALYTICAL RESULTS

PLUM BROOK ORDNANCE WORKS
NASA PLUM BROOK STATION
SANDUSKY, OHIO

IT CORPORATION
A Member of The IT Group

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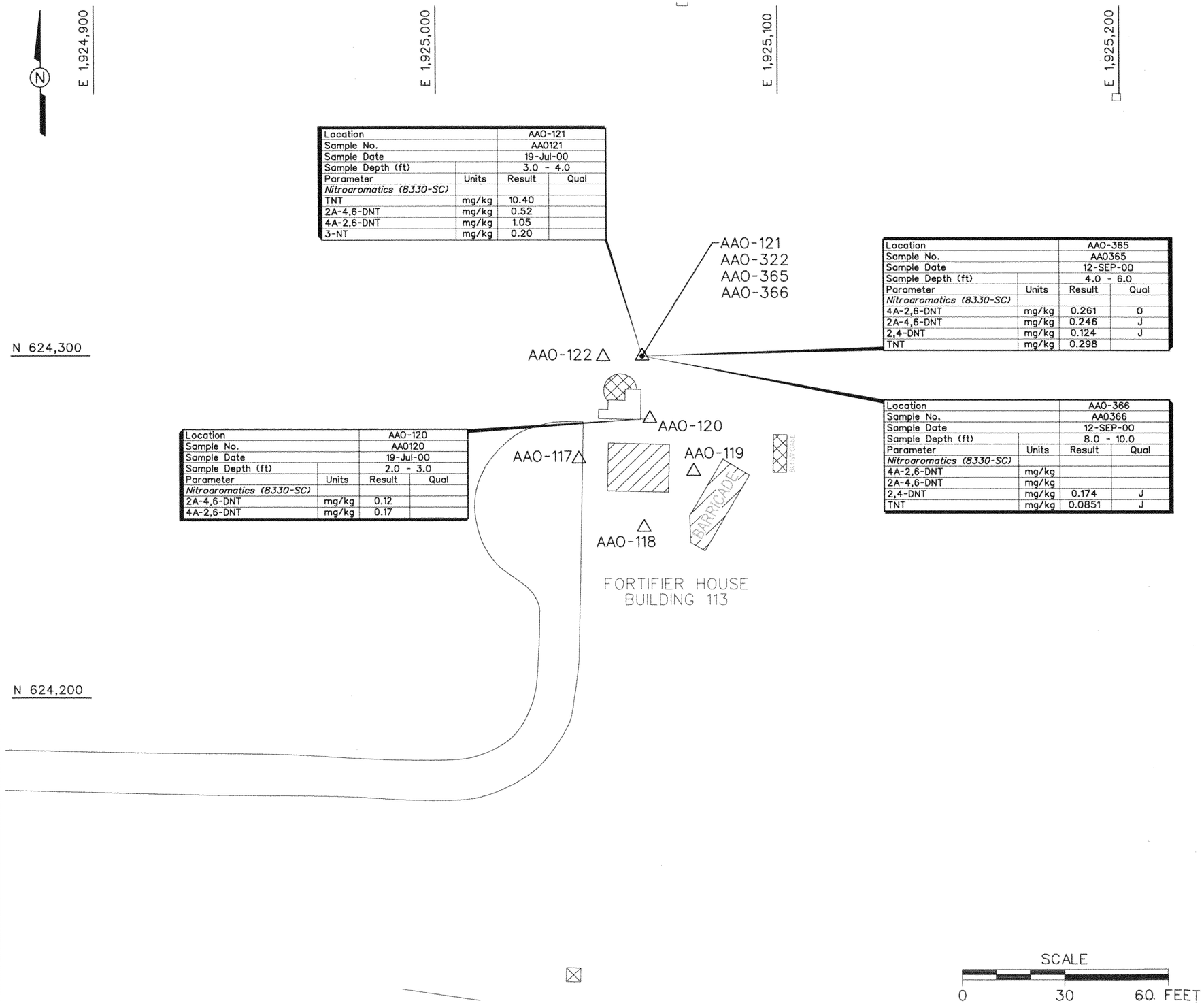

Location		AA0-121	
Sample No.		AA0121	
Sample Date		19-Jul-00	
Sample Depth (ft)		3.0 - 4.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	10.40	
2A-4,6-DNT	mg/kg	0.52	
4A-2,6-DNT	mg/kg	1.05	
3-NT	mg/kg	0.20	

Location		AA0-365	
Sample No.		AA0365	
Sample Date		12-SEP-00	
Sample Depth (ft)		4.0 - 6.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
4A-2,6-DNT	mg/kg	0.261	0
2A-4,6-DNT	mg/kg	0.246	J
2,4-DNT	mg/kg	0.124	J
TNT	mg/kg	0.298	

Location		AA0-366	
Sample No.		AA0366	
Sample Date		12-SEP-00	
Sample Depth (ft)		8.0 - 10.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
4A-2,6-DNT	mg/kg		
2A-4,6-DNT	mg/kg		
2,4-DNT	mg/kg	0.174	J
TNT	mg/kg	0.0851	J

Location		AA0-120	
Sample No.		AA0120	
Sample Date		19-Jul-00	
Sample Depth (ft)		2.0 - 3.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2A-4,6-DNT	mg/kg	0.12	
4A-2,6-DNT	mg/kg	0.17	

LEGEND:

△ AA0-117	SCREENING SOIL SAMPLING LOCATION
• AA0-322	SURFACE SOIL SAMPLE (0 - 1 FT)
	TANK
	BUILDING

NOTES:

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2. SAMPLES WITH NO POSTED DATA ARE BELOW QUANTITATION LIMITS FOR ALL NITROAROMATICS.
3. ALL CONFIRMATION SAMPLING LOCATIONS WERE SURVEYED.
4. NITROAROMATICS (8330-SC) INDICATES SCREENING ANALYSES.
5. SAMPLING DEPTHS

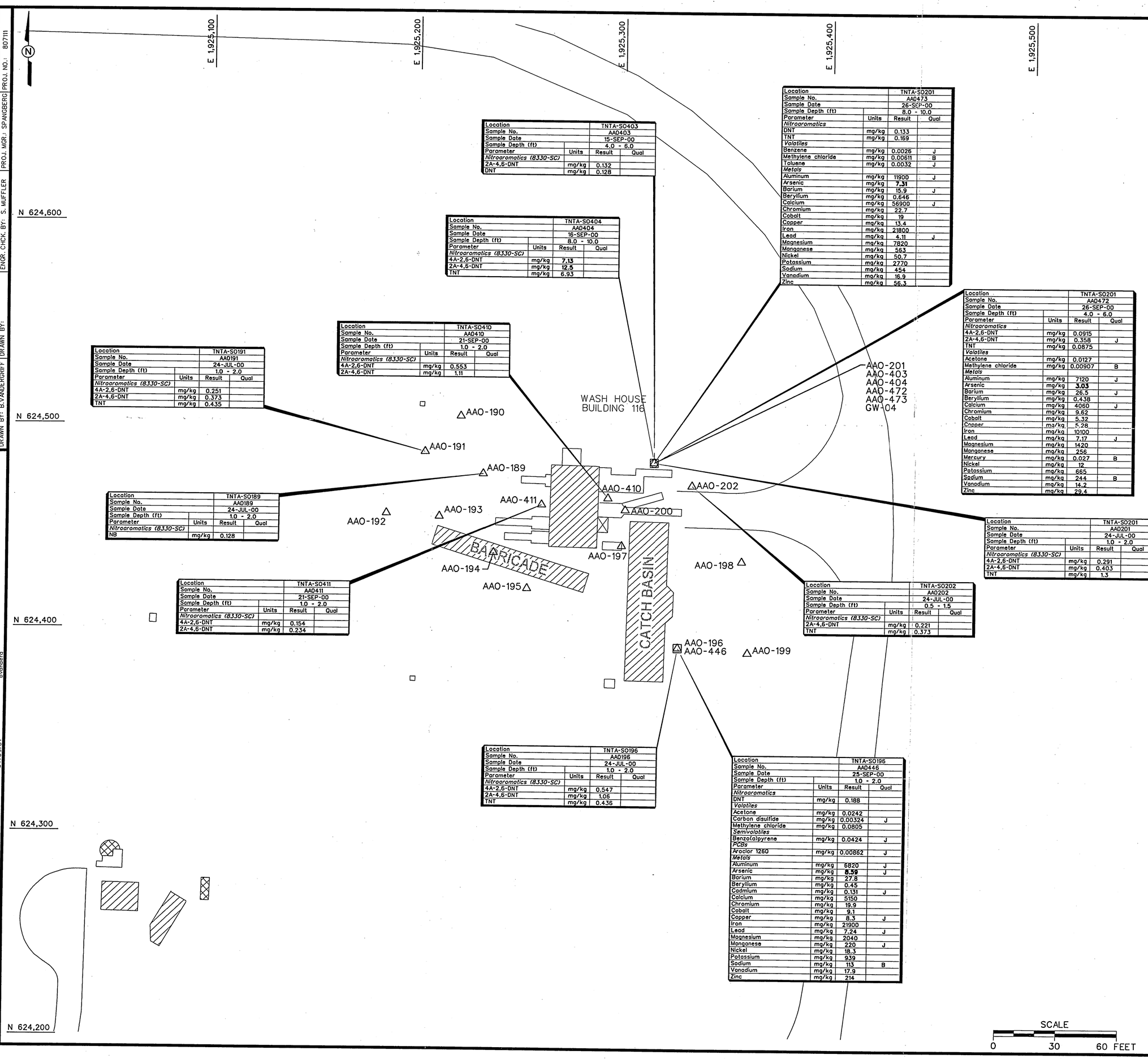
SAMPLE	DEPTH (FT)
AA0117	2.0 - 3.0
AA0118	1.5 - 2.5
AA0119	2.5 - 3.5
AA0120	2.0 - 3.0
AA0121	3.0 - 4.0
AA0122	1.0 - 2.0
AA0322	0.0 - 1.0
AA0365	4.0 - 6.0
AA0366	8.0 - 10.0

FIGURE 2-10
TNT AREA A
BUILDING 113 FORTIFIER HOUSE
SAMPLE LOCATIONS AND
ANALYTICAL RESULTS

PLUM BROOK ORDNANCE WORKS
NASA PLUM BROOK STATION
SANDUSKY, OHIO

IT CORPORATION
A Member of The IT Group

DWG. NO.: ...\807111es.025 | PROJ. NO.: 807111
INITIATOR: GUNDERSON | PROJ. MGR.: SPANGBERG
DRAFT. CHCK. BY: C. TUMLIN | ENGR. CHCK. BY: S. MUFFLER
DATE LAST REV.: | DRAWN BY:
STARTING DATE: 11/03/00 | DRAWN BY: B. VANDERGRIFF
11:13:47 04/09/01
bvanderg
c:\cadd\design\807111es.025



Location		TNTA-S0403	
Sample No.		AA0403	
Sample Date		15-SEP-00	
Sample Depth (ft)		4.0 - 6.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2A-4,6-DNT	mg/kg	0.132	
DNT	mg/kg	0.128	

Location		TNTA-S0404	
Sample No.		AA0404	
Sample Date		16-SEP-00	
Sample Depth (ft)		8.0 - 10.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
4A-2,6-DNT	mg/kg	**7.13**	
2A-4,6-DNT	mg/kg	**12.5**	
TNT	mg/kg	6.93	

Location		TNTA-S0410	
Sample No.		AA0410	
Sample Date		21-SEP-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
4A-2,6-DNT	mg/kg	0.553	
2A-4,6-DNT	mg/kg	1.11	

Location		TNTA-S0191	
Sample No.		AA0191	
Sample Date		24-JUL-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
4A-2,6-DNT	mg/kg	0.251	
2A-4,6-DNT	mg/kg	0.373	
TNT	mg/kg	0.435	

Location		TNTA-S0189	
Sample No.		AA0189	
Sample Date		24-JUL-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
NB	mg/kg	0.128	

Location		TNTA-S0411	
Sample No.		AA0411	
Sample Date		21-SEP-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
4A-2,6-DNT	mg/kg	0.154	
2A-4,6-DNT	mg/kg	0.234	

Location		TNTA-S0196	
Sample No.		AA0196	
Sample Date		24-JUL-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
4A-2,6-DNT	mg/kg	0.547	
2A-4,6-DNT	mg/kg	1.06	
TNT	mg/kg	0.436	

Location		TNTA-S0196	
Sample No.		AA0446	
Sample Date		25-SEP-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics			
DNT	mg/kg	0.188	
Volatiles			
Acetone	mg/kg	0.0242	
Carbon disulfide	mg/kg	0.00324	J
Methylene chloride	mg/kg	0.0805	
Semivolatiles			
Benzo(a)pyrene	mg/kg	0.0424	J
PCBs			
Aroclor 1260	mg/kg	0.00862	J
Metals			
Aluminum	mg/kg	6820	J
Arsenic	mg/kg	**8.59**	J
Barium	mg/kg	27.8	
Beryllium	mg/kg	0.45	
Cadmium	mg/kg	0.131	J
Calcium	mg/kg	5150	
Chromium	mg/kg	19.9	
Cobalt	mg/kg	9.1	
Copper	mg/kg	8.3	J
Iron	mg/kg	21900	
Lead	mg/kg	7.24	J
Magnesium	mg/kg	2040	
Manganese	mg/kg	220	J
Nickel	mg/kg	18.3	
Potassium	mg/kg	939	
Sodium	mg/kg	113	B
Vanadium	mg/kg	17.9	
Zinc	mg/kg	214	

Location		TNTA-S0201	
Sample No.		AA0473	
Sample Date		26-SEP-00	
Sample Depth (ft)		8.0 - 10.0	
Parameter	Units	Result	Qual
Nitroaromatics			
DNT	mg/kg	0.133	
TNT	mg/kg	0.169	
Volatiles			
Benzene	mg/kg	0.0026	J
Methylene chloride	mg/kg	0.00611	B
Toluene	mg/kg	0.0032	J
Metals			
Aluminum	mg/kg	11900	J
Arsenic	mg/kg	**7.31**	
Barium	mg/kg	15.9	J
Beryllium	mg/kg	0.646	
Calcium	mg/kg	56900	J
Chromium	mg/kg	22.7	
Cobalt	mg/kg	19	
Copper	mg/kg	13.4	
Iron	mg/kg	21800	
Lead	mg/kg	4.11	J
Magnesium	mg/kg	7820	
Manganese	mg/kg	563	
Nickel	mg/kg	50.7	
Potassium	mg/kg	2770	
Sodium	mg/kg	454	
Vanadium	mg/kg	16.9	
Zinc	mg/kg	56.3	

Location		TNTA-S0201	
Sample No.		AA0472	
Sample Date		26-SEP-00	
Sample Depth (ft)		4.0 - 6.0	
Parameter	Units	Result	Qual
Nitroaromatics			
4A-2,6-DNT	mg/kg	0.0915	
2A-4,6-DNT	mg/kg	0.358	J
TNT	mg/kg	0.0875	
Volatiles			
Acetone	mg/kg	0.0127	
Methylene chloride	mg/kg	0.00907	B
Metals			
Aluminum	mg/kg	7120	J
Arsenic	mg/kg	**3.03**	
Barium	mg/kg	26.5	J
Beryllium	mg/kg	0.438	
Calcium	mg/kg	4060	J
Chromium	mg/kg	9.62	
Cobalt	mg/kg	5.32	
Copper	mg/kg	5.28	
Iron	mg/kg	10100	
Lead	mg/kg	7.17	J
Magnesium	mg/kg	1420	
Manganese	mg/kg	256	
Mercury	mg/kg	0.027	B
Nickel	mg/kg	12	
Potassium	mg/kg	665	
Sodium	mg/kg	244	B
Vanadium	mg/kg	14.2	
Zinc	mg/kg	29.4	

Location		TNTA-S0201	
Sample No.		AA0201	
Sample Date		24-JUL-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
4A-2,6-DNT	mg/kg	0.291	
2A-4,6-DNT	mg/kg	0.403	
TNT	mg/kg	1.3	

Location		TNTA-S0202	
Sample No.		AA0202	
Sample Date		24-JUL-00	
Sample Depth (ft)		0.5 - 1.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2A-4,6-DNT	mg/kg	0.221	
TNT	mg/kg	0.373	

LEGEND:

△ AAO-189	SCREENING SOIL SAMPLING LOCATION
○ GW-04	GROUNDWATER SAMPLING LOCATION
□ AAO-446	CONFIRMATION SOIL SAMPLING LOCATION
	TANK
	BUILDING

NOTES:

1. ANALYTICAL RESULTS EXCEEDING REGION 9 PRELIMINARY REMEDIATION GOALS ARE SHOWN IN BOLD TEXT.
2. SAMPLES WITH NO POSTED DATA ARE BELOW QUANTITATION LIMITS FOR ALL NITROAROMATICS.
3. ALL CONFIRMATION SAMPLING LOCATIONS WERE SURVEYED.
4. NITROAROMATICS (8330-SC) INDICATES SCREENING ANALYSES.
5. SAMPLE DEPTHS

SAMPLE	DEPTH (FT)
AA0189	1.0 - 2.0
AA0190	1.0 - 2.0
AA0191	1.0 - 2.0
AA0192	0.5 - 1.5
AA0193	0.1 - 1.1
AA0194	0.5 - 1.5
AA0195	0.0 - 1.0
AA0196	1.0 - 2.0
AA0197	1.0 - 2.0
AA0198	1.0 - 2.0
AA0199	1.0 - 2.0
AA0200	1.0 - 2.0
AA0201	1.0 - 2.0
AA0202	0.5 - 1.5
AA0403	4.0 - 6.0
AA0404	8.0 - 10.0
AA0410	1.0 - 2.0
AA0411	1.0 - 2.0
AA0446	1.0 - 2.0
AA0472	4.0 - 6.0
AA0473	8.0 - 10.0

FIGURE 2-11
TNT AREA A
BUILDING 116 WASH HOUSE LINE 1
SAMPLE LOCATIONS AND
ANALYTICAL RESULTS

PLUM BROOK ORDNANCE WORKS
NASA PLUM BROOK STATION
SANDUSKY, OHIO

SCALE
0 30 60 FEET

IT CORPORATION
A Member of The IT Group

STARTING DATE: 11/03/00 | DATE LAST REV.: | DRAFT. CHCK. BY: C. TUMLIN | INITIATOR: GUNDERSON | DWG. NO.: 807111ES.026
DRAWN BY: B.VANDERGRIFF | DRAWN BY: | ENGR. CHCK. BY: S. MUFFLER | PROJ. MGR.: SPANGBERG | PROJ. NO.: 807111

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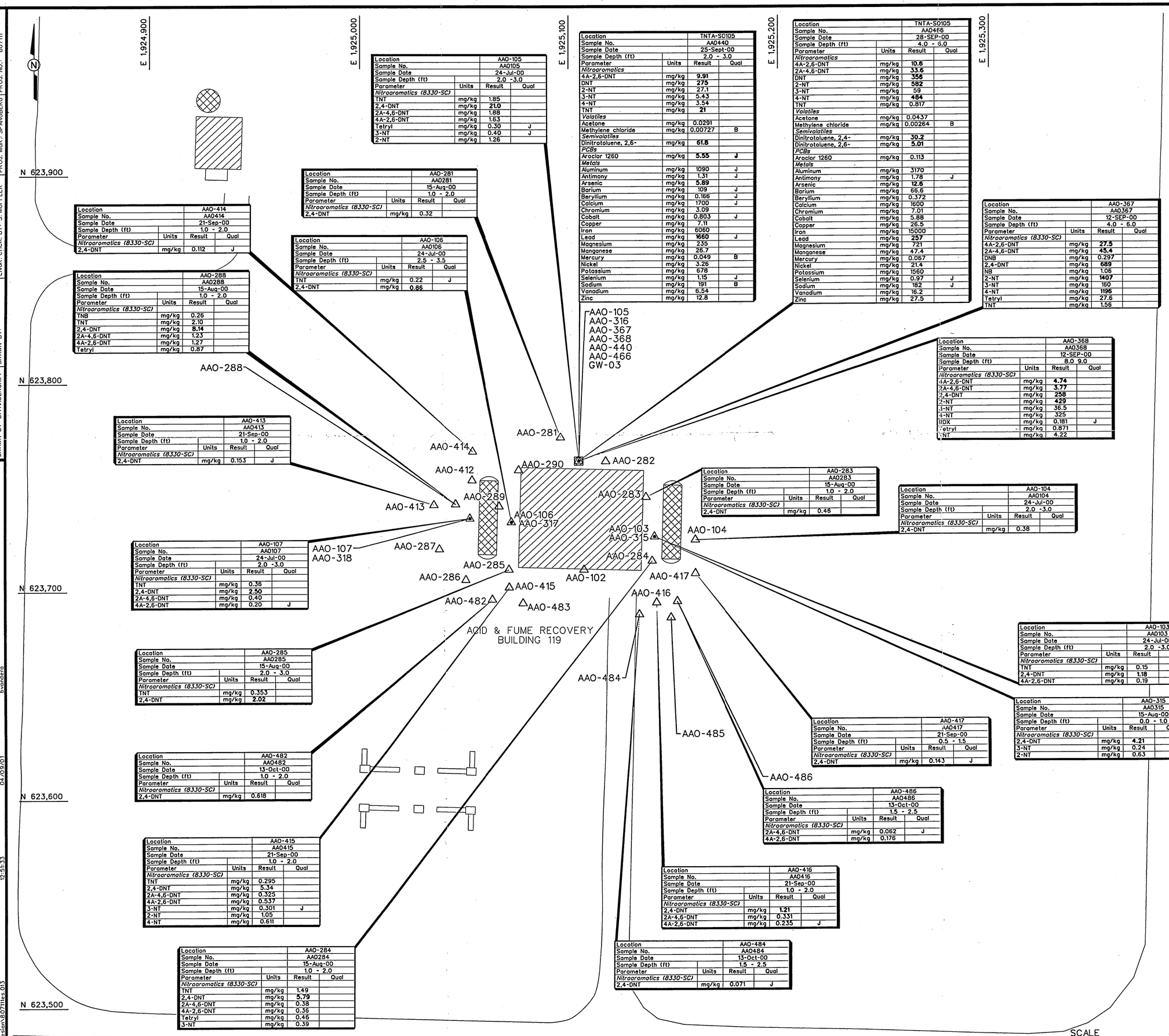

Location		AAO-105	
Sample No.		AA0105	
Sample Date		24-Jul-00	
Sample Depth (ft)		2.0 -3.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	1.85	
2,4-DNT	mg/kg	**21.0**	
2A-4,6-DNT	mg/kg	1.88	
4A-2,6-DNT	mg/kg	1.63	
Tetryl	mg/kg	0.30	J
3-NT	mg/kg	0.40	J
2-NT	mg/kg	1.26	

Location		AAO-281	
Sample No.		AA0281	
Sample Date		15-Aug-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.32	

Location		AAO-414	
Sample No.		AA0414	
Sample Date		21-Sep-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.112	J

Location		AAO-106	
Sample No.		AA0106	
Sample Date		24-Jul-00	
Sample Depth (ft)		2.5 - 3.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.22	J
2,4-DNT	mg/kg	**0.86**	

Location		AAO-288	
Sample No.		AA0288	
Sample Date		15-Aug-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNB	mg/kg	0.26	
TNT	mg/kg	2.10	
2,4-DNT	mg/kg	**8.14**	
2A-4,6-DNT	mg/kg	1.23	
4A-2,6-DNT	mg/kg	1.27	
Tetryl	mg/kg	0.87	

Location		AAO-413	
Sample No.		AA0413	
Sample Date		21-Sep-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.153	J

Location		AAO-107	
Sample No.		AA0107	
Sample Date		24-Jul-00	
Sample Depth (ft)		2.0 -3.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.38	
2,4-DNT	mg/kg	**2.50**	
2A-4,6-DNT	mg/kg	0.40	
4A-2,6-DNT	mg/kg	0.20	J

Location		AAO-285	
Sample No.		AA0285	
Sample Date		15-Aug-00	
Sample Depth (ft)		2.0 - 3.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.353	
2,4-DNT	mg/kg	**2.02**	

Location		AAO-482	
Sample No.		AA0482	
Sample Date		13-Oct-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.618	

Location		AAO-415	
Sample No.		AA0415	
Sample Date		21-Sep-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.295	
2,4-DNT	mg/kg	5.34	
2A-4,6-DNT	mg/kg	0.325	
4A-2,6-DNT	mg/kg	0.537	
3-NT	mg/kg	0.301	J
2-NT	mg/kg	1.05	
4-NT	mg/kg	0.611	

Location		AAO-284	
Sample No.		AA0284	
Sample Date		15-Aug-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	1.49	
2,4-DNT	mg/kg	**5.79**	
2A-4,6-DNT	mg/kg	0.38	
4A-2,6-DNT	mg/kg	0.36	
Tetryl	mg/kg	0.46	
3-NT	mg/kg	0.39	

Location		TNTA-S0105	
Sample No.		AA0440	
Sample Date		25-Sept-00	
Sample Depth (ft)		2.0 - 3.0	
Parameter	Units	Result	Qual
Nitroaromatics			
4A-2,6-DNT	mg/kg	**9.91**	
DNT	mg/kg	**275**	
2-NT	mg/kg	27.1	
3-NT	mg/kg	5.43	
4-NT	mg/kg	3.54	
TNT	mg/kg	**21**	
Volatiles			
Acetone	mg/kg	0.0291	
Methylene chloride	mg/kg	0.00727	B
Semivolatiles			
Dinitrotoluene, 2,6-	mg/kg	**61.8**	
PCBs			
Aroclor 1260	mg/kg	**5.55**	J
Metals			
Aluminum	mg/kg	1090	J
Antimony	mg/kg	1.31	J
Arsenic	mg/kg	**5.89**	
Barium	mg/kg	109	J
Beryllium	mg/kg	0.166	J
Calcium	mg/kg	1700	J
Chromium	mg/kg	3.09	
Cobalt	mg/kg	0.803	J
Copper	mg/kg	7.11	
Iron	mg/kg	6060	
Lead	mg/kg	**1660**	J
Magnesium	mg/kg	235	
Manganese	mg/kg	26.7	
Mercury	mg/kg	0.049	B
Nickel	mg/kg	3.26	
Potassium	mg/kg	678	
Selenium	mg/kg	1.15	J
Sodium	mg/kg	191	B
Vanadium	mg/kg	6.54	
Zinc	mg/kg	12.8	

Location		TNTA-S0105	
Sample No.		AA0466	
Sample Date		28-SEP-00	
Sample Depth (ft)		4.0 - 6.0	
Parameter	Units	Result	Qual
Nitroaromatics			
4A-2,6-DNT	mg/kg	**10.6**	
2A-4,6-DNT	mg/kg	**33.6**	
DNT	mg/kg	**356**	
2-NT	mg/kg	**582**	
3-NT	mg/kg	59	
4-NT	mg/kg	**484**	
TNT	mg/kg	0.817	
Volatiles			
Acetone	mg/kg	0.0437	
Methylene chloride	mg/kg	0.00264	B
Semivolatiles			
Dinitrotoluene, 2,4-	mg/kg	**30.2**	
Dinitrotoluene, 2,6-	mg/kg	**5.01**	
PCBs			
Aroclor 1260	mg/kg	0.113	
Metals			
Aluminum	mg/kg	3170	
Antimony	mg/kg	1.78	J
Arsenic	mg/kg	**12.6**	
Barium	mg/kg	66.6	
Beryllium	mg/kg	0.372	
Calcium	mg/kg	1600	
Chromium	mg/kg	7.01	
Cobalt	mg/kg	5.88	
Copper	mg/kg	26.5	
Iron	mg/kg	15000	
Lead	mg/kg	**257**	
Magnesium	mg/kg	721	
Manganese	mg/kg	47.4	
Mercury	mg/kg	0.067	
Nickel	mg/kg	21.4	
Potassium	mg/kg	1560	
Selenium	mg/kg	0.97	J
Sodium	mg/kg	182	J
Vanadium	mg/kg	16.2	
Zinc	mg/kg	27.5	

Location		AAO-367	
Sample No.		AA0367	
Sample Date		12-SEP-00	
Sample Depth (ft)		4.0 - 6.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
4A-2,6-DNT	mg/kg	**27.5**	
2A-4,6-DNT	mg/kg	**45.4**	
DNB	mg/kg	0.297	
2,4-DNT	mg/kg	**689**	
NB	mg/kg	1.06	
2-NT	mg/kg	**1407**	
3-NT	mg/kg	160	
4-NT	mg/kg	1196	
Tetryl	mg/kg	27.6	
TNT	mg/kg	1.56	

Location		AAO-368	
Sample No.		AA0368	
Sample Date		12-SEP-00	
Sample Depth (ft)		8.0 9.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
4A-2,6-DNT	mg/kg	**4.74**	
2A-4,6-DNT	mg/kg	**3.77**	
2,4-DNT	mg/kg	**258**	
2-NT	mg/kg	**429**	
3-NT	mg/kg	36.5	
4-NT	mg/kg	325	
RDX	mg/kg	0.181	J
Tetryl	mg/kg	0.871	
TNT	mg/kg	4.22	

Location		AAO-283	
Sample No.		AA0283	
Sample Date		15-Aug-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.48	

Location		AAO-104	
Sample No.		AA0104	
Sample Date		24-Jul-00	
Sample Depth (ft)		2.0 -3.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.38	

Location		AAO-103	
Sample No.		AA0103	
Sample Date		24-Jul-00	
Sample Depth (ft)		2.0 -3.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.15	J
2,4-DNT	mg/kg	1.18	
4A-2,6-DNT	mg/kg	0.19	

Location		AAO-315	
Sample No.		AA0315	
Sample Date		15-Aug-00	
Sample Depth (ft)		0.0 - 1.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	**4.21**	
3-NT	mg/kg	0.24	J
2-NT	mg/kg	0.63	

Location		AAO-417	
Sample No.		AA0417	
Sample Date		21-Sep-00	
Sample Depth (ft)		0.5 - 1.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.143	J

Location		AAO-486	
Sample No.		AA0486	
Sample Date		13-Oct-00	
Sample Depth (ft)		1.5 - 2.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2A-4,6-DNT	mg/kg	0.062	J
4A-2,6-DNT	mg/kg	0.176	

Location		AAO-416	
Sample No.		AA0416	
Sample Date		21-Sep-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	**1.21**	
2A-4,6-DNT	mg/kg	0.331	
4A-2,6-DNT	mg/kg	0.235	J

Location		AAO-484	
Sample No.		AA0484	
Sample Date		13-Oct-00	
Sample Depth (ft)		1.5 - 2.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.071	J

LEGEND:

- △ AAO-103 — SCREENING SOIL SAMPLING LOCATION
- • AAO-315 — SURFACE SOIL SAMPLE (0 - 1 FT)
- ○ GW-03 — GROUNDWATER SAMPLING LOCATION
- □ AAO-440 — CONFIRMATION SOIL SAMPLING LOCATION
- TANK
- BUILDING

NOTES:

1. ANALYTICAL RESULTS EXCEEDING REGION 9 PRELIMINARY REMEDIATION GOALS ARE SHOWN IN BOLD TEXT.
2. SAMPLES WITH NO POSTED DATA ARE BELOW QUANTITATION LIMITS FOR ALL NITROAROMATICS.
3. ALL CONFIRMATION SAMPLING LOCATIONS WERE SURVEYED.
4. NITROAROMATICS (8330-SC) INDICATES SCREENING ANALYSES.
5. SAMPLING DEPTHS

SAMPLE	DEPTH (FT)
AA0102	2.0 - 3.0
AA0103	2.0 - 3.0
AA0104	2.0 - 3.0
AA0105	2.0 - 3.0
AA0106	2.5 - 3.5
AA0107	2.0 - 3.0
AA0281	1.0 - 2.0
AA0282	1.0 - 2.0
AA0283	1.0 - 2.0
AA0284	1.0 - 2.0
AA0285	2.0 - 3.0
AA0286	1.6 - 2.6
AA0287	1.0 - 2.0
AA0288	1.0 - 2.0
AA0289	0.5 - 1.5
AA0290	1.0 - 2.0
AA0315	0.0 - 1.0
AA0316	0.0 - 1.0
AA0317	0.0 - 1.0
AA0318	0.0 - 1.0
AA0367	4.0 - 6.0
AA0368	8.0 - 9.0
AA0412	0.0 - 0.6
AA0413	1.0 - 2.0
AA0414	1.0 - 2.0
AA0415	1.0 - 2.0
AA0416	1.0 - 2.0
AA0417	0.5 - 1.5
AA0440	2.0 - 3.0
AA0466	4.0 - 6.0
AA0482	1.0 - 2.0
AA0483	1.0 - 2.0
AA0484	1.5 - 2.5
AA0485	1.5 - 2.5
AA0486	1.5 - 2.5

FIGURE 2-12
TNT AREA A
BUILDING 119 ACID & FUME RECOVERY, SAMPLE LOCATIONS AND ANALYTICAL RESULTS

PLUM BROOK ORDNANCE WORKS
NASA PLUM BROOK STATION
SANDUSKY, OHIO

IT CORPORATION
A Member of The IT Group

STARTING DATE: 08/10/00 | DATE LAST REV.: | DRAFT. CHCK. BY: C. TUMLIN | INITIATOR: GUNDERSON | DWG. NO.: 807111ES.013
DRAWN BY: B.VANDERGRIFF | DRAWN BY: | ENGR. CHCK. BY: S. MUFFLER | PROJ. MGR.: SPANGBERG | PROJ. NO.: 807111

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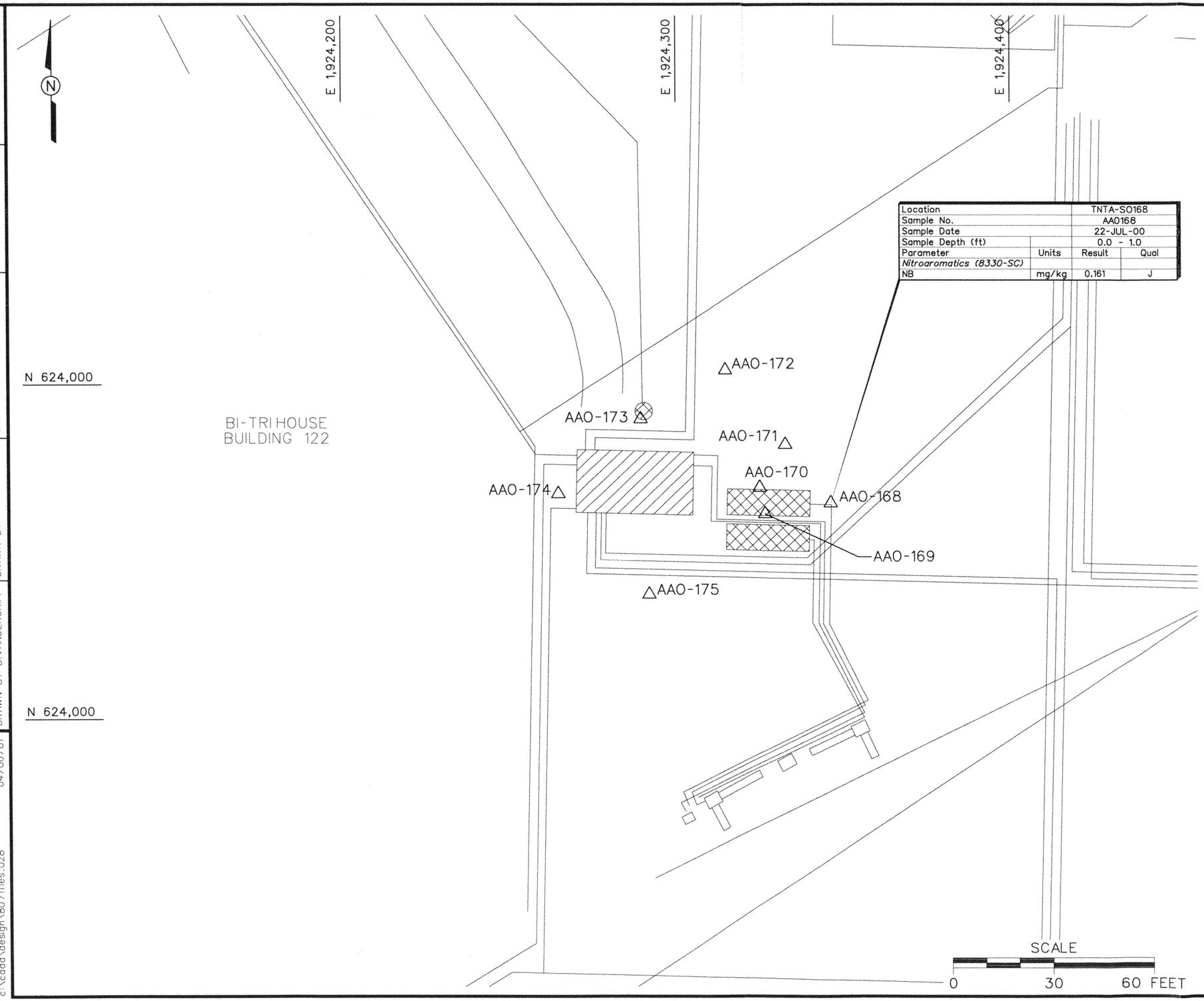

Location		TNTA-SO168	
Sample No.		AA0168	
Sample Date		22-JUL-00	
Sample Depth (ft)		0.0 - 1.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
NB	mg/kg	0.161	J

LEGEND:

△ AAO-168 — SCREENING SOIL SAMPLING LOCATION

TANK

BUILDING

NOTES:

1. ANALYTICAL RESULTS EXCEEDING REGION 9 PRELIMINARY REMEDIATION GOALS ARE SHOWN IN BOLD TEXT.
2. SAMPLES WITH NO POSTED DATA ARE BELOW QUANTITATION LIMITS FOR ALL NITROAROMATICS.
3. ALL CONFIRMATION SAMPLING LOCATIONS WERE SURVEYED.
4. NITROAROMATICS (8330-SC) INDICATES SCREENING ANALYSES.
5. SAMPLING DEPTHS

SAMPLE	DEPTH (FT)
AA0168	0.0 - 1.0
AA0169	0.0 - 1.0
AA0170	0.0 - 1.0
AA0171	0.0 - 1.0
AA0172	0.0 - 1.0
AA0173	0.0 - 1.0
AA0174	0.0 - 1.0
AA0175	0.0 - 1.0

FIGURE 2-13
TNT AREA A
BUILDING 122 BI-TRI HOUSE
SAMPLE LOCATIONS AND
ANALYTICAL RESULTS

PLUM BROOK ORDNANCE WORKS
NASA PLUM BROOK STATION
SANDUSKY, OHIO

IT CORPORATION
A Member of The IT Group

DWG. NO.:...\807111es.028 | PROJ. NO.: 807111
INITIATOR: GUNDERSON | PROJ. MGR.: SPANGBERG
DRAFT. CHCK. BY: C. TUMLIN | ENGR. CHCK. BY: S. MUFFLER
DATE LAST REV.: | DRAWN BY:
STARTING DATE: 12/06/00 | DRAWN BY: B.VANDERGRIFF
04:00:16 04/06/01
bvanderg
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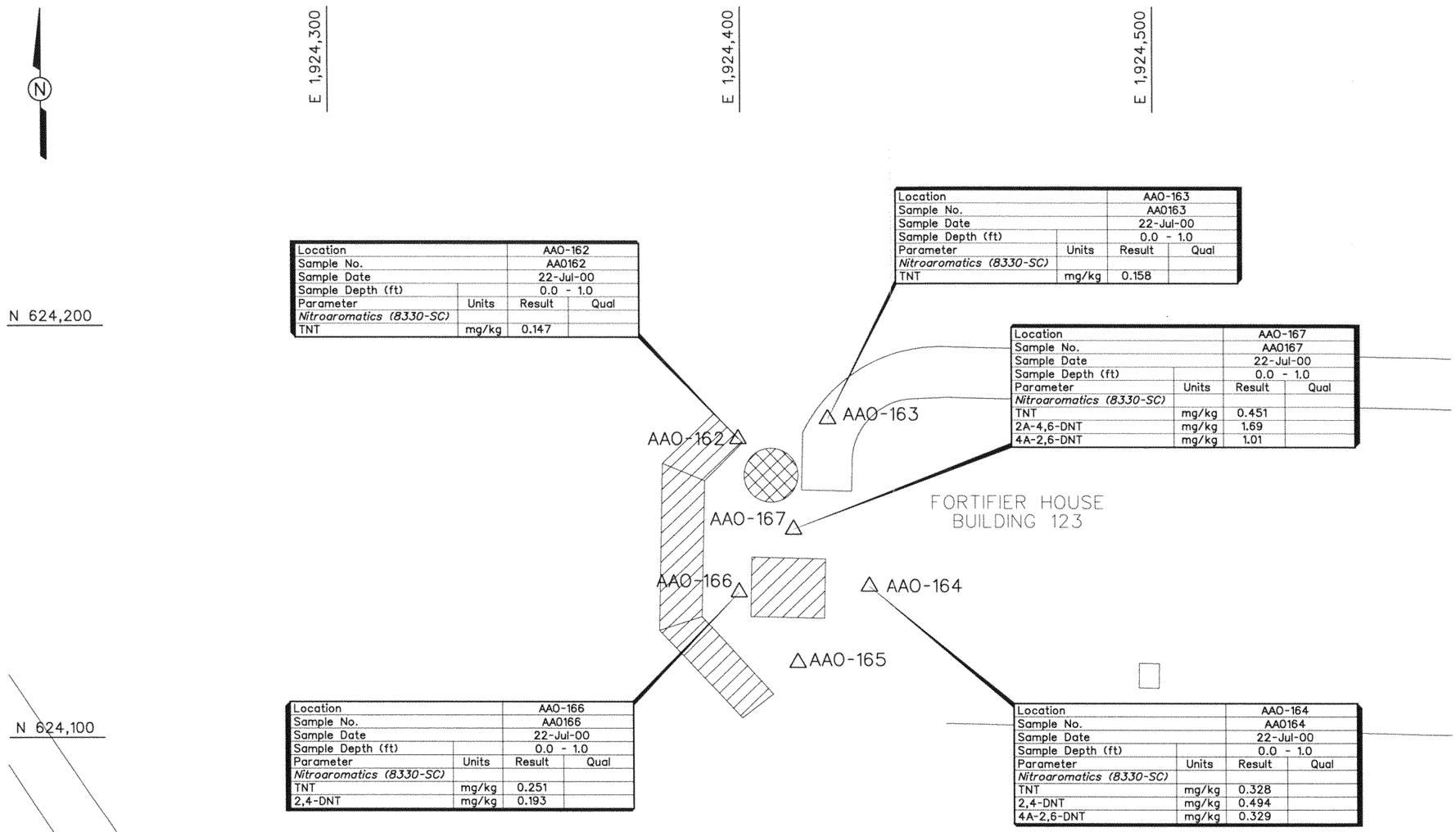

Location		AAO-162	
Sample No.		AA0162	
Sample Date		22-Jul-00	
Sample Depth (ft)		0.0 - 1.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.147	

Location		AAO-163	
Sample No.		AA0163	
Sample Date		22-Jul-00	
Sample Depth (ft)		0.0 - 1.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.158	

Location		AAO-167	
Sample No.		AA0167	
Sample Date		22-Jul-00	
Sample Depth (ft)		0.0 - 1.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.451	
2A-4,6-DNT	mg/kg	1.69	
4A-2,6-DNT	mg/kg	1.01	

Location		AAO-166	
Sample No.		AA0166	
Sample Date		22-Jul-00	
Sample Depth (ft)		0.0 - 1.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.251	
2,4-DNT	mg/kg	0.193	

Location		AAO-164	
Sample No.		AA0164	
Sample Date		22-Jul-00	
Sample Depth (ft)		0.0 - 1.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.328	
2,4-DNT	mg/kg	0.494	
4A-2,6-DNT	mg/kg	0.329	

LEGEND:

△ AAO-162 — SCREENING SOIL SAMPLING LOCATION

BUILDING

DROWNING TANK

NOTES:

1. ANALYTICAL RESULTS EXCEEDING REGION 9 PRELIMINARY REMEDIATION GOALS ARE SHOWN IN BOLD TEXT.
2. SAMPLES WITH NO POSTED DATA ARE BELOW QUANTITATION LIMITS FOR ALL NITROAROMATICS.
3. ALL CONFIRMATION SAMPLING LOCATIONS WERE SURVEYED.
4. NITROAROMATICS (8330-SC) INDICATES SCREENING ANALYSES.
5. SAMPLE DEPTHS

SAMPLE	DEPTH (FT)
AA0162	0.0 - 1.0
AA0163	0.0 - 1.0
AA0164	0.0 - 1.0
AA0165	0.0 - 1.0
AA0166	0.0 - 1.0
AA0167	0.0 - 1.0

SCALE

0 30 60 FEET

FIGURE 2-14
TNT AREA A
BUILDING 123 FORTIFIER HOUSE
SAMPLE LOCATIONS AND
ANALYTICAL RESULTS

PLUM BROOK ORDNANCE WORKS
NASA PLUM BROOK STATION
SANDUSKY, OHIO

IT CORPORATION
A Member of The IT Group

DWG. NO.:...\807111es.029 | PROJ. NO.: 807111
INITIATOR: GUNDERSON | PROJ. MGR.: SPANGBERG
DRAFT. CHCK. BY: C. TUMLIN | ENGR. CHCK. BY: S. MUFFLER
DATE LAST REV.: | DRAWN BY:
STARTING DATE: 08/10/00 | DRAWN BY: B.VANDERGRIFF
04:02:37 04/06/01
bvanderg
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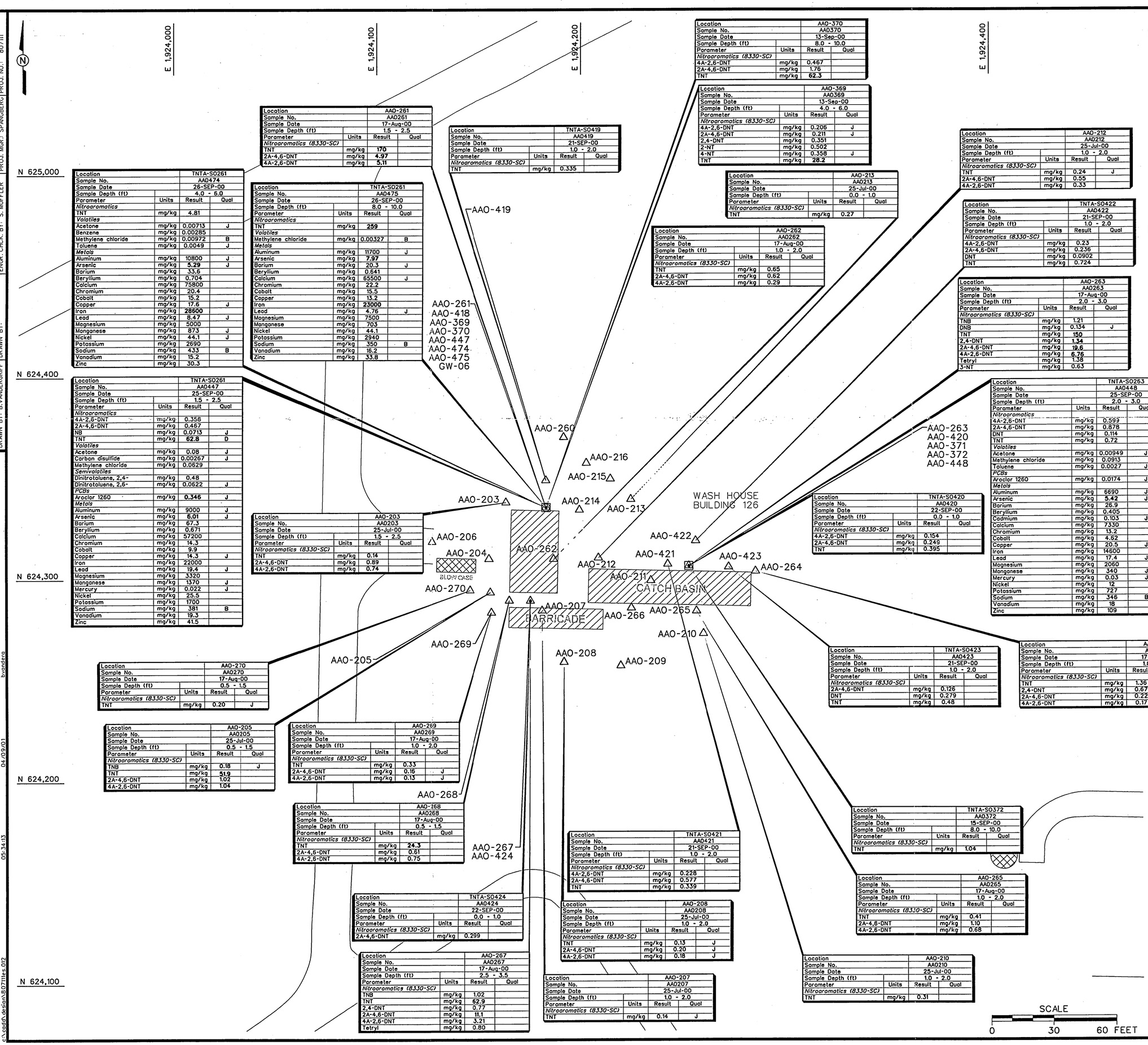

Location		AAO-261	
Sample No.		AA0261	
Sample Date		17-Aug-00	
Sample Depth (ft)		1.5 - 2.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	**170**	
2A-4,6-DNT	mg/kg	**4.97**	
4A-2,6-DNT	mg/kg	**5.11**	

Location		TNTA-S0419	
Sample No.		AA0419	
Sample Date		21-SEP-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.335	

Location		TNTA-S0261	
Sample No.		AA0474	
Sample Date		26-SEP-00	
Sample Depth (ft)		4.0 - 6.0	
Parameter	Units	Result	Qual
Nitroaromatics			
TNT	mg/kg	4.81	
Volatiles			
Acetone	mg/kg	0.00713	J
Benzene	mg/kg	0.00285	
Methylene chloride	mg/kg	0.00972	B
Toluene	mg/kg	0.0049	J
Metals			
Aluminum	mg/kg	10800	J
Arsenic	mg/kg	**5.29**	J
Barium	mg/kg	33.6	
Beryllium	mg/kg	0.704	
Calcium	mg/kg	75800	
Chromium	mg/kg	20.4	
Cobalt	mg/kg	15.2	
Copper	mg/kg	17.6	J
Iron	mg/kg	**28600**	
Lead	mg/kg	8.47	J
Magnesium	mg/kg	5000	
Manganese	mg/kg	873	J
Nickel	mg/kg	44.1	J
Potassium	mg/kg	2690	
Sodium	mg/kg	433	B
Vanadium	mg/kg	15.2	
Zinc	mg/kg	30.3	

Location		TNTA-S0261	
Sample No.		AA0475	
Sample Date		26-SEP-00	
Sample Depth (ft)		8.0 - 10.0	
Parameter	Units	Result	Qual
Nitroaromatics			
TNT	mg/kg	**259**	
Volatiles			
Methylene chloride	mg/kg	0.00327	B
Metals			
Aluminum	mg/kg	11700	J
Arsenic	mg/kg	**7.97**	
Barium	mg/kg	20.3	J
Beryllium	mg/kg	0.641	
Calcium	mg/kg	65500	J
Chromium	mg/kg	22.2	
Cobalt	mg/kg	15.5	
Copper	mg/kg	13.2	
Iron	mg/kg	**23000**	
Lead	mg/kg	4.76	J
Magnesium	mg/kg	7500	
Manganese	mg/kg	703	
Nickel	mg/kg	44.1	
Potassium	mg/kg	2940	
Sodium	mg/kg	350	B
Vanadium	mg/kg	16.2	
Zinc	mg/kg	33.8	

Location		TNTA-S0261	
Sample No.		AA0447	
Sample Date		25-SEP-00	
Sample Depth (ft)		1.5 - 2.5	
Parameter	Units	Result	Qual
Nitroaromatics			
4A-2,6-DNT	mg/kg	0.358	
2A-4,6-DNT	mg/kg	0.467	
NB	mg/kg	0.0713	J
TNT	mg/kg	**62.8**	D
Volatiles			
Acetone	mg/kg	0.08	J
Carbon disulfide	mg/kg	0.00267	J
Methylene chloride	mg/kg	0.0629	
Semivolatiles			
Dinitrotoluene, 2,4-	mg/kg	0.48	
Dinitrotoluene, 2,6-	mg/kg	0.0622	J
PCBs			
Aroclor 1260	mg/kg	**0.346**	J
Metals			
Aluminum	mg/kg	9000	J
Arsenic	mg/kg	**6.01**	J
Barium	mg/kg	67.3	
Beryllium	mg/kg	0.671	
Calcium	mg/kg	57200	
Chromium	mg/kg	14.3	
Cobalt	mg/kg	9.9	
Copper	mg/kg	14.3	J
Iron	mg/kg	22000	
Lead	mg/kg	19.4	J
Magnesium	mg/kg	3320	
Manganese	mg/kg	1370	J
Mercury	mg/kg	0.022	J
Nickel	mg/kg	25.5	
Potassium	mg/kg	1700	
Sodium	mg/kg	381	B
Vanadium	mg/kg	19.3	
Zinc	mg/kg	41.5	

Location		AAO-203	
Sample No.		AA0203	
Sample Date		25-Jul-00	
Sample Depth (ft)		1.5 - 2.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.14	
2A-4,6-DNT	mg/kg	0.89	
4A-2,6-DNT	mg/kg	0.74	

Location		AAO-370	
Sample No.		AA0370	
Sample Date		13-Sep-00	
Sample Depth (ft)		8.0 - 10.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
4A-2,6-DNT	mg/kg	0.467	
2A-4,6-DNT	mg/kg	1.76	
TNT	mg/kg	**62.3**	

Location		AAO-369	
Sample No.		AA0369	
Sample Date		13-Sep-00	
Sample Depth (ft)		4.0 - 6.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
4A-2,6-DNT	mg/kg	0.206	J
2A-4,6-DNT	mg/kg	0.211	J
2,4-DNT	mg/kg	0.351	
2-NT	mg/kg	0.502	
4-NT	mg/kg	0.358	J
TNT	mg/kg	**28.2**	

Location		AAO-213	
Sample No.		AA0213	
Sample Date		25-Jul-00	
Sample Depth (ft)		0.0 - 1.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.27	

Location		AAO-262	
Sample No.		AA0262	
Sample Date		17-Aug-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.65	
2A-4,6-DNT	mg/kg	0.62	
4A-2,6-DNT	mg/kg	0.29	

Location		AAO-212	
Sample No.		AA0212	
Sample Date		25-Jul-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.24	J
2A-4,6-DNT	mg/kg	0.55	
4A-2,6-DNT	mg/kg	0.33	

Location		TNTA-S0422	
Sample No.		AA0422	
Sample Date		21-SEP-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
4A-2,6-DNT	mg/kg	0.23	
2A-4,6-DNT	mg/kg	0.236	
DNT	mg/kg	0.0902	
TNT	mg/kg	0.724	

Location		AAO-263	
Sample No.		AA0263	
Sample Date		17-Aug-00	
Sample Depth (ft)		2.0 - 3.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNB	mg/kg	1.21	
DNB	mg/kg	0.134	J
TNT	mg/kg	**150**	
2,4-DNT	mg/kg	**1.34**	
2A-4,6-DNT	mg/kg	**19.6**	
4A-2,6-DNT	mg/kg	**6.76**	
Tetryl	mg/kg	1.38	
3-NT	mg/kg	0.63	

Location		TNTA-S0263	
Sample No.		AA0448	
Sample Date		25-SEP-00	
Sample Depth (ft)		2.0 - 3.0	
Parameter	Units	Result	Qual
Nitroaromatics			
4A-2,6-DNT	mg/kg	0.599	
2A-4,6-DNT	mg/kg	0.878	
DNT	mg/kg	0.114	
TNT	mg/kg	0.72	
Volatiles			
Acetone	mg/kg	0.00949	J
Methylene chloride	mg/kg	0.0913	
Toluene	mg/kg	0.0027	J
PCBs			
Aroclor 1260	mg/kg	0.0174	J
Metals			
Aluminum	mg/kg	6690	J
Arsenic	mg/kg	**5.42**	J
Barium	mg/kg	26.9	
Beryllium	mg/kg	0.405	
Cadmium	mg/kg	0.103	J
Calcium	mg/kg	7330	
Chromium	mg/kg	13.2	
Cobalt	mg/kg	4.62	
Copper	mg/kg	20.5	J
Iron	mg/kg	14600	
Lead	mg/kg	17.4	J
Magnesium	mg/kg	2060	
Manganese	mg/kg	340	J
Mercury	mg/kg	0.03	J
Nickel	mg/kg	12	
Potassium	mg/kg	727	
Sodium	mg/kg	346	B
Vanadium	mg/kg	18	
Zinc	mg/kg	109	

Location		TNTA-S0420	
Sample No.		AA0420	
Sample Date		22-SEP-00	
Sample Depth (ft)		0.0 - 1.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
4A-2,6-DNT	mg/kg	0.154	
2A-4,6-DNT	mg/kg	0.249	
TNT	mg/kg	0.395	

Location		AAO-270	
Sample No.		AA0270	
Sample Date		17-Aug-00	
Sample Depth (ft)		0.5 - 1.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.20	J

Location		TNTA-S0423	
Sample No.		AA0423	
Sample Date		21-SEP-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2A-4,6-DNT	mg/kg	0.126	
DNT	mg/kg	0.279	
TNT	mg/kg	0.48	

Location		AAO-264	
Sample No.		AA0264	
Sample Date		17-Aug-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	1.36	
2,4-DNT	mg/kg	0.67	
2A-4,6-DNT	mg/kg	0.22	J
4A-2,6-DNT	mg/kg	0.17	J

Location		AAO-205	
Sample No.		AA0205	
Sample Date		25-Jul-00	
Sample Depth (ft)		0.5 - 1.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNB	mg/kg	0.18	J
TNT	mg/kg	**51.9**	
2A-4,6-DNT	mg/kg	1.02	
4A-2,6-DNT	mg/kg	1.04	

Location		AAO-269	
Sample No.		AA0269	
Sample Date		17-Aug-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.33	
2A-4,6-DNT	mg/kg	0.16	J
4A-2,6-DNT	mg/kg	0.13	J

Location		AAO-268	
Sample No.		AA0268	
Sample Date		17-Aug-00	
Sample Depth (ft)		0.5 - 1.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	**24.3**	
2A-4,6-DNT	mg/kg	0.61	
4A-2,6-DNT	mg/kg	0.75	

Location		TNTA-S0421	
Sample No.		AA0421	
Sample Date		21-SEP-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
4A-2,6-DNT	mg/kg	0.228	
2A-4,6-DNT	mg/kg	0.577	
TNT	mg/kg	0.339	

Location		TNTA-S0372	
Sample No.		AA0372	
Sample Date		15-SEP-00	
Sample Depth (ft)		8.0 - 10.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	1.04	

Location		AAO-265	
Sample No.		AA0265	
Sample Date		17-Aug-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.41	
2A-4,6-DNT	mg/kg	1.10	
4A-2,6-DNT	mg/kg	0.68	

Location		TNTA-S0424	
Sample No.		AA0424	
Sample Date		22-SEP-00	
Sample Depth (ft)		0.0 - 1.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2A-4,6-DNT	mg/kg	0.299	

Location		AAO-208	
Sample No.		AA0208	
Sample Date		25-Jul-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.13	J
2A-4,6-DNT	mg/kg	0.20	J
4A-2,6-DNT	mg/kg	0.18	J

Location		AAO-267	
Sample No.		AA0267	
Sample Date		17-Aug-00	
Sample Depth (ft)		2.5 - 3.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNB	mg/kg	1.02	
TNT	mg/kg	62.9	
2,4-DNT	mg/kg	0.77	
2A-4,6-DNT	mg/kg	11.1	
4A-2,6-DNT	mg/kg	3.21	
Tetryl	mg/kg	0.80	

Location		AAO-207	
Sample No.		AA0207	
Sample Date		25-Jul-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.14	J

Location		AAO-210	
Sample No.		AA0210	
Sample Date		25-Jul-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.31	

LEGEND:

- △ AAO-203 — SCREENING SOIL SAMPLING LOCATION
- • AAO-314 — SURFACE SOIL SAMPLE 0 - 1FT
- ○ GW-01 — GROUNDWATER SAMPLING LOCATION
- □ AAO-441 — CONFIRMATION SOIL SAMPLING LOCATION
- TANK
- BUILDING

NOTES:

1. ANALYTICAL RESULTS EXCEEDING REGION 9 PRELIMINARY REMEDIATION GOALS ARE SHOWN IN BOLD TEXT.
2. SAMPLES WITH NO POSTED DATA ARE BELOW QUANTITATION LIMITS FOR ALL NITROAROMATICS.
3. ALL CONFIRMATION SAMPLING LOCATIONS WERE SURVEYED.
4. NITROAROMATICS (8330-SC) INDICATES SCREENING ANALYSES.
5. SAMPLING DEPTHS

SAMPLE	DEPTH (FT)
AA0203	1.5 - 2.5
AA0204	2.0 - 3.0
AA0205	0.5 - 1.5
AA0206	1.0 - 2.0
AA0207	1.0 - 2.0
AA0208	1.0 - 2.0
AA0209	1.0 - 2.0
AA0210	1.0 - 2.0
AA0211	1.0 - 2.0
AA0212	1.0 - 2.0
AA0213	0.0 - 1.0
AA0214	1.5 - 2.5
AA0215	0.0 - 1.0
AA0216	0.0 - 1.0
AA0260	0.25 - 1.25
AA0261	1.5 - 2.5
AA0262	1.0 - 2.0
AA0263	2.0 - 3.0
AA0264	1.0 - 2.0
AA0265	1.0 - 2.0
AA0266	1.0 - 2.0
AA0267	2.5 - 3.5
AA0268	0.5 - 1.5
AA0269	1.0 - 2.0
AA0270	0.5 - 1.5
AA0369	4.0 - 6.0
AA0370	8.0 - 10.0
AA0371	4.0 - 6.0
AA0372	8.0 - 10.0
AA0418	0.0 - 1.0
AA0419	1.0 - 2.0
AA0420	0.0 - 1.0
AA0421	1.0 - 2.0
AA0422	1.0 - 2.0
AA0423	1.0 - 2.0
AA0424	0.0 - 1.0
AA0447	1.5 - 2.5
AA0448	2.0 - 3.0
AA0474	4.0 - 6.0
AA0475	8.0 - 10.0

SCALE
0 30 60 FEET

FIGURE 2-15
TNT AREA A
BUILDING 126
WASH HOUSE LINE 2
SAMPLE LOCATIONS AND
ANALYTICAL RESULTS

PLUM BROOK ORDNANCE WORKS
NASA PLUM BROOK STATION
SANDUSKY, OHIO

IT CORPORATION
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STARTING DATE: 08/09/00 | DATE LAST REV.: | DRAFT. CHCK. BY: C. TUMLIN | INITIATOR: GUNDERSON | DWG. NO.: 807111es.012
DRAWN BY: B.VANDERGRIFF | DRAWN BY: | ENGR. CHCK. BY: S. MUFFLER | PROJ. MGR.: SPANGBERG | PROJ. NO.: 807111

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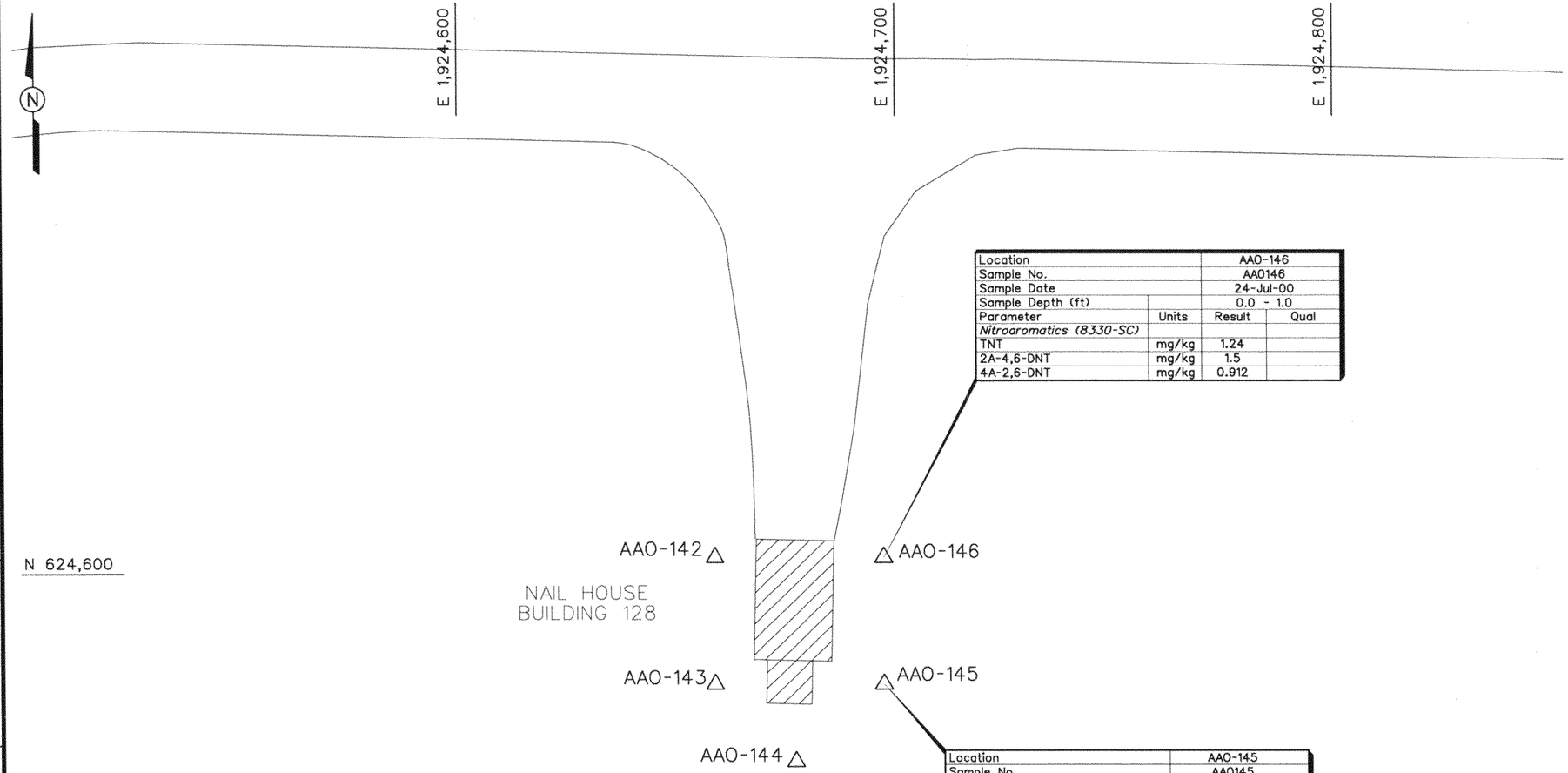


Location		AAO-146	
Sample No.		AA0146	
Sample Date		24-Jul-00	
Sample Depth (ft)		0.0 - 1.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	1.24	
2A-4,6-DNT	mg/kg	1.5	
4A-2,6-DNT	mg/kg	0.912	

Location		AAO-145	
Sample No.		AA0145	
Sample Date		24-Jul-00	
Sample Depth (ft)		0.0 - 1.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	1.12	
2A-4,6-DNT	mg/kg	0.607	
4A-2,6-DNT	mg/kg	0.388	

LEGEND:

△ AAO-142 — SCREENING SOIL SAMPLING LOCATION

BUILDING

NOTES:

1. ANALYTICAL RESULTS EXCEEDING REGION 9 PRELIMINARY REMEDIATION GOALS ARE SHOWN IN BOLD TEXT.
2. SAMPLES WITH NO POSTED DATA ARE BELOW QUANTITATION LIMITS FOR ALL NITROAROMATICS.
3. ALL CONFIRMATION SAMPLING LOCATIONS WERE SURVEYED.
4. NITROAROMATICS (8330-SC) INDICATES SCREENING ANALYSES.
5. SAMPLING DEPTHS

SAMPLE	DEPTH (FT)
AA0142	0.0 - 1.0
AA0143	0.0 - 1.0
AA0144	0.0 - 1.0
AA0145	0.0 - 1.0
AA0146	0.0 - 1.0

SCALE

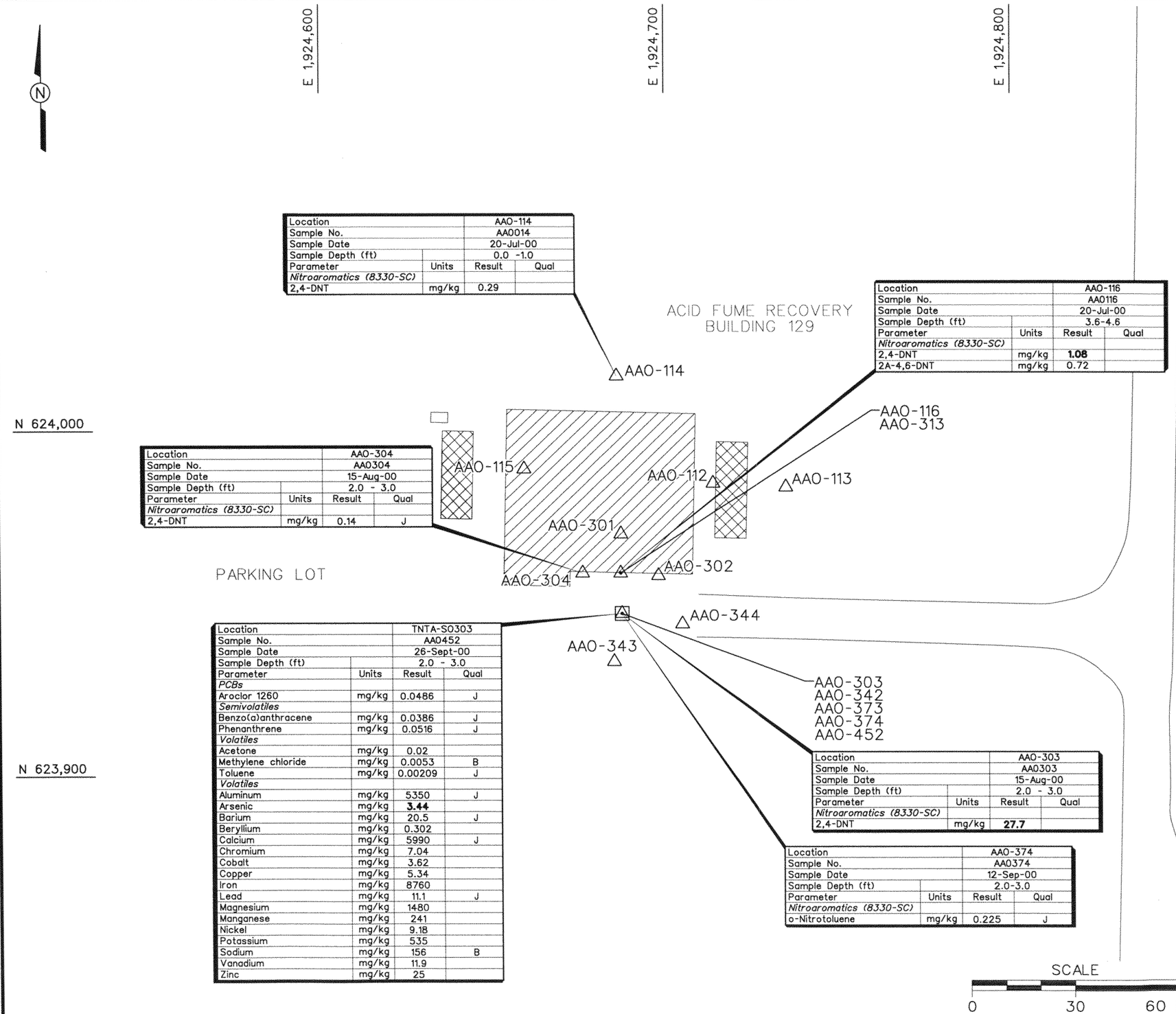
0 30 60 FEET

FIGURE 2-16
TNT AREA A
BUILDING 128 NAIL HOUSE
SAMPLE LOCATIONS AND
ANALYTICAL RESULTS

PLUM BROOK ORDNANCE WORKS
NASA PLUM BROOK STATION
SANDUSKY, OHIO

IT CORPORATION
A Member of The IT Group

DWG. NO.: ...\807111es.041 | PROJ. NO.: 807111
INITIATOR: GUNDERSON | PROJ. MGR.: SPANGBERG
DRAFT. CHCK. BY: C. TUMLIN | ENGR. CHCK. BY: S. MUFFLER
STARTING DATE: 08/09/00 | DATE LAST REV.:
DRAWN BY: B.VANDERGRIFF | DRAWN BY:
02:41:21 04/09/01
bvanderg
c:\cadd\design\807111es.041



Location		AAO-114	
Sample No.		AA0014	
Sample Date		20-Jul-00	
Sample Depth (ft)		0.0 -1.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.29	

Location		AAO-116	
Sample No.		AA0116	
Sample Date		20-Jul-00	
Sample Depth (ft)		3.6-4.6	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	**1.08**	
2A-4,6-DNT	mg/kg	0.72	

Location		AAO-304	
Sample No.		AA0304	
Sample Date		15-Aug-00	
Sample Depth (ft)		2.0 - 3.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.14	J

Location		TNTA-S0303	
Sample No.		AA0452	
Sample Date		26-Sept-00	
Sample Depth (ft)		2.0 - 3.0	
Parameter	Units	Result	Qual
PCBs			
Aroclor 1260	mg/kg	0.0486	J
Semivolatiles			
Benzo(a)anthracene	mg/kg	0.0386	J
Phenanthrene	mg/kg	0.0516	J
Volatiles			
Acetone	mg/kg	0.02	
Methylene chloride	mg/kg	0.0053	B
Toluene	mg/kg	0.00209	J
Volatiles			
Aluminum	mg/kg	5350	J
Arsenic	mg/kg	**3.44**	
Barium	mg/kg	20.5	J
Beryllium	mg/kg	0.302	
Calcium	mg/kg	5990	J
Chromium	mg/kg	7.04	
Cobalt	mg/kg	3.62	
Copper	mg/kg	5.34	
Iron	mg/kg	8760	
Lead	mg/kg	11.1	J
Magnesium	mg/kg	1480	
Manganese	mg/kg	241	
Nickel	mg/kg	9.18	
Potassium	mg/kg	535	
Sodium	mg/kg	156	B
Vanadium	mg/kg	11.9	
Zinc	mg/kg	25	

Location		AAO-303	
Sample No.		AA0303	
Sample Date		15-Aug-00	
Sample Depth (ft)		2.0 - 3.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	**27.7**	

Location		AAO-374	
Sample No.		AA0374	
Sample Date		12-Sep-00	
Sample Depth (ft)		2.0-3.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
o-Nitrotoluene	mg/kg	0.225	J

LEGEND:

△ AAO-112	SCREENING SOIL SAMPLING LOCATION
• AAO-313	SURFACE SOIL SAMPLE (0 - 1 FT)
□ AAO-452	CONFIRMATION SOIL SAMPLING LOCATION
	TANK
	BUILDING

NOTES:

1. ANALYTICAL RESULTS EXCEEDING REGION 9 PRELIMINARY REMEDIATION GOALS ARE SHOWN IN BOLD TEXT.
2. SAMPLES WITH NO POSTED DATA ARE BELOW QUANTITATION LIMITS FOR ALL NITROAROMATICS.
3. ALL CONFIRMATION SAMPLING LOCATIONS WERE SURVEYED.
4. NITROAROMATICS (8330-SC) INDICATES SCREENING ANALYSES.
5. SAMPLING DEPTHS

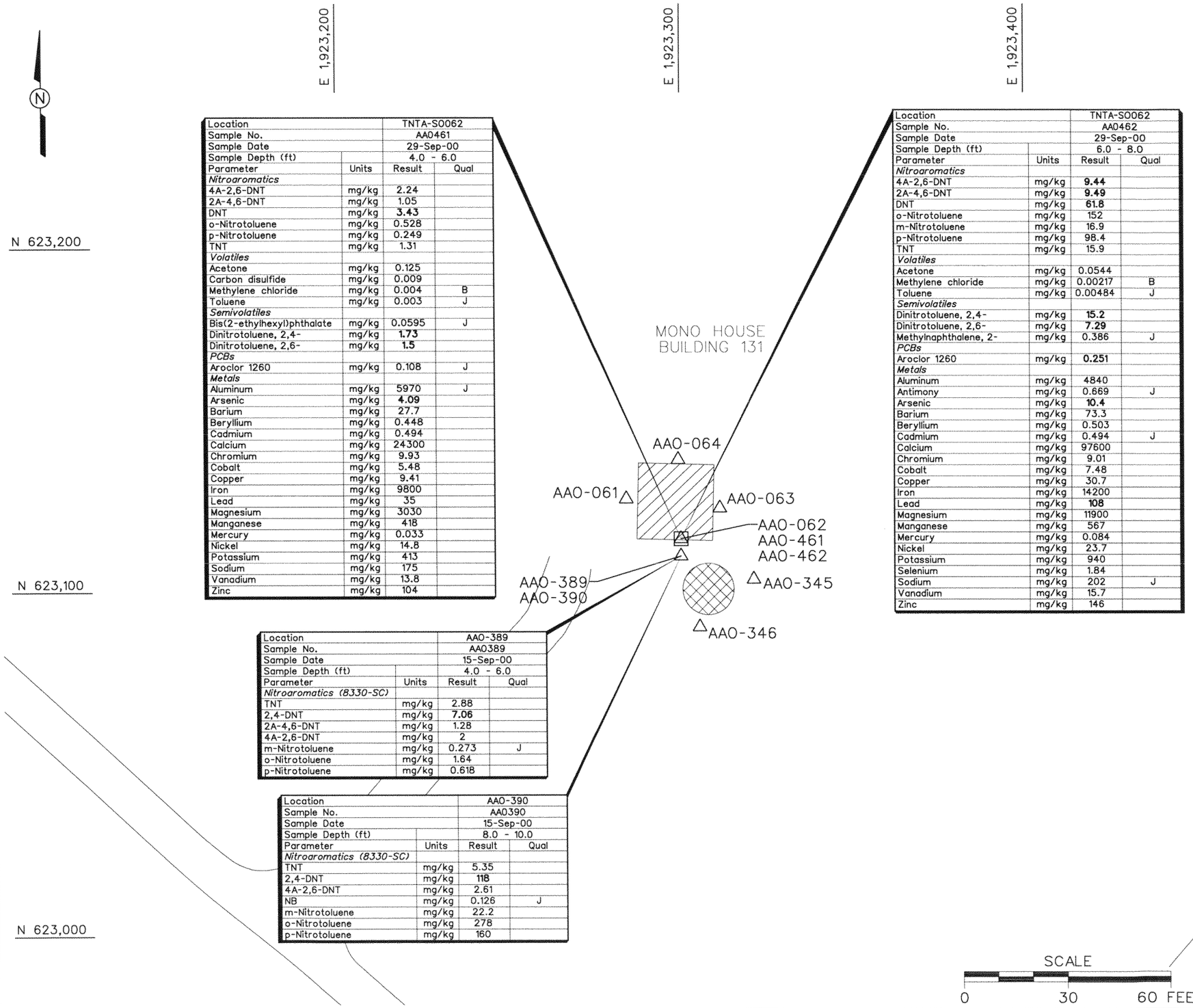
SAMPLE	DEPTH (FT)
AA0112	1.0 - 2.0
AA0113	3.6 - 4.6
AA0114	3.6 - 4.6
AA0115	3.6 - 4.6
AA0116	3.6 - 4.6
AA0301	1.5 - 2.5
AA0302	1.5 - 2.5
AA0303	2.0 - 3.0
AA0304	2.0 - 3.0
AA0313	0.0 - 1.0
AA0342	0.0 - 1.0
AA0343	1.0 - 1.5
AA0344	1.0 - 1.5
AA0373	4.0 - 6.0
AA0374	8.0 - 10.0
AA0452	2.0 - 3.0

FIGURE 2-17
TNT AREA A
BUILDING 129 ACID FUME RECOVERY, SAMPLE LOCATIONS AND ANALYTICAL RESULTS

PLUM BROOK ORDNANCE WORKS
NASA PLUM BROOK STATION
SANDUSKY, OHIO

IT CORPORATION
A Member of The IT Group

DWG. NO.: ...\807111es.014 | INITIATOR: GUNDERSON | DRAFT. CHCK. BY: C. TUMLIN | DATE LAST REV.: | STARTING DATE: 08/10/00 | 04:01:58
PROJ. NO.: 807111 | PROJ. MGR.: SPANGBERG | ENGR. CHCK. BY: S. MUFFLER | DRAWN BY: | DRAWN BY: B.VANDERGRIFF | 04/06/01
bvanderg
c:\cadd\design\807111es.014



Location		TNTA-S0062	
Sample No.		AA0461	
Sample Date		29-Sep-00	
Sample Depth (ft)		4.0 - 6.0	
Parameter	Units	Result	Qual
Nitroaromatics			
4A-2,6-DNT	mg/kg	2.24	
2A-4,6-DNT	mg/kg	1.05	
DNT	mg/kg	**3.43**	
o-Nitrotoluene	mg/kg	0.528	
p-Nitrotoluene	mg/kg	0.249	
TNT	mg/kg	1.31	
Volatiles			
Acetone	mg/kg	0.125	
Carbon disulfide	mg/kg	0.009	
Methylene chloride	mg/kg	0.004	B
Toluene	mg/kg	0.003	J
Semivolatiles			
Bis(2-ethylhexyl)phthalate	mg/kg	0.0595	J
Dinitrotoluene, 2,4-	mg/kg	**1.73**	
Dinitrotoluene, 2,6-	mg/kg	**1.5**	
PCBs			
Aroclor 1260	mg/kg	0.108	J
Metals			
Aluminum	mg/kg	5970	J
Arsenic	mg/kg	**4.09**	
Barium	mg/kg	27.7	
Beryllium	mg/kg	0.448	
Cadmium	mg/kg	0.494	
Calcium	mg/kg	24300	
Chromium	mg/kg	9.93	
Cobalt	mg/kg	5.48	
Copper	mg/kg	9.41	
Iron	mg/kg	9800	
Lead	mg/kg	35	
Magnesium	mg/kg	3030	
Manganese	mg/kg	418	
Mercury	mg/kg	0.033	
Nickel	mg/kg	14.8	
Potassium	mg/kg	413	
Sodium	mg/kg	175	
Vanadium	mg/kg	13.8	
Zinc	mg/kg	104	

Location		TNTA-S0062	
Sample No.		AA0462	
Sample Date		29-Sep-00	
Sample Depth (ft)		6.0 - 8.0	
Parameter	Units	Result	Qual
Nitroaromatics			
4A-2,6-DNT	mg/kg	**9.44**	
2A-4,6-DNT	mg/kg	**9.49**	
DNT	mg/kg	**61.8**	
o-Nitrotoluene	mg/kg	152	
m-Nitrotoluene	mg/kg	16.9	
p-Nitrotoluene	mg/kg	98.4	
TNT	mg/kg	15.9	
Volatiles			
Acetone	mg/kg	0.0544	
Methylene chloride	mg/kg	0.00217	B
Toluene	mg/kg	0.00484	J
Semivolatiles			
Dinitrotoluene, 2,4-	mg/kg	**15.2**	
Dinitrotoluene, 2,6-	mg/kg	**7.29**	
Methylnaphthalene, 2-	mg/kg	0.386	J
PCBs			
Aroclor 1260	mg/kg	**0.251**	
Metals			
Aluminum	mg/kg	4840	
Antimony	mg/kg	0.669	J
Arsenic	mg/kg	**10.4**	
Barium	mg/kg	73.3	
Beryllium	mg/kg	0.503	
Cadmium	mg/kg	0.494	J
Calcium	mg/kg	97600	
Chromium	mg/kg	9.01	
Cobalt	mg/kg	7.48	
Copper	mg/kg	30.7	
Iron	mg/kg	14200	
Lead	mg/kg	**108**	
Magnesium	mg/kg	11900	
Manganese	mg/kg	567	
Mercury	mg/kg	0.084	
Nickel	mg/kg	23.7	
Potassium	mg/kg	940	
Selenium	mg/kg	1.84	
Sodium	mg/kg	202	J
Vanadium	mg/kg	15.7	
Zinc	mg/kg	146	

Location		AA0-389	
Sample No.		AA0389	
Sample Date		15-Sep-00	
Sample Depth (ft)		4.0 - 6.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	2.88	
2,4-DNT	mg/kg	**7.06**	
2A-4,6-DNT	mg/kg	1.28	
4A-2,6-DNT	mg/kg	2	
m-Nitrotoluene	mg/kg	0.273	J
o-Nitrotoluene	mg/kg	1.64	
p-Nitrotoluene	mg/kg	0.618	

Location		AA0-390	
Sample No.		AA0390	
Sample Date		15-Sep-00	
Sample Depth (ft)		8.0 - 10.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	5.35	
2,4-DNT	mg/kg	**118**	
4A-2,6-DNT	mg/kg	2.61	
NB	mg/kg	0.126	J
m-Nitrotoluene	mg/kg	22.2	
o-Nitrotoluene	mg/kg	278	
p-Nitrotoluene	mg/kg	160	

LEGEND:

△ AA0-061 — SCREENING SURFACE SOIL SAMPLING LOCATION

□ AA0-461 — CONFIRMATION SOIL SAMPLING LOCATION

TANK

BUILDING

NOTES:

1. ANALYTICAL RESULTS EXCEEDING REGION 9 PRELIMINARY REMEDIATION GOALS ARE SHOWN IN BOLD TEXT.
2. SAMPLES WITH NO POSTED DATA ARE BELOW QUANTITATION LIMITS FOR ALL NITROAROMATICS.
3. ALL CONFIRMATION SAMPLING LOCATIONS WERE SURVEYED.
4. NITROAROMATICS (8330-SC) INDICATES SCREENING ANALYSES.
5. SAMPLE DEPTHS

SAMPLE	DEPTH (FT)
AA0061	0.5 - 1.5
AA0062	0.4 - 1.4
AA0063	0.5 - 1.5
AA0064	1.5 - 2.5
AA0345	0.8 - 1.8
AA0346	1.5 - 2.5
AA0389	4.0 - 6.0
AA0390	8.0 - 10.0
AA0461	4.0 - 6.0
AA0462	6.0 - 8.0

SCALE
0 30 60 FEET

FIGURE 2-18
TNT AREA A
BUILDING 131 MONO HOUSE
SAMPLE LOCATIONS AND
ANALYTICAL RESULTS

PLUM BROOK ORDNANCE WORKS
NASA PLUM BROOK STATION
SANDUSKY, OHIO

IT CORPORATION
A Member of The IT Group

DWG. NO.: ...\807111es.020 | INITIATOR: GUNDERSON | DRAFT. CHCK. BY: C. TUMLIN | DATE LAST REV.: | STARTING DATE: 08/16/00 | 04:03:27
PROJ. NO.: 807111 | PROJ. MGR.: SPANGBERG | ENGR. CHCK. BY: S. MUFFLER | DRAWN BY: | DRAWN BY: B.VANDERGRIFF | 04/06/01
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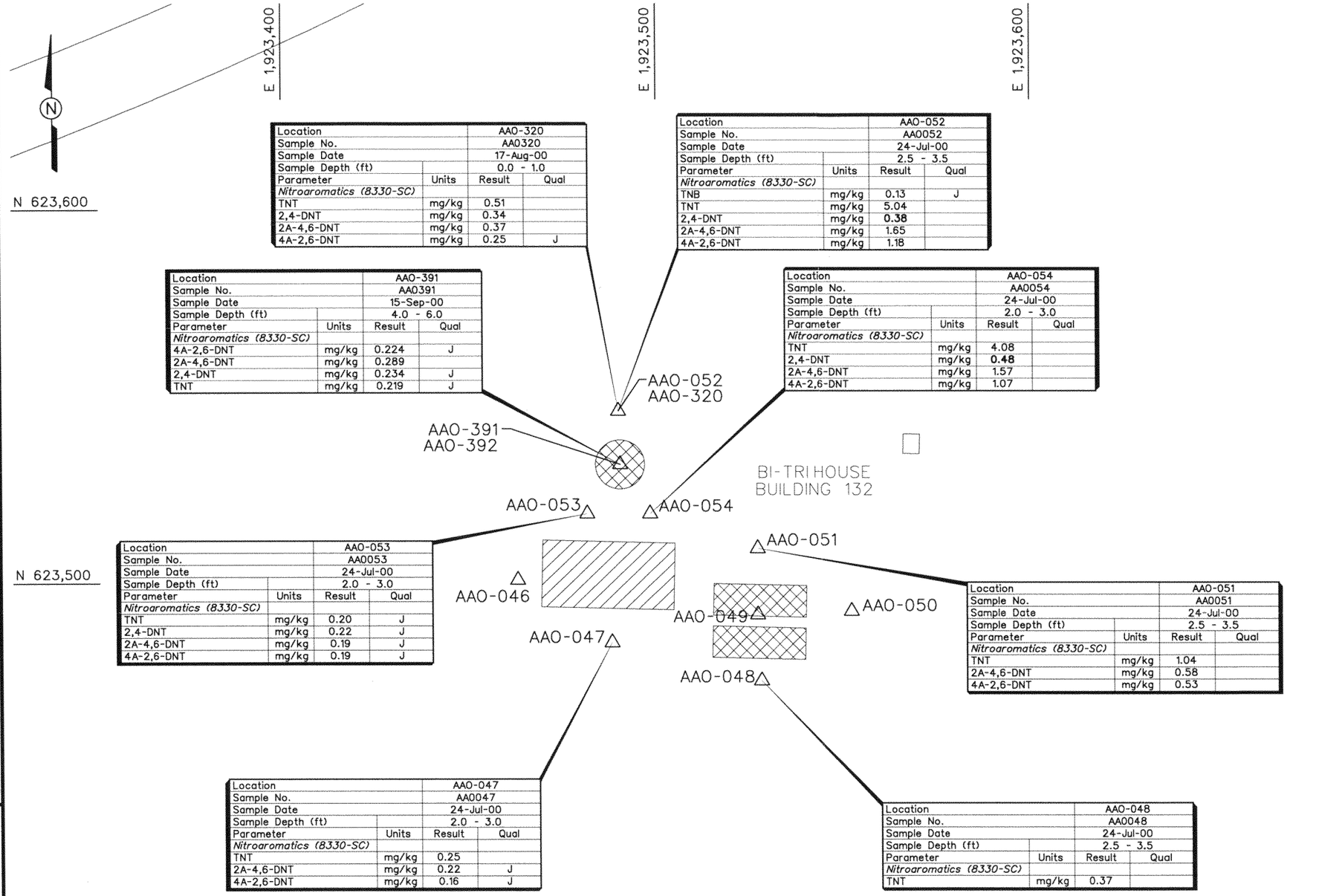


Location		AAO-320	
Sample No.		AA0320	
Sample Date		17-Aug-00	
Sample Depth (ft)		0.0 - 1.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.51	
2,4-DNT	mg/kg	0.34	
2A-4,6-DNT	mg/kg	0.37	
4A-2,6-DNT	mg/kg	0.25	J

Location		AAO-052	
Sample No.		AA0052	
Sample Date		24-Jul-00	
Sample Depth (ft)		2.5 - 3.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNB	mg/kg	0.13	J
TNT	mg/kg	5.04	
2,4-DNT	mg/kg	**0.38**	
2A-4,6-DNT	mg/kg	1.65	
4A-2,6-DNT	mg/kg	1.18	

Location		AAO-391	
Sample No.		AA0391	
Sample Date		15-Sep-00	
Sample Depth (ft)		4.0 - 6.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
4A-2,6-DNT	mg/kg	0.224	J
2A-4,6-DNT	mg/kg	0.289	
2,4-DNT	mg/kg	0.234	J
TNT	mg/kg	0.219	J

Location		AAO-054	
Sample No.		AA0054	
Sample Date		24-Jul-00	
Sample Depth (ft)		2.0 - 3.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	4.08	
2,4-DNT	mg/kg	**0.48**	
2A-4,6-DNT	mg/kg	1.57	
4A-2,6-DNT	mg/kg	1.07	

Location		AAO-053	
Sample No.		AA0053	
Sample Date		24-Jul-00	
Sample Depth (ft)		2.0 - 3.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.20	J
2,4-DNT	mg/kg	0.22	J
2A-4,6-DNT	mg/kg	0.19	J
4A-2,6-DNT	mg/kg	0.19	J

Location		AAO-051	
Sample No.		AA0051	
Sample Date		24-Jul-00	
Sample Depth (ft)		2.5 - 3.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	1.04	
2A-4,6-DNT	mg/kg	0.58	
4A-2,6-DNT	mg/kg	0.53	

Location		AAO-047	
Sample No.		AA0047	
Sample Date		24-Jul-00	
Sample Depth (ft)		2.0 - 3.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.25	
2A-4,6-DNT	mg/kg	0.22	J
4A-2,6-DNT	mg/kg	0.16	J

Location		AAO-048	
Sample No.		AA0048	
Sample Date		24-Jul-00	
Sample Depth (ft)		2.5 - 3.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.37	

LEGEND:

△ AAO-046 — SCREENING SURFACE SOIL SAMPLING LOCATION

TANK

BUILDING

NOTES:

1. ANALYTICAL RESULTS EXCEEDING REGION 9 PRELIMINARY REMEDIATION GOALS ARE SHOWN IN BOLD TEXT.
2. SAMPLES WITH NO POSTED DATA ARE BELOW QUANTITATION LIMITS FOR ALL NITROAROMATICS.
3. ALL CONFIRMATION SAMPLING LOCATIONS WERE SURVEYED.
4. NITROAROMATICS (8330-SC) INDICATES SCREENING ANALYSES.
5. SAMPLING DEPTHS

SAMPLE	DEPTH (FT)
AA0046	2.5 - 3.5
AA0047	2.0 - 3.0
AA0048	2.5 - 3.5
AA0049	2.0 - 3.0
AA0050	2.0 - 3.0
AA0051	2.5 - 3.5
AA0052	2.5 - 3.5
AA0053	2.0 - 3.0
AA0054	2.0 - 3.0
AA0320	0.0 - 1.0
AA0391	4.0 - 6.0
AA0392	8.0 - 10.0

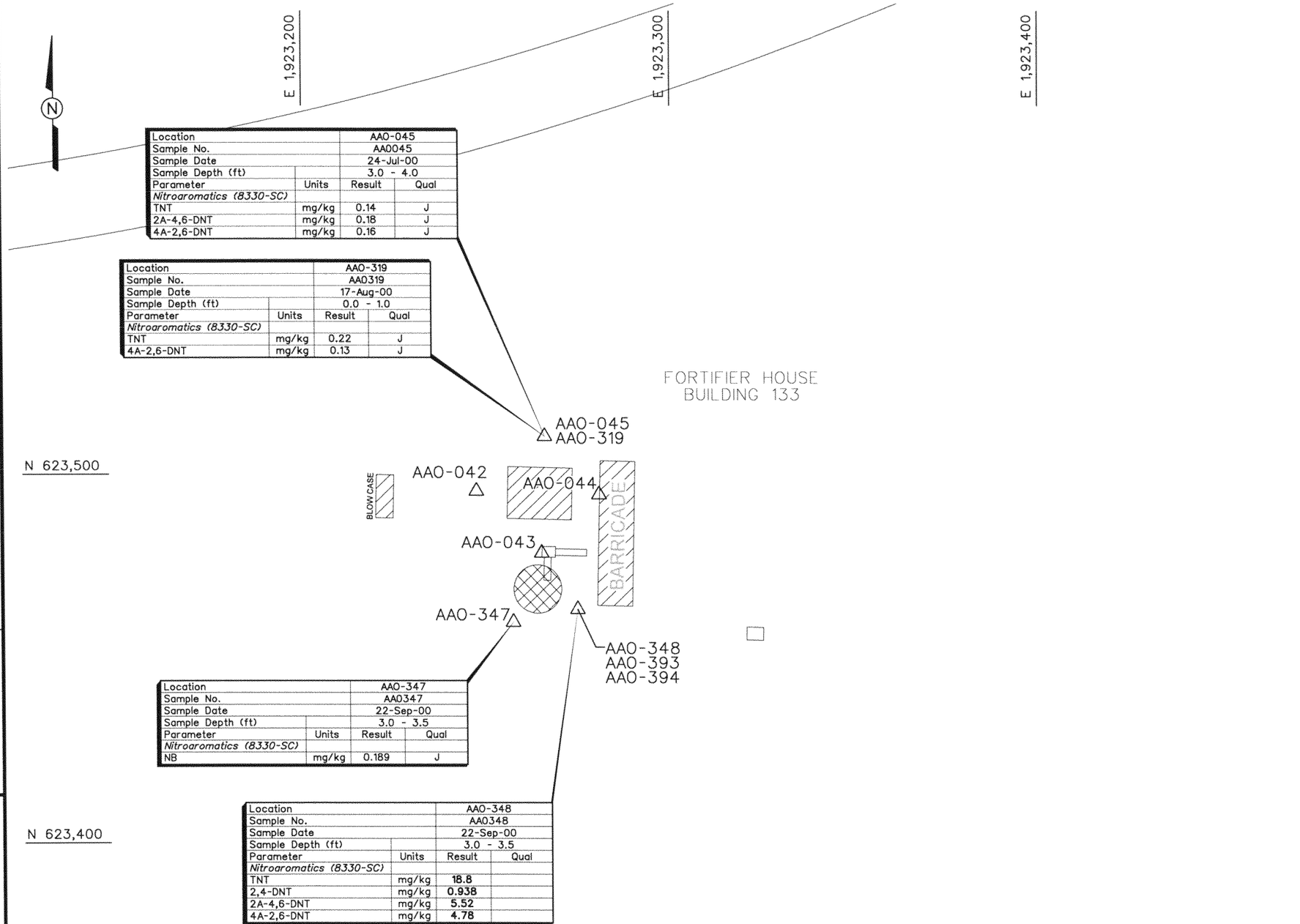
SCALE
0 30 60 FEET

FIGURE 2-19
TNT AREA A
BUILDING 132 BI-TRI HOUSE
SAMPLE LOCATIONS AND
ANALYTICAL RESULTS

PLUM BROOK ORDNANCE WORKS
NASA PLUM BROOK STATION
SANDUSKY, OHIO

IT CORPORATION
A Member of The IT Group

DWG. NO.:...\807111es.042
PROJ. NO.: 807111
INITIATOR: GUNDERSON
PROJ. MGR.: SPANGBERG
DRAFT. CHCK. BY: C. TUMLIN
ENGR. CHCK. BY: S. MUFFLER
DATE LAST REV.:
DRAWN BY:
STARTING DATE: 08/16/00
DRAWN BY: B.VANDERGRIFF
04:04:17
04/06/01
bvanderg
c:\cadd\design\807111es.042



Location		AAO-045	
Sample No.		AA0045	
Sample Date		24-Jul-00	
Sample Depth (ft)		3.0 - 4.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.14	J
2A-4,6-DNT	mg/kg	0.18	J
4A-2,6-DNT	mg/kg	0.16	J

Location		AAO-319	
Sample No.		AA0319	
Sample Date		17-Aug-00	
Sample Depth (ft)		0.0 - 1.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.22	J
4A-2,6-DNT	mg/kg	0.13	J

Location		AAO-347	
Sample No.		AA0347	
Sample Date		22-Sep-00	
Sample Depth (ft)		3.0 - 3.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
NB	mg/kg	0.189	J

Location		AAO-348	
Sample No.		AA0348	
Sample Date		22-Sep-00	
Sample Depth (ft)		3.0 - 3.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	**18.8**	
2,4-DNT	mg/kg	**0.938**	
2A-4,6-DNT	mg/kg	**5.52**	
4A-2,6-DNT	mg/kg	**4.78**	

LEGEND:

△ AAO-042 — SCREENING SURFACE SOIL SAMPLING LOCATION

TANK

BUILDING

NOTES:

1. ANALYTICAL RESULTS EXCEEDING REGION 9 PRELIMINARY REMEDIATION GOALS ARE SHOWN IN BOLD TEXT.
2. SAMPLES WITH NO POSTED DATA ARE BELOW QUANTITATION LIMITS FOR ALL NITROAROMATICS.
3. ALL CONFIRMATION SAMPLING LOCATIONS WERE SURVEYED.
4. NITROAROMATICS (8330-SC) INDICATES SCREENING ANALYSES.
5. SAMPLE DEPTHS

SAMPLE	DEPTH (FT)
AA0042	3.0 - 4.0
AA0043	3.0 - 4.0
AA0044	3.0 - 4.0
AA0045	3.0 - 4.0
AA0319	0.0 - 1.0
AA0347	3.0 - 3.5
AA0348	3.0 - 3.5
AA0393	4.0 - 6.0
AA0394	8.0 - 10.0

SCALE

0 30 60 FEET

FIGURE 2-20
TNT AREA A
BUILDING 133 FORTIFER HOUSE
SAMPLE LOCATIONS AND
ANALYTICAL RESULTS

PLUM BROOK ORDNANCE WORKS
NASA PLUM BROOK STATION
SANDUSKY, OHIO

IT CORPORATION
A Member of The IT Group

DWG. NO.:...\807111es.043 | PROJ. NO.: 807111
INITIATOR: GUNDERSON | PROJ. MGR.: SPANGBERG
DRAFT. CHCK. BY: C. TUMLIN | ENGR. CHCK. BY: S. MUFFLER
DATE LAST REV.: | DRAWN BY:
STARTING DATE: 08/16/00 | DRAWN BY: B.VANDERGRIFF
01:00:59 04/09/01
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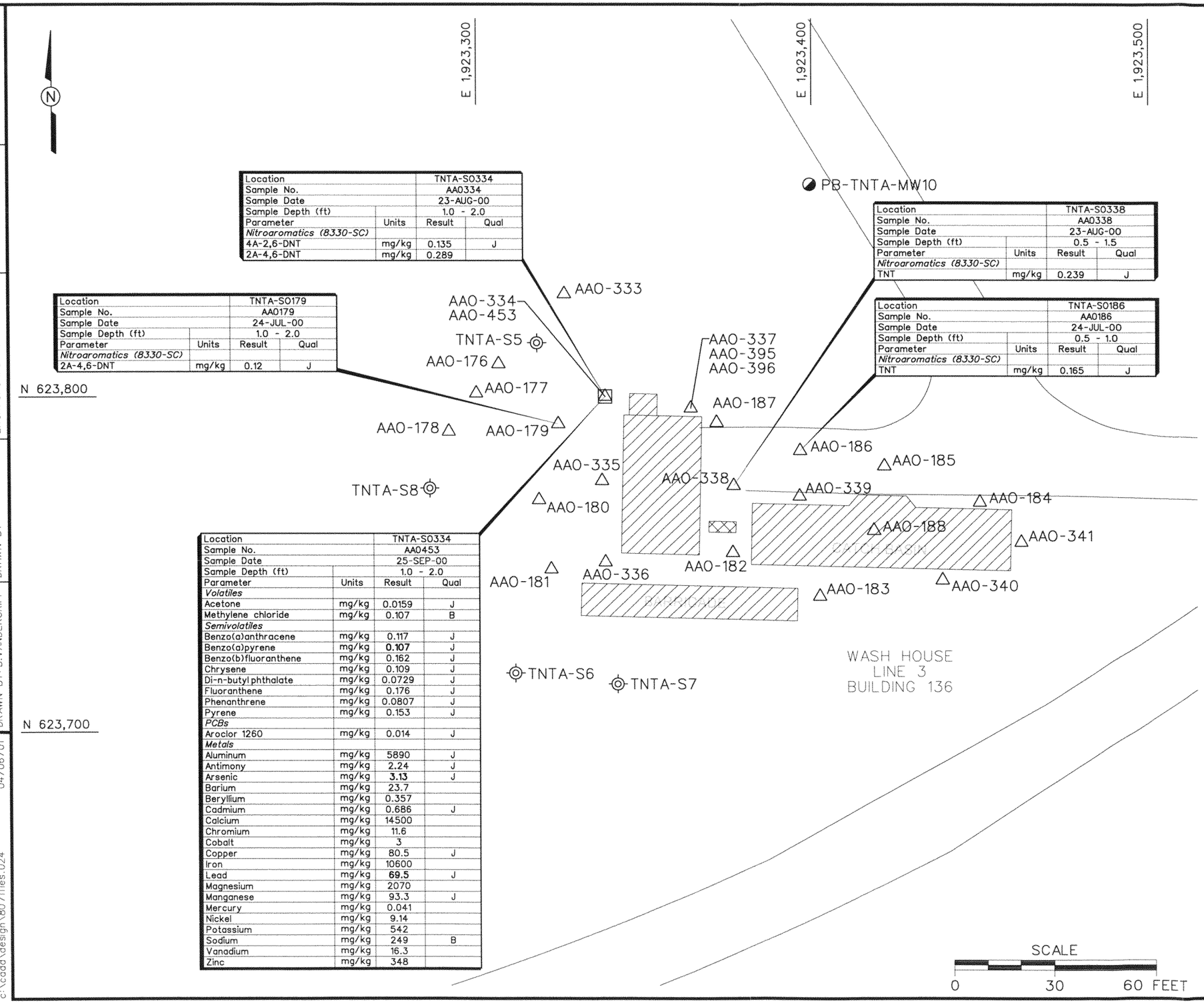


Location		TNTA-S0334	
Sample No.		AA0334	
Sample Date		23-AUG-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
4A-2,6-DNT	mg/kg	0.135	J
2A-4,6-DNT	mg/kg	0.289	

Location		TNTA-S0179	
Sample No.		AA0179	
Sample Date		24-JUL-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2A-4,6-DNT	mg/kg	0.12	J

Location		TNTA-S0338	
Sample No.		AA0338	
Sample Date		23-AUG-00	
Sample Depth (ft)		0.5 - 1.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.239	J

Location		TNTA-S0186	
Sample No.		AA0186	
Sample Date		24-JUL-00	
Sample Depth (ft)		0.5 - 1.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	0.165	J

Location		TNTA-S0334	
Sample No.		AA0453	
Sample Date		25-SEP-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Volatiles			
Acetone	mg/kg	0.0159	J
Methylene chloride	mg/kg	0.107	B
Semivolatiles			
Benzo(a)anthracene	mg/kg	0.117	J
Benzo(a)pyrene	mg/kg	**0.107**	J
Benzo(b)fluoranthene	mg/kg	0.162	J
Chrysene	mg/kg	0.109	J
Di-n-butylphthalate	mg/kg	0.0729	J
Fluoranthene	mg/kg	0.176	J
Phenanthrene	mg/kg	0.0807	J
Pyrene	mg/kg	0.153	J
PCBs			
Aroclor 1260	mg/kg	0.014	J
Metals			
Aluminum	mg/kg	5890	J
Antimony	mg/kg	2.24	J
Arsenic	mg/kg	**3.13**	J
Barium	mg/kg	23.7	
Beryllium	mg/kg	0.357	
Cadmium	mg/kg	0.686	J
Calcium	mg/kg	14500	
Chromium	mg/kg	11.6	
Cobalt	mg/kg	3	
Copper	mg/kg	80.5	J
Iron	mg/kg	10600	
Lead	mg/kg	**69.5**	J
Magnesium	mg/kg	2070	
Manganese	mg/kg	93.3	J
Mercury	mg/kg	0.041	
Nickel	mg/kg	9.14	
Potassium	mg/kg	542	
Sodium	mg/kg	249	B
Vanadium	mg/kg	16.3	
Zinc	mg/kg	348	

LEGEND:

△ AAO-078	SCREENING SOIL SAMPLING LOCATION
□ AAO-453	CONFIRMATION SOIL SAMPLING LOCATION
TNTA-S12	HISTORICAL SOIL BORING LOCATION
PB-TNTA-MW10	EXISTING MONITORING WELL
	TANK
	BUILDING

NOTES:

1. ANALYTICAL RESULTS EXCEEDING REGION 9 PRELIMINARY REMEDIATION GOALS ARE SHOWN IN BOLD TEXT.
2. SAMPLES WITH NO POSTED DATA ARE BELOW QUANTITATION LIMITS FOR ALL NITROAROMATICS.
3. ALL CONFIRMATION SAMPLING LOCATIONS WERE SURVEYED.
4. NITROAROMATICS (8330-SC) INDICATES SCREENING ANALYSES.
5. SAMPLING DEPTHS

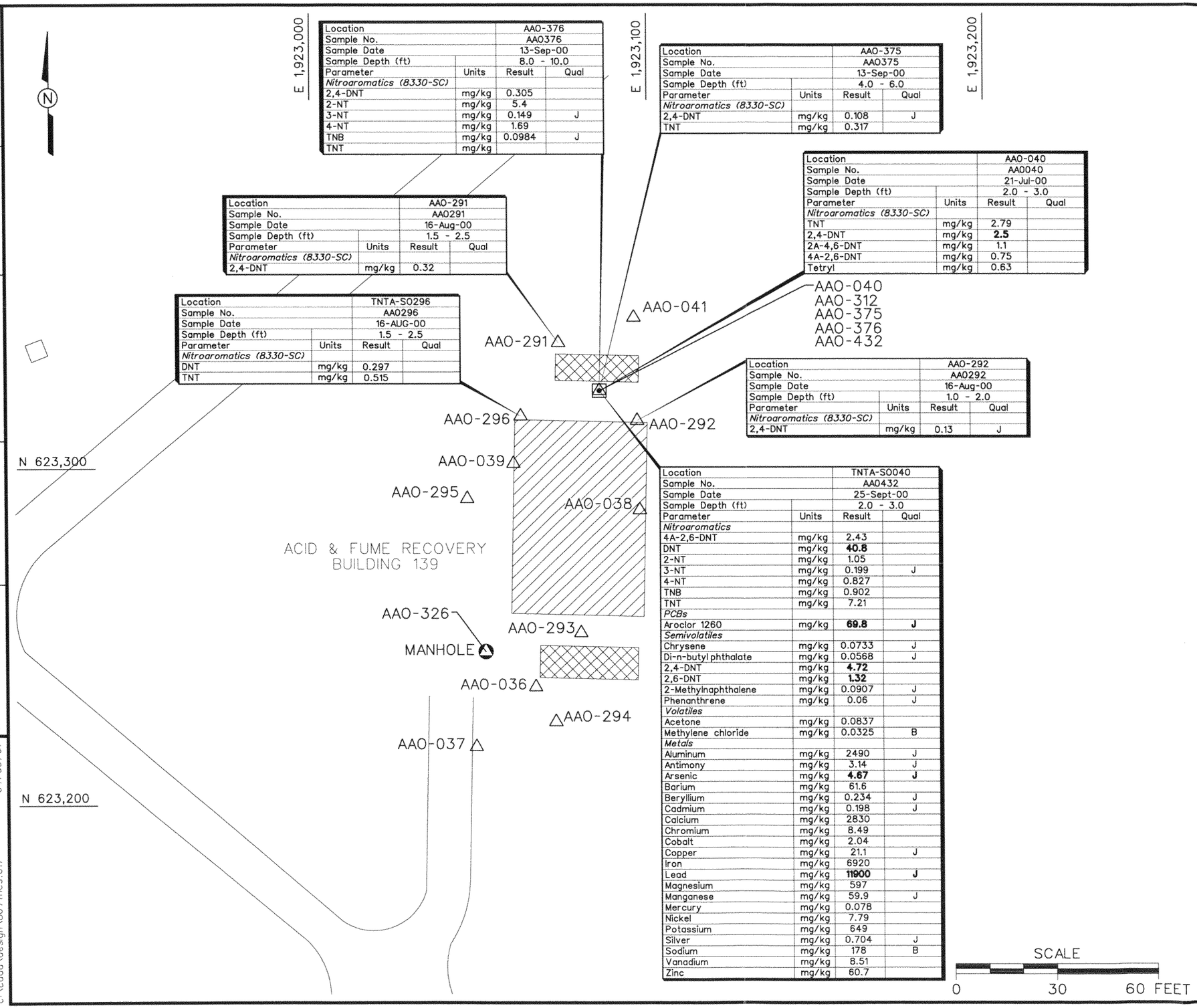
SAMPLE	DEPTH (FT)	SAMPLE	DEPTH (FT)
AA0176	0.0 - 1.0	AA0333	0.5 - 1.5
AA0177	0.5 - 1.5	AA0334	1.0 - 2.0
AA0178	0.0 - 1.0	AA0335	1.0 - 2.0
AA0179	1.0 - 2.0	AA0336	0.5 - 1.5
AA0180	0.5 - 1.5	AA0337	0.5 - 1.5
AA0181	1.5 - 2.5	AA0338	0.5 - 1.5
AA0182	1.0 - 2.0	AA0339	0.5 - 1.5
AA0183	0.5 - 1.5	AA0340	0.5 - 1.5
AA0184	0.5 - 1.5	AA0341	0.5 - 1.5
AA0185	1.0 - 2.0	AA0395	4.0 - 6.0
AA0186	0.5 - 1.5	AA0396	8.0 - 10.0
AA0187	1.0 - 2.0	AA0453	1.0 - 2.0
AA0188	0.5 - 1.5		

FIGURE 2-21
TNT AREA A
BUILDING 136
WASH HOUSE LINE 3
SAMPLE LOCATIONS AND
ANALYTICAL RESULTS

PLUM BROOK ORDNANCE WORKS
NASA PLUM BROOK STATION
SANDUSKY, OHIO

IT CORPORATION
A Member of The IT Group

DRAFT. CHCK. BY: C. TUMLIN | INITIATOR: GUNDERSON | DWG. NO.: ...\807111es.024
ENGR. CHCK. BY: S. MUFFLER | PROJ. MGR.: SPANGBERG | PROJ. NO.: 807111
STARTING DATE: 09/11/00 | DATE LAST REV.:
DRAWN BY: B.VANDERGRIFF | DRAWN BY:
04/06/01 04:06:22
c:\cadd\design\807111es.024 bvanderg



Location		AAO-376	
Sample No.		AA0376	
Sample Date		13-Sep-00	
Sample Depth (ft)		8.0 - 10.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.305	
2-NT	mg/kg	5.4	
3-NT	mg/kg	0.149	J
4-NT	mg/kg	1.69	
TNB	mg/kg	0.0984	J
TNT	mg/kg		

Location		AAO-375	
Sample No.		AA0375	
Sample Date		13-Sep-00	
Sample Depth (ft)		4.0 - 6.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.108	J
TNT	mg/kg	0.317	

Location		AAO-291	
Sample No.		AA0291	
Sample Date		16-Aug-00	
Sample Depth (ft)		1.5 - 2.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.32	

Location		AAO-040	
Sample No.		AA0040	
Sample Date		21-Jul-00	
Sample Depth (ft)		2.0 - 3.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
TNT	mg/kg	2.79	
2,4-DNT	mg/kg	**2.5**	
2A-4,6-DNT	mg/kg	1.1	
4A-2,6-DNT	mg/kg	0.75	
Tetryl	mg/kg	0.63	

Location		TNTA-S0296	
Sample No.		AA0296	
Sample Date		16-AUG-00	
Sample Depth (ft)		1.5 - 2.5	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
DNT	mg/kg	0.297	
TNT	mg/kg	0.515	

Location		AAO-292	
Sample No.		AA0292	
Sample Date		16-Aug-00	
Sample Depth (ft)		1.0 - 2.0	
Parameter	Units	Result	Qual
Nitroaromatics (8330-SC)			
2,4-DNT	mg/kg	0.13	J

Location		TNTA-S0040	
Sample No.		AA0432	
Sample Date		25-Sept-00	
Sample Depth (ft)		2.0 - 3.0	
Parameter	Units	Result	Qual
Nitroaromatics			
4A-2,6-DNT	mg/kg	2.43	
DNT	mg/kg	**40.8**	
2-NT	mg/kg	1.05	
3-NT	mg/kg	0.199	J
4-NT	mg/kg	0.827	
TNB	mg/kg	0.902	
TNT	mg/kg	7.21	
PCBs			
Aroclor 1260	mg/kg	**69.8**	**J**
Semivolatiles			
Chrysene	mg/kg	0.0733	J
Di-n-butyl phthalate	mg/kg	0.0568	J
2,4-DNT	mg/kg	**4.72**	
2,6-DNT	mg/kg	**1.32**	
2-Methylnaphthalene	mg/kg	0.0907	J
Phenanthrene	mg/kg	0.06	J
Volatiles			
Acetone	mg/kg	0.0837	
Methylene chloride	mg/kg	0.0325	B
Metals			
Aluminum	mg/kg	2490	J
Antimony	mg/kg	3.14	J
Arsenic	mg/kg	**4.67**	**J**
Barium	mg/kg	61.6	
Beryllium	mg/kg	0.234	J
Cadmium	mg/kg	0.198	J
Calcium	mg/kg	2830	
Chromium	mg/kg	8.49	
Cobalt	mg/kg	2.04	
Copper	mg/kg	21.1	J
Iron	mg/kg	6920	
Lead	mg/kg	**11900**	**J**
Magnesium	mg/kg	597	
Manganese	mg/kg	59.9	J
Mercury	mg/kg	0.078	
Nickel	mg/kg	7.79	
Potassium	mg/kg	649	
Silver	mg/kg	0.704	J
Sodium	mg/kg	178	B
Vanadium	mg/kg	8.51	
Zinc	mg/kg	60.7	

LEGEND:

△ AAO-036	SCREENING SOIL SAMPLING LOCATION
• AAO-312	SURFACE SOIL SAMPLE (0 - 1 FT)
□ AAO-432	CONFIRMATION SOIL SAMPLING LOCATION
	TANK
	BUILDING

NOTES:

1. ANALYTICAL RESULTS EXCEEDING REGION 9 PRELIMINARY REMEDIATION GOALS ARE SHOWN IN BOLD TEXT.
2. SAMPLES WITH NO POSTED DATA ARE BELOW QUANTITATION LIMITS FOR ALL NITROAROMATICS.
3. ALL CONFIRMATION SAMPLING LOCATIONS WERE SURVEYED.
4. NITROAROMATICS (8330-SC) INDICATES SCREENING ANALYSES.
5. SAMPLING DEPTHS

SAMPLE	DEPTH (FT)
AA0036	1.0 - 2.0
AA0037	2.5 - 3.5
AA0038	0.5 - 1.5
AA0039	0.5 - 1.5
AA0040	2.0 - 3.0
AA0041	1.0 - 2.0
AA0291	1.5 - 2.5
AA0292	1.0 - 2.0
AA0293	1.0 - 2.0
AA0294	1.6 - 2.6
AA0295	1.0 - 2.0
AA0296	1.5 - 2.5
AA0312	0.0 - 1.0
AA0326	3.0 - 4.0
AA0375	4.0 - 6.0
AA0376	8.0 - 10.0
AA0432	2.0 - 3.0

FIGURE 2-22
TNT AREA A
BUILDING 139 ACID & FUME RECOVERY, SAMPLE LOCATIONS AND ANALYTICAL RESULTS

PLUM BROOK ORDNANCE WORKS
NASA PLUM BROOK STATION
SANDUSKY, OHIO

IT CORPORATION
A Member of The IT Group

DWG. NO.: ...\807111es.017 | PROJ. NO.: 807111
INITIATOR: GUNDERSON | PROJ. MGR.: SPANGBERG
DRAFT. CHCK. BY: C. TUMLIN | ENGR. CHCK. BY: S. MUFFLER
DATE LAST REV.: | DRAWN BY:
STARTING DATE: 08/11/00 | DRAWN BY: B.VANDERGRIFF
12:48:18 04/09/01
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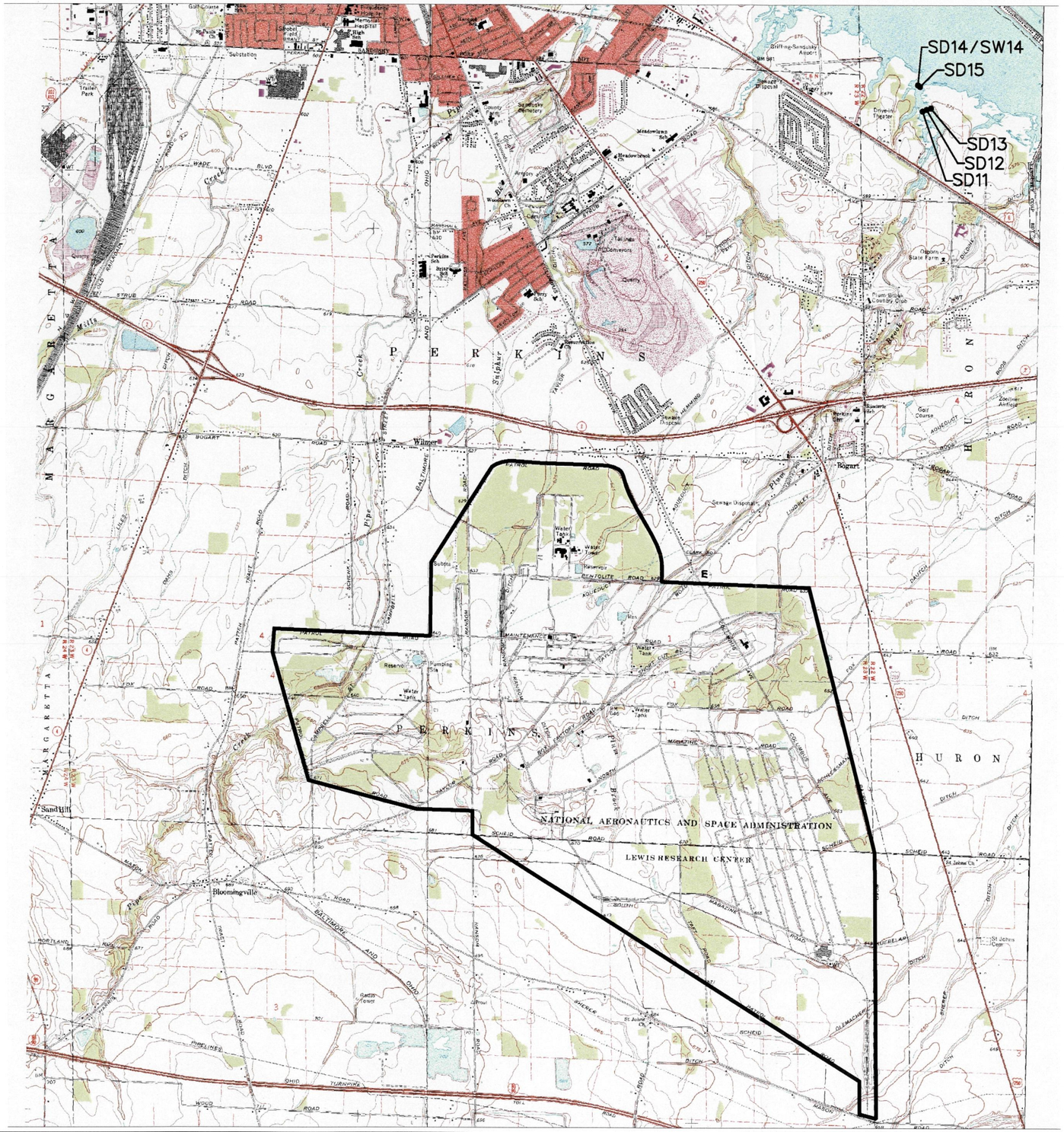

LEGEND:

- SD11 SEDIMENT SAMPLE ID
- SD14/SW14 SURFACE WATER SAMPLE ID

NOTES:

BASE MAP FROM KIMBALL AND SANDUSKY QUADRANGLES, 7.5 MINUTE SERVICES, (TOPOGRAPHIC), 1969. SANDUSKY MAP WAS PHOTOREVISED 1979.

SCALE

0 3750 7500 FEET

FIGURE 2-30
REGIONAL LOCATION OF OFF-SITE SURFACE WATER/SEDIMENT SAMPLING

FORMER PLUM BROOK ORDNANCE WORKS
NASA PLUM BROOK STATION
SANDUSKY, OHIO

IT CORPORATION
A Member of The IT Group

STARTING DATE: 11/29/00	DATE LAST REV.:	DRAFT. CHCK. BY: C. TUMLIN	INITIATOR: D. KESSLER	DWG. NO.:...\7714B1es.187
DRAWN BY: B. VANDERGRIFF	DRAWN BY:	ENGR. CHCK. BY: GUNDERSON	PROJ. MGR.:SPANGBERG	PROJ. NO.: 7714.81

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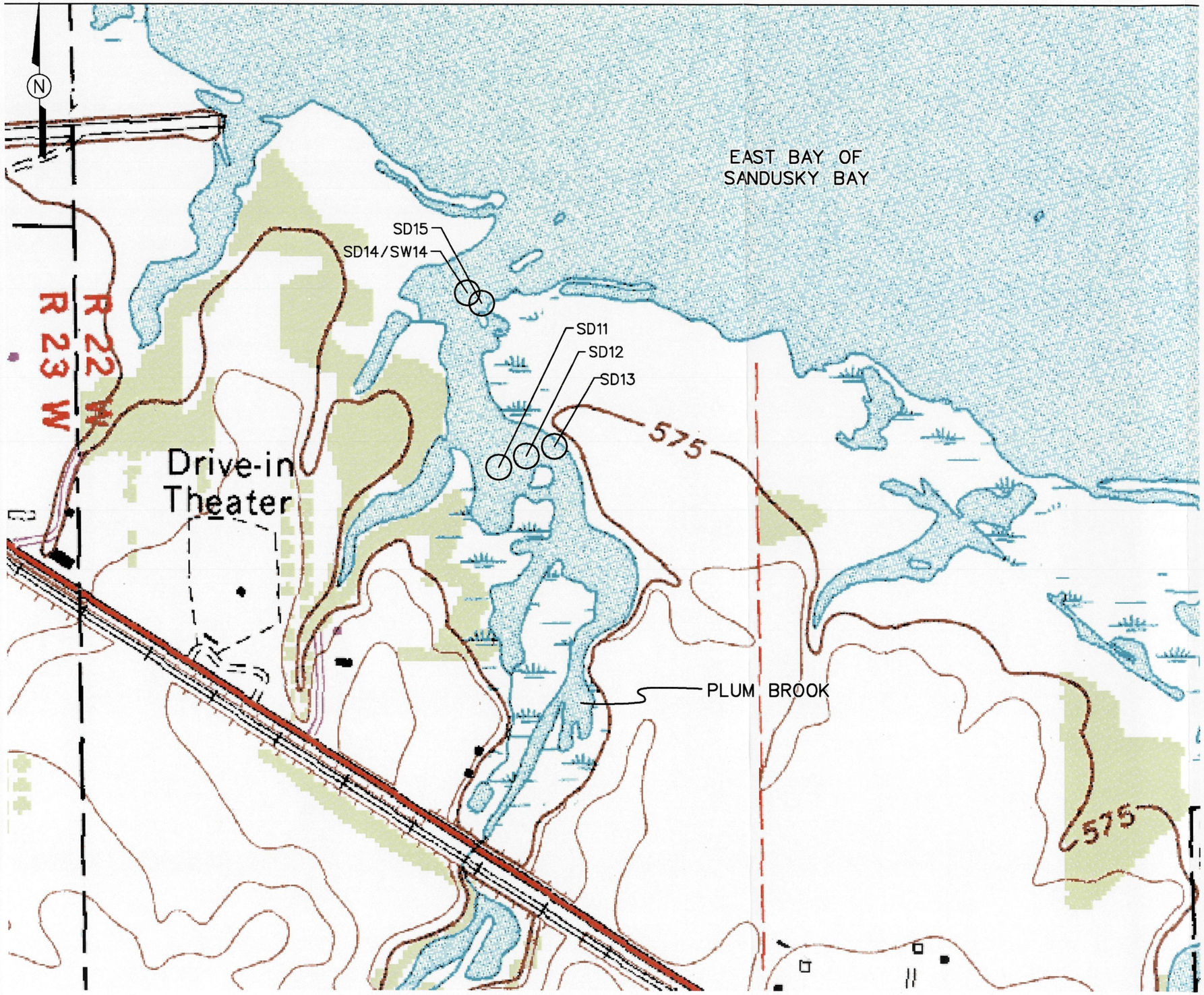

LEGEND:

○ SD11	SEDIMENT SAMPLE ID
○ SD14/SW14	SURFACE WATER SAMPLE ID

NOTES:

1. BASE MAP FROM KIMBALL AND SANDUSKY QUADRANGLE, 7.5 MINUTE SERVICES, (TOPOGRAPHIC), 1969. SANDUSKY MAP WAS PHOTOREVISED 1979.
2. SAMPLE LOCATIONS ARE ONLY APPROXIMATE. PLUM BROOK CHANNEL HAS MEANDERED SIGNIFICANTLY, THEREFORE ALTERING BASE MAP.

SCALE

0 500 1000 FEET

FIGURE 2-31
OFF-SITE SURFACE WATER AND SEDIMENT SAMPLE LOCATIONS AND ANALYTICAL RESULTS

FORMER PLUM BROOK ORDNANCE WORKS
NASA PLUM BROOK STATION
SANDUSKY, OHIO

IT CORPORATION
A Member of The IT Group

STARTING DATE: 11/28/00	DATE LAST REV.:	DRAFT. CHCK. BY: C. TUMLIN	INITIATOR: D. KESSLER	DWG. NO.:...\77148tes.186
DRAWN BY: B. VANDERGRIFF	DRAWN BY:	ENGR. CHCK. BY: GUNDERSON	PROJ. MGR.: SPANGBERG	PROJ. NO.: 771481

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APPENDIX A

SITE PHOTOGRAPHS

TNTA, Building 146- Wash House (9/24/00). Western foundation. Looking north.

TNTA, Building 146- Wash House (9/24/00). Metal debris and possible drum remains. Looking West.

TNTA, Building 142- Bi-Tri House (9/24/00). Stake layout. Looking north.

TNTA, Building 143- Fortifer House (9/24/00). Multiple trenches. Looking North West.

TNTA, Building 139- Acid & Fume Recovery (9/24/00). North end excavation(s) and stakes. Looking north.

TNTA, Building 139-Acid & Fume Recovery (9/24/00). South end excavations and stakes. Looking south.

TNTA, Building 133- Fortifier House (9/24/00). North-south trench and stakes. Looking south.

TNTA, Building 133- Fortifier House (9/24/00). Stake layout. Looking west.

TNTA, Building 149- Acid & Fume Recovery (9/24/00). Trench NW corner of site. Looking Northwest.

TNTA, Building 149- Acid & Fume Recovery (9/24/00). South foundation wall. Looking South/Southwest.

TNTA, Building 195- DNT Nitrating (9/24/00). West side of building. Looking Northwest.

TNTA, Building 141- Mono House (9/24/00). N-S trench and stake layout. Looking north.

TNTA, Building 192- DNT Sweating & Graining House (9/24/00). Trenches at SW corner of site.
Looking Northwest.

25/PB-7

APPENDIX B

HTRW DRILL LOGS
TEMPORARY PIEZOMETER CONSTRUCTION DIAGRAMS

A-361/362

HTRW DRILLING LOG

DISTRICT: USACE - Nashville, TN	HOLE NUMBER: ~~ASO 342-343~~	
1. COMPANY NAME: IT	2. DRILL SUBCONTRACTOR: Miller	SHEET 1 OF 2 SHEETS
3. PROJECT: PBOW	4. LOCATION: @ Bldg 111	
5. NAME OF DRILLER: Harry Huntoon	6. MANUFACTURER'S DESIGNATION OF DRILL: GeoProbe	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: GEOPROBE w/ 2" MACROCORE BARREL	8. HOLE LOCATION: @ ASO-111	
	9. SURFACE ELEVATION: 653.28 Ft N: 623914.53 E: 1924921.84	
	10. DATE STARTED: 9/12/00	11. DATE COMPLETED: 9/12/00
12. OVERBURDEN THICKNESS: 10'	15. DEPTH GROUNDWATER ENCOUNTERED: 6'	
13. DEPTH DRILLED INTO ROCK: 0'	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: NA	
14. TOTAL DEPTH OF HOLE: 10'	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): NA	

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
	NA	NA	NA

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY – %
	—	—	Nitro	—	—	

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
	✓	—	—	Tony E. Nolen

LOCATION SKETCH/COMMENTS: see sample log

SCALE: —

Screening

PROJECT: PBOW	HOLE NO. ~~ASO 342-343~~ (TN)

ENG FORM 5056-R, AUG 94

(Proponent: CECW-EG)

A~~SO~~ 361/362

A~~SO~~-361/362

HTRW DRILLING LOG

HOLE NUMBER ~~ASO 342/343~~ TN

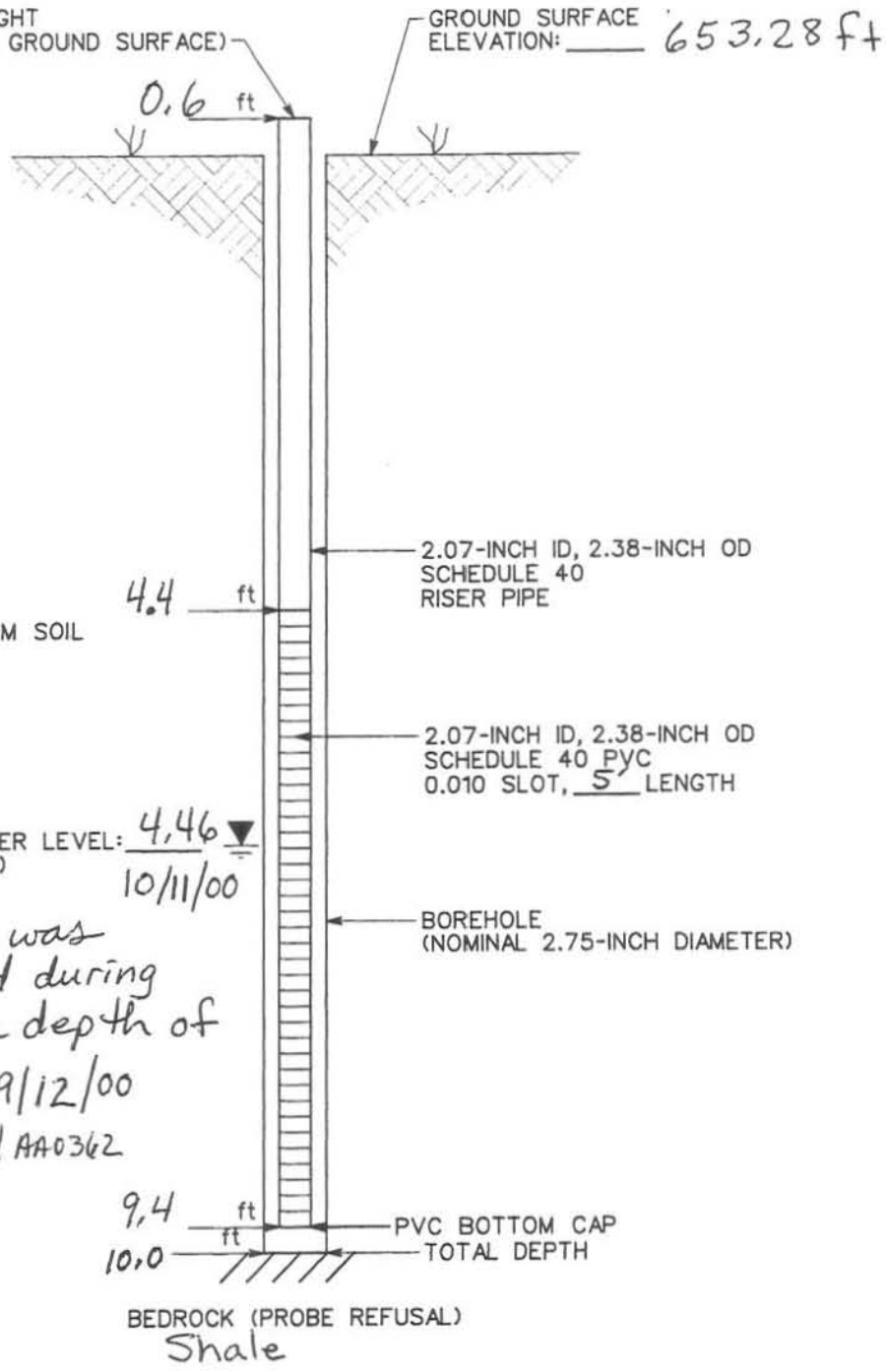
PROJECT PBOW | INSPECTOR T. Nolen | SHEET 2 OF 2 SHEETS

ELEV. (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	FIELD SCREENING RESULTS (g)	GEOTECH SAMPLE OR CORE BOX NO. (e)	ANALYTICAL SAMPLE NO. (f)	REMARKS (g)
	1	Topsoil, roots	~~NA~~ TN PID	~~NA~~ TN BZ		
	2	2'		CO 0, H_2S 0		
	3	Clayey SILT, brown, (7.5YR 4/6) sl. moist,		LEL 0, O_2 20.7		
	4				ASO 4	
	5	ml	0.0		~~342~~ TN 361	
	6				6	▽ Encountered groundwater @ 6 ft
	7					
	8				ASO 8	
	9		0.0		~~343~~ TN 362	
	10	Shale @ 10' STOP BORING Total Depth = 10.0 ft			10	

PROJECT PBOW | HOLE NO. ~~ASO 342/343~~ TN A-361/362

TEMPORARY SHALLOW PIEZOMETER CONSTRUCTION DIAGRAM

LOCATION: TNT-A / Bldg 111



Groundwater was encountered during drilling at a depth of 6 feet bgs 9/12/00 at location AA0361 / AA0362

NOTES:

PIEZOMETER NO.: GW01
DATE INSTALLED: 9/28/00
DATE REMOVED: 10/12/00

NOT TO SCALE

PIEZOMETER CONSTRUCTION DIAGRAM

prepared for:
USACE - NASHVILLE
PLUM BROOK ORDNANCE WORKS

IT CORPORATION
A Member of The IT Group

STARTING DATE: 07/23/01	DATE LAST REV.:	DRAFT. CHCK. BY: C. TUMLIN	INITIATOR: C. WILLIAMS	DWG. NO.:\825635ES.018
DRAWN BY: B. VANDERGRIFF	DRAWN BY:	ENGR. CHCK. BY: C. WILLIAMS	PROJ. MGR.: SPANGBERG	PROJ. NO.: 825635

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ASO-~~344/345~~ TN

HTRW DRILLING LOG

DISTRICT: Nashville, TN	HOLE NUMBER: ~~ASO-128~~ TN	
1. COMPANY NAME: IT	2. DRILL SUBCONTRACTOR: Miller	SHEET 1 OF SHEETS 2
3. PROJECT: PBOW	4. LOCATION: @ Bldg 112	
5. NAME OF DRILLER: Harry Huntoon	6. MANUFACTURER'S DESIGNATION OF DRILL: GeoProbe	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: GeoProbe w/ MACROCORE BARREL	8. HOLE LOCATION: @ASO-128	
	9. SURFACE ELEVATION: 654.65 Ft. N: 624181.63 E: 1925253.95	
	10. DATE STARTED: 9/12/00	11. DATE COMPLETED: 9/12/00
12. OVERBURDEN THICKNESS: —	15. DEPTH GROUNDWATER ENCOUNTERED: — Not encountered	
13. DEPTH DRILLED INTO ROCK: —	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: —	
14. TOTAL DEPTH OF HOLE: 10'	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): —	

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
	—	—	—

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY
	—	—	NitroArom	—	—	— %

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
	✓	—	—	Tony E. Nolen

LOCATION SKETCH/COMMENTS SCALE:

Screening

PROJECT PBOW HOLE NO. ~~ASO-128~~ TN

ASO-363/364

A-363/364

HTRW DRILLING LOG

HOLE NUMBER ~~ASO-344/345~~ TN

PROJECT PBOW | INSPECTOR T. Nolen | SHEET 2 OF 2 SHEETS

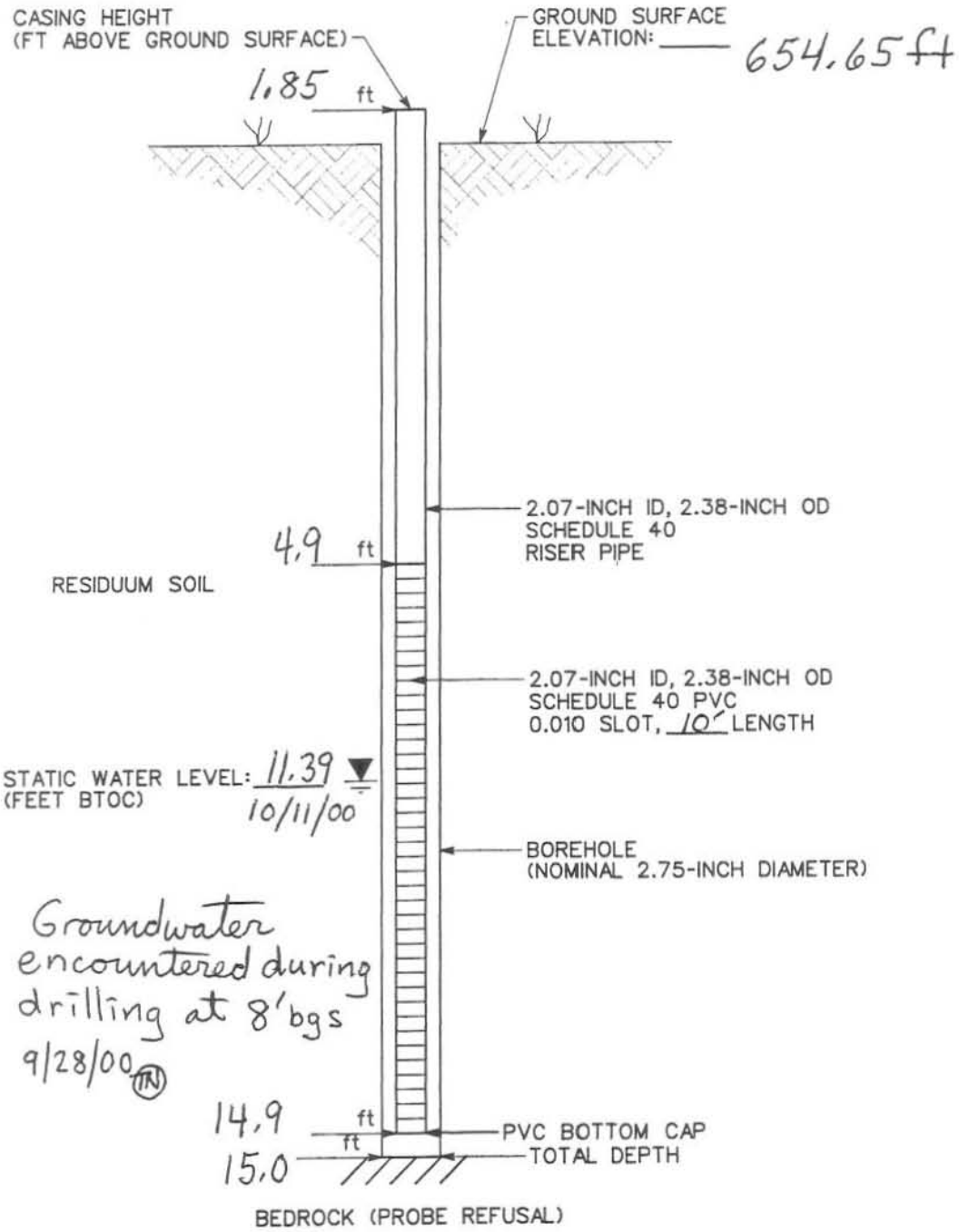
ELEV. (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	FIELD SCREENING RESULTS (d)	GEOTECH SAMPLE OR CORE BOX NO. (e)	ANALYTICAL SAMPLE NO. (f)	REMARKS (g)
		Topsoil	PID	~~NA~~ TN		
	1	Sl. moist Brown clayey SILT, 7.5YR 4/6		BZ		
	2			CO 0 / H_2S 0		
	3	clayey SILT, Brown (7.5YR 4/6)		LEL 0 / O_2 20.7		
	4	Sl. moist, plastic	0.0		ASO ~~344~~ TN 363	4
	5					
	6	ml				6
	7					
	8					8
	9		0.0		ASO ~~345~~ TN 364	
	10	END of Boring Total Depth = 10.0 FT				10

PROJECT PBOW | HOLE NO. ~~ASO-344/345~~ TN

A-363/364

TEMPORARY SHALLOW PIEZOMETER CONSTRUCTION DIAGRAM

LOCATION: INTA - Bldg 112



NOTES:

PIEZOMETER NO.: GW 02

DATE INSTALLED: 9/28/00

DATE REMOVED: 10/11/00

NOT TO SCALE

PIEZOMETER CONSTRUCTION DIAGRAM

prepared for:
USACE - NASHVILLE
PLUM BROOK ORDNANCE WORKS

IT CORPORATION
A Member of The IT Group

DWG. NO.: \825635ES.018	
PROJ. NO.: 825635	
INITIATOR: C. WILLIAMS	
PROJ. MGR.: SPANGBERG	
DRAFT. CHCK. BY: C. TUMLIN	
ENGR. CHCK. BY: C. WILLIAMS	
DATE LAST REV.:	
DRAWN BY:	
STARTING DATE: 07/23/01	
DRAWN BY: B. VANDERGRIFF	

02:26:24 10/23/01

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A-365/366

HTRW DRILLING LOG

DISTRICT: Nashville, TN		HOLE NUMBER: ~~ASO 346/347~~ (TN)
1. COMPANY NAME: IT	2. DRILL SUBCONTRACTOR: Miller	SHEET 1 OF 2 SHEETS
3. PROJECT: PBOW	4. LOCATION: Bldg 113	
5. NAME OF DRILLER: Harry Huntoon	6. MANUFACTURER'S DESIGNATION OF DRILL: GEOPROBE	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: GEOPROBE w/ MACROCORE	8. HOLE LOCATION: ~~@ Bldg~~ @ Stake 121	
	9. SURFACE ELEVATION: NS	
	10. DATE STARTED: 9-12-00	11. DATE COMPLETED: 9-12-00
12. OVERBURDEN THICKNESS: >10'	15. DEPTH GROUNDWATER ENCOUNTERED: —	
13. DEPTH DRILLED INTO ROCK: N/A	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: —	
14. TOTAL DEPTH OF HOLE: 10'	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): —	

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
	—	—	—

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY
	✓	—	Nitro. A.	—	—	— %

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
	✓	—	—	Tony E. Nolan

LOCATION SKETCH/COMMENTS: see back of sample log SCALE: —

Screening

PROJECT: PBOW HOLE NO. ~~ASO-346/347~~ (TN)

ENG FORM 5056-R, AUG 94 (Proponent: CECW-EG)

~~ASO~~ A-365/366

A-365/366

HTRW DRILLING LOG

HOLE NUMBER ~~ASO 346/347~~ TN

PROJECT PBOW | INSPECTOR T. Nolen | SHEET 1 OF 2 SHEETS

ELEV. (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	FIELD SCREENING RESULTS (d)	GEOTECH SAMPLE OR CORE BOX NO. (e)	ANALYTICAL SAMPLE NO. (f)	REMARKS (g)
	1	Reddish Brown Topsoil, sl. moist. (7.5YR 4/6)	PID	BZ CO 0 / H_2S 0 LEL 0 / O_2 20.7		
	2					
	3	Pinkish Gray (7.5YR 7/2) fine SAND, dry.				
	4		SP	~~ASO 346~~	ASO → ~~346~~ TN 365	4
	5		0.0			
	6					6
	7					
	8	Tan to Gray, sandy SILT, w/ cherty, shaley, Rx frags dry.	ML	~~ASO 347~~	ASO → ~~347~~ TN 366	8
	9		0.0			
	10	STOP BORING Total Depth = 10.0 ft				10

PROJECT PBOW | HOLE NO. ~~ASO 346/347~~ TN

A-365/366

HTRW DRILLING LOG

DISTRICT: Nashville, TN	HOLE NUMBER: A-403/404	
1. COMPANY NAME: IT Corp	2. DRILL SUBCONTRACTOR: Miller Drilling	SHEET 1 OF 2 SHEETS
3. PROJECT: PBOW	4. LOCATION: Bldg 116	
NAME OF DRILLER: Harry Huntoon	6. MANUFACTURER'S DESIGNATION OF DRILL: GeoProbe	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: GeoProbe w/ 2" MACROCORE BARREL	8. HOLE LOCATION: Stake ASO-201	
	9. SURFACE ELEVATION: 638.59 ft N: 624482.22 E: 1925315.13	
	10. DATE STARTED: 9-15-00	11. DATE COMPLETED: 9-15-00
12. OVERBURDEN THICKNESS: —	15. DEPTH GROUNDWATER ENCOUNTERED: 3'	
13. DEPTH DRILLED INTO ROCK: —	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: —	
14. TOTAL DEPTH OF HOLE: 10'	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): —	

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
—	—	—	—

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY
—	—	—	NitroArom.	—	—	— %

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
—	✓	—	—	Tony E. Nolen

LOCATION SKETCH/COMMENTS: see sample log SCALE: —

Screening

PROJECT: PBOW HOLE NO. A-403/404

HTRW DRILLING LOG (CONTINUATION SHEET)

HOLE NUMBER A-403/404

PROJECT PBOW | INSPECTOR T. Nolen | SHEET 2 OF 2 SHEETS

ELEV (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	HNU SCREENING RESULTS (d)	PUSH / SAMPLE INTERVAL (e)	ANALYTICAL SAMPLE NO (f)	USCS (g)	REMARKS (h)
	1	Greenish to Black silty Swamp soil, mostly organic mat'l	PID 0.0	BZ CO 0 / H_2S 0			
	2			LEL 0 / O_2 21.0			
	3	water @ 3'					Encountered water at 3 Ft
	4					cl	
	5	Grayish Greenish Brown (5Y 5/2) gravelly silty CLAY, firm, wet.	6.0 ppm		ASO 403 4'-6'	cl	
	6						
	7						
	8						
	9	Greenish Gray silty CLAY, stiff, wet. (5Y 4/4)	3.5 ppm		ASO 404 8'-10'	cl	
	10	Total Depth = 10.0 Ft	END BORING				

PROJECT PBOW | HOLE NO. A-403/404

HTRW DRILLING LOG

DISTRICT: Nashville	HOLE NUMBER: A-472/473	
1. COMPANY NAME: IT Corp	2. DRILL SUBCONTRACTOR: Miller	SHEET 1 OF 2 SHEETS
3. PROJECT: PBOW	4. LOCATION: Bldg 116	
5. NAME OF DRILLER: Don Jerome	6. MANUFACTURER'S DESIGNATION OF DRILL: GeoProbe	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: GeoProbe w/ 2" MACROCORE Barrel.	8. HOLE LOCATION: @ Stake 201	
	9. SURFACE ELEVATION: 638.59 Ft	N: 624482.22 E: 1925315.13
	10. DATE STARTED: 9-26-00	11. DATE COMPLETED: 9-26-00
12. OVERBURDEN THICKNESS: N/A	15. DEPTH GROUNDWATER ENCOUNTERED: perched at 3½'; insufficient for samples	
13. DEPTH DRILLED INTO ROCK: N/A	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: 3½ = immed	
14. TOTAL DEPTH OF HOLE: 19.5 ft	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): —	

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
—	—	—	—

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY
—	✓	✓	Nitroarom.	—	—	— %

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
—	✓	—	—	Tony E. Nolan

LOCATION SKETCH/COMMENTS: See sample log SCALE: NTS

Confirmation

PROJECT: PBOW HOLE NO. A-472/473

HTRW DRILLING LOG (CONTINUATION SHEET)

HOLE NUMBER A- 472/473

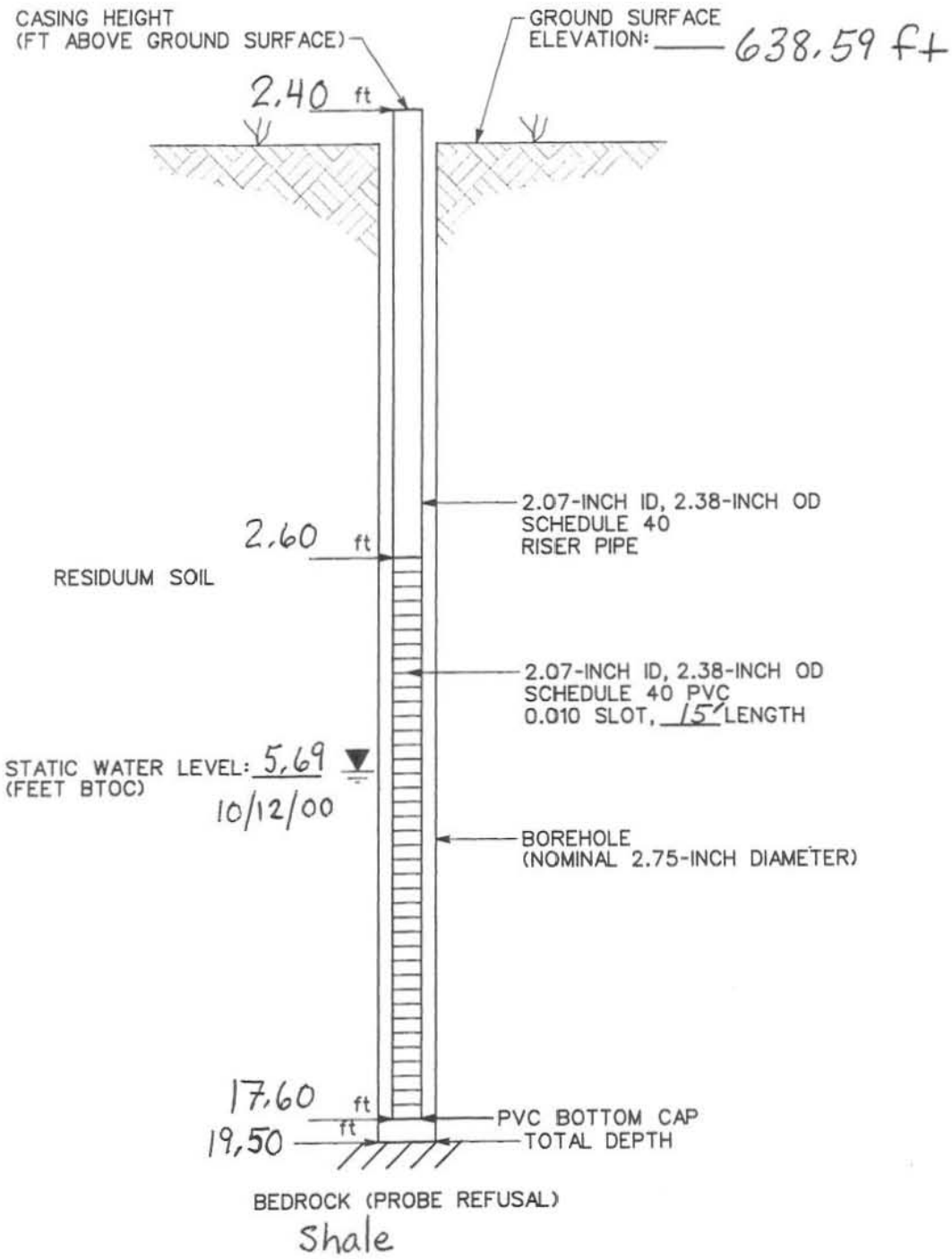
PROJECT PBOW | INSPECTOR T. Nolen | SHEET 2 OF 2 SHEETS

ELEV (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	HNU SCREENING RESULTS (d)	PUSH / SAMPLE INTERVAL (e)	ANALYTICAL SAMPLE NO (f)	USCS (g)	REMARKS (h)
		Grass, roots	PID	BZ			
	1	Topsoil		CO / H_2S: 0 / 0			
	2			LEL / O_2: 0 / 21.0			
	3	Yellowish Brown (10YR 5/6) fine silty SAND, v. moist @ 3½'.	0.0			SP	
	4				AA0472		perched water zone - quickly exhausted.
	5	Brown (7.5YR 4/6) silty CLAY, fine sand, sl. moist.	0.0		4-6'	cl	
	6	Yellowish Brown (10YR 5/6) clayey fine SAND, slightly moist.					
	7					SP	
	8	Brown (10YR 5/2) silty CLAY, med plasticity, sl. moist.			AA0473	cl	
	9		0.0				
	10				8-10'		
	11						
	16	as above, but drier, stiffer.					
	17						
	18						
	19						
	20	Shale: END of Boring 19.5'					

PROJECT PBOW | HOLE NO. A - 472/473

TEMPORARY SHALLOW PIEZOMETER CONSTRUCTION DIAGRAM

LOCATION: TNT A - Bldg 116



NOTES:

PIEZOMETER NO.: GW04
DATE INSTALLED: 9/26/00
DATE REMOVED: 10/12/00

NOT TO SCALE

PIEZOMETER CONSTRUCTION DIAGRAM

prepared for:
USACE - NASHVILLE
PLUM BROOK ORDNANCE WORKS

IT CORPORATION
A Member of The IT Group

STARTING DATE: 07/23/01	DATE LAST REV.:	DRAFT. CHCK. BY: C. TUMLIN	INITIATOR: C. WILLIAMS	DWG. NO.:\825635ES.018
DRAWN BY: B. VANDERGRIFF	DRAWN BY:	ENGR. CHCK. BY: C. WILLIAMS	PROJ. MGR.: SPANGBERG	PROJ. NO.: 825635

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A-367/368

HTRW DRILLING LOG

DISTRICT: Nashville, TN	HOLE NUMBER: ~~ASO 348/349~~ (TN)	
1. COMPANY NAME: IT	2. DRILL SUBCONTRACTOR: Miller	SHEET 1 OF SHEETS 2
3. PROJECT: PBOW	4. LOCATION: @ Bldg 119	
5. NAME OF DRILLER: Harry Huntoon	6. MANUFACTURER'S DESIGNATION OF DRILL: GeoProbe	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: GeoProbe w/ 2" MacroCore Barrel	8. HOLE LOCATION: @ ASO-105	
	9. SURFACE ELEVATION: 649.35 FT. N: 623762.93 E: 1925105.48	
	10. DATE STARTED: 9/12/00	11. DATE COMPLETED: 9/12/00
12. OVERBURDEN THICKNESS: 9'	15. DEPTH GROUNDWATER ENCOUNTERED: N/A	
13. DEPTH DRILLED INTO ROCK: 0'	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: —	
14. TOTAL DEPTH OF HOLE: 9'	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY)	

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
	—	—	—

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY
	—	—	Nitro A.	—	—	—	— %

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
	✓	—	—	Tony E. Nolen

LOCATION SKETCH/COMMENTS: See sample log

SCALE: —

Screening

PROJECT: PBOW	HOLE NO. ~~ASO 348/349~~ (TN)

ENG FORM 5056-R, AUG 94

(Proponent: CECW-EG)

A-367/368

A-367/368

HTRW DRILLING LOG

HOLE NUMBER ~~ASO-348/349~~ TN

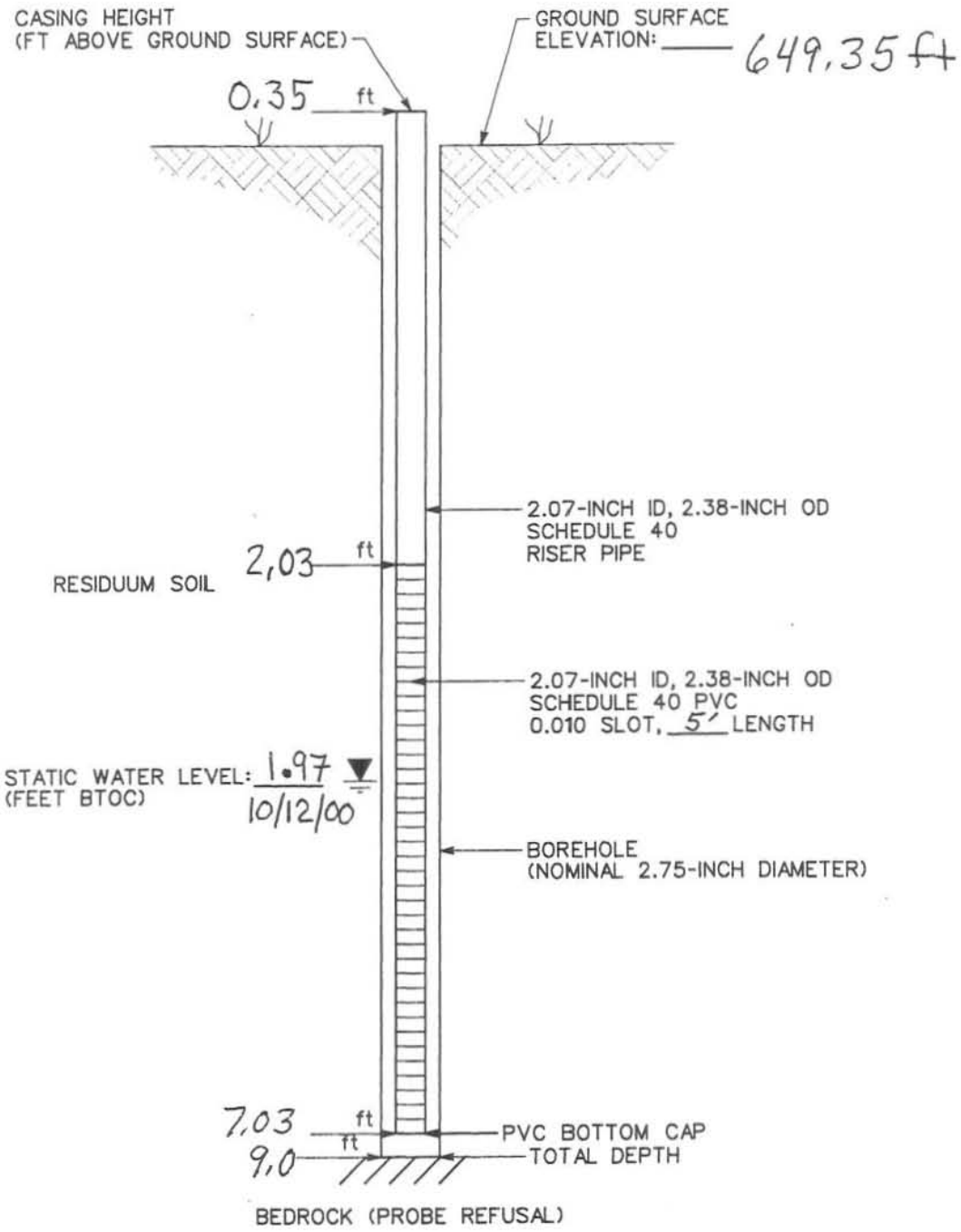
PROJECT PBOW | INSPECTOR T. Nolen | SHEET 2 OF 2 SHEETS

ELEV. (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	FIELD SCREENING RESULTS (d)	GEOTECH SAMPLE OR CORE BOX NO. (e)	ANALYTICAL SAMPLE NO. (f)	REMARKS (g)
	1	Brown Topsoil Clayey SILT, moist ml	~~NA~~ TN PID	~~NA~~ TN BZ		
	2	Moist, black-brown		CO: 0 H_2S: 0		
	3	silty CLAY, (5YR 3/1)		~~CGL~~ LEL: 0 O_2: 20.7		
	4					4
	5	cl	0.0		ASO ~~348~~ TN 367	
	6					6
	7					
	8	w/ rock frags.	0.0		ASO ~~349~~ TN	8
	9	Refusal at 9'			368	9
	10	Total Depth - 9.0 ft				

PROJECT PBOW | HOLE NO. ~~ASO-348/349~~ TN
A-367/368

TEMPORARY SHALLOW PIEZOMETER CONSTRUCTION DIAGRAM

LOCATION: TNT A-Bldg 119



NOTES:

PIEZOMETER NO.: GW 03

DATE INSTALLED: 9/29/00

DATE REMOVED: 10/12/00

NOT TO SCALE

PIEZOMETER CONSTRUCTION DIAGRAM

prepared for:
USACE - NASHVILLE
PLUM BROOK ORDNANCE WORKS

IT CORPORATION
A Member of The IT Group

STARTING DATE: 07/23/01	DATE LAST REV.:	DRAFT. CHCK. BY: C. TUMLIN	INITIATOR: C. WILLIAMS	DWG. NO.:\825635ES.018
DRAWN BY: B. VANDERGRIFF	DRAWN BY:	ENGR. CHCK. BY: C. WILLIAMS	PROJ. MGR.: SPANGBERG	PROJ. NO.: 825635

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HTRW DRILLING LOG

DISTRICT: Nashville, TN		HOLE NUMBER: A-369/370
1. COMPANY NAME: IT	2. DRILL SUBCONTRACTOR: Miller	SHEET 1 OF SHEETS 2
3. PROJECT: PBOW	4. LOCATION: Bldg 126 - INTA	
5. NAME OF DRILLER: Harry Huntoon	6. MANUFACTURER'S DESIGNATION OF DRILL: Geoprobe	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: GEOPROBE MACROCORE	8. HOLE LOCATION: @ ASO-261	
	9. SURFACE ELEVATION: 637.80 Ft N: 624335.77 E: 1924183.97	
	10. DATE STARTED: 9/13/00	11. DATE COMPLETED: 9/13/00
12. OVERBURDEN THICKNESS: N/A	15. DEPTH GROUNDWATER ENCOUNTERED: 4'	
13. DEPTH DRILLED INTO ROCK: N/A	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: —	
14. TOTAL DEPTH OF HOLE: 10'	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): —	

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
—	—	—	—

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY — %
	—	—	Nitro Arom	—	—	

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
→	✓	—	—	Gary E. Nolen

LOCATION SKETCH/COMMENTS: see sample log

SCALE: —

Screening

PROJECT: PBOW	HOLE NO.: A-369/370

ENG FORM 5056-R, AUG 94

(Proponent: CECW-EG)

HTRW DRILLING LOG

HOLE NUMBER A-369/370

PROJECT PBOW | INSPECTOR T. Nolen | SHEET 2 OF 2 SHEETS

ELEV. (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	FIELD SCREENING RESULTS (d)	GEOTECH SAMPLE OR CORE BOX NO. (e)	ANALYTICAL SAMPLE NO. (f)	REMARKS (g)
	1	topsoil, roots, grass	PID	~~HA~~ (IN)		
				BZ		
	2	— — — — —		CO 0 / H_2S 0		
	3		0.0	LEL 0 / O_2 20.7		
	4	H_2O				
	5	tan to gray (7.5YR 7/3) silt clay, st. FF moist	cl		Aso 369 4-6'	
	6					
	7					
	8	silty gray sandy clay fine to coarse sand wet (7.5YR 5/1)				
	9		0.0		Aso 370 8-10'	
	10	END BORING Total Depth = 10 ft				

PROJECT PBOW | HOLE NO. A-369/370

HTRW DRILLING LOG

DISTRICT: Nashville, TN		HOLE NUMBER: A-371/372
1. COMPANY NAME: IT Corp	2. DRILL SUBCONTRACTOR: Miller Drilling	SHEET 1 OF 2 SHEETS
3. PROJECT: PBOW	4. LOCATION: Bldg 126	
NAME OF DRILLER: Harry Huntoon	6. MANUFACTURER'S DESIGNATION OF DRILL: GeoProbe	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: GeoProbe w/ 2" MACROCORE BARREL	8. HOLE LOCATION: Stake ASO-263	
	9. SURFACE ELEVATION: 638.12 Ft N: 624306.96 E: 1924253.59	
	10. DATE STARTED: 9-15-00	11. DATE COMPLETED: 9-15-00
12. OVERBURDEN THICKNESS: —	15. DEPTH GROUNDWATER ENCOUNTERED: on surface & @ 8'	
13. DEPTH DRILLED INTO ROCK: —	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: —	
14. TOTAL DEPTH OF HOLE: 10'	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): —	

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
—	—	—	—

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY
—	—	—	Nitroaromatics	—	—	— %

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
—	✓	—	—	Tony E. Nolen

LOCATION SKETCH/COMMENTS: see sample log SCALE: —

Screening

PROJECT: PBOW HOLE NO. A-371/372

HTRW DRILLING LOG (CONTINUATION SHEET)

HOLE NUMBER: A-371/372

PROJECT: PBOW

INSPECTOR: T. Nolen

SHEET 2 OF 2 SHEETS

ELEV (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	HNU SCREENING RESULTS (d)	PUSH / SAMPLE INTERVAL (e)	ANALYTICAL SAMPLE NO (f)	USCS (g)	REMARKS (h)
	1	Organic Matter swamp plants	PID 0.0	BZ CO 0% / H_2S 0%			water on surface
	2	Yellowish Brown (10YR 5/6) silty CLAY, plastic, moist, trace gravel, some organic matter.		LEL 0 / O_2 21.0			
	3					cl	
	4				ASO 371 4'-6'		
	5						
	6		0.0				
	7						
	8	Light gray (10YR 7/2) slightly plastic clayey SILT, trace of shale frags					water @ 8'
	9		0.0		ASO 372 8'-10'	ml	
	10	Total Depth = 10.0 ft		END	BORING		

PROJECT: PBOW

HOLE NO. A-371/372

HTRW DRILLING LOG

DISTRICT: Nashville	HOLE NUMBER: A-474/475	
1. COMPANY NAME: IT Corp	2. DRILL SUBCONTRACTOR: Miller	SHEET 1 OF 2 SHEETS
3. PROJECT: PBOW	4. LOCATION: Bldg 126	
5. NAME OF DRILLER: Don Jerome	6. MANUFACTURER'S DESIGNATION OF DRILL: GeoProbe	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: Geoprobe w/ 2" MACROCORE BARREL	8. HOLE LOCATION: @ Stake 261	
	9. SURFACE ELEVATION: 637.80 ft N: 624335.77 E: 1924183.97	
	10. DATE STARTED: 9-26-00	11. DATE COMPLETED: 9-26-00
12. OVERBURDEN THICKNESS: ~~N/A~~ NA	15. DEPTH GROUNDWATER ENCOUNTERED: Groundwater Not encountered	
13. DEPTH DRILLED INTO ROCK: NA	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: —	
14. TOTAL DEPTH OF HOLE: 10.0 ft	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): —	

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
—	—	—	—

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY
—	✓	✓	Nitroarom.	—	—	—

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
—	✓	—	—	Tony E. Nolen

LOCATION SKETCH/COMMENTS: See sample log SCALE: NTS

Confirmation

PROJECT: PBOW	HOLE NO. A-474/475

HTRW DRILLING LOG (CONTINUATION SHEET)

HOLE NUMBER A-474/475

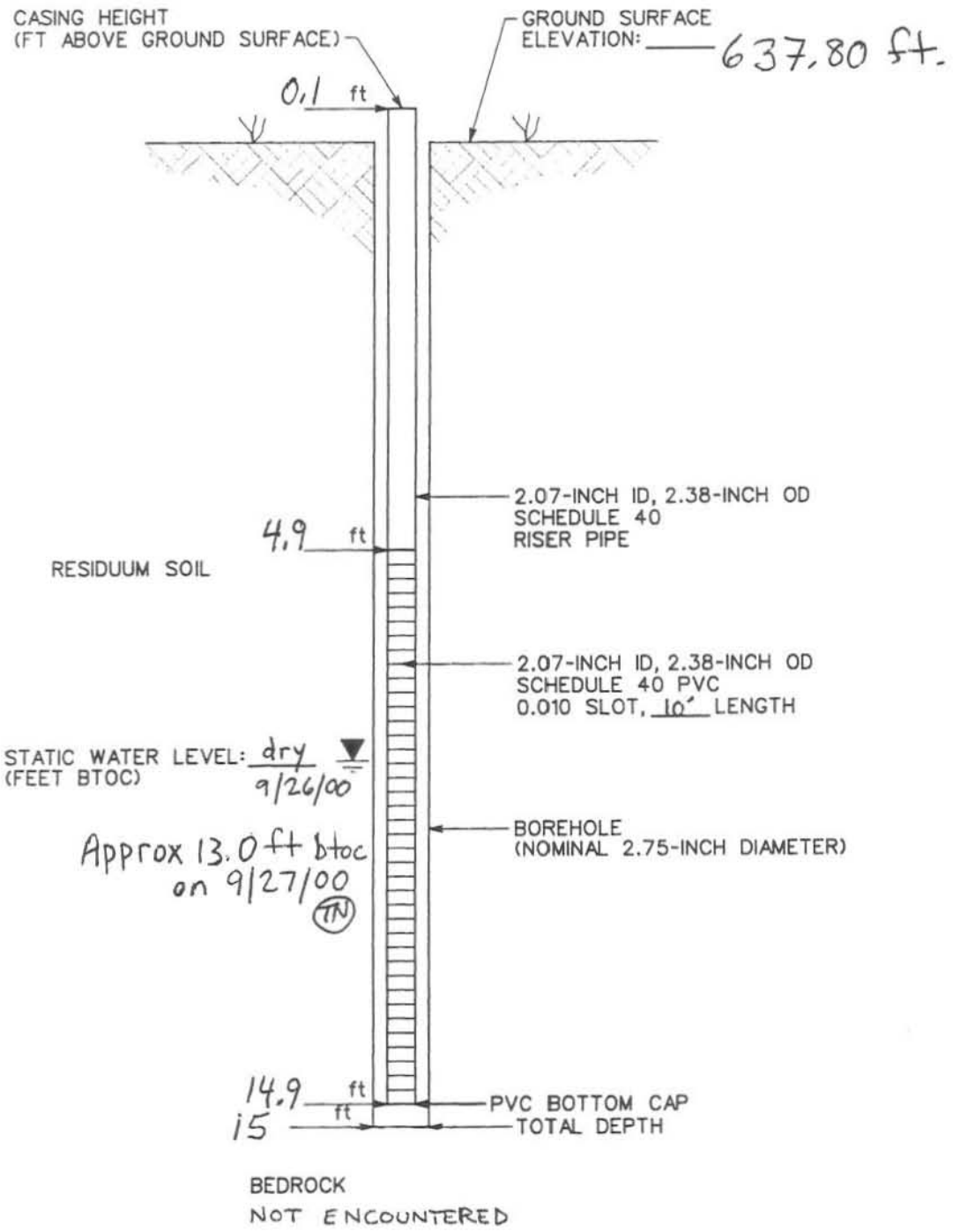
PROJECT PBOW | INSPECTOR T. Nolen | SHEET 2 OF 2 SHEETS

ELEV (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	HNU SCREENING RESULTS (d)	PUSH / SAMPLE INTERVAL (e)	ANALYTICAL SAMPLE NO (f)	USCS (g)	REMARKS (h)
		Grass, Roots	PID	BZ			
	1			CO | H_2S			
		Topsoil		0 | 0			
	2			LEL | O_2			
				0 | 21.0			
	3						
	4				AA0474		
	5		0.0		4'-6'		
	6						
	7						
	8				AA0475		
	9		0.0		8'-10'		
	10	Total Depth = 10.0 ft					

PROJECT PBOW | HOLE NO. A-474/475

TEMPORARY SHALLOW PIEZOMETER CONSTRUCTION DIAGRAM

LOCATION: TNT A Bldg 126



NOTES:

PIEZOMETER NO.: GW06

DATE INSTALLED: 9/26/00

DATE REMOVED: 9/27/00

PIEZOMETER CONSTRUCTION DIAGRAM

prepared for:
USACE - NASHVILLE
PLUM BROOK ORDNANCE WORKS

NOT TO SCALE

IT CORPORATION
A Member of The IT Group

DWG. NO.: \825635ES.018 | PROJ. NO.: 825635
INITIATOR: C. WILLIAMS | PROJ. MGR.: SPANGBERG
DRAFT. CHCK. BY: C. TUMLIN | ENGR. CHCK. BY: C. WILLIAMS
DATE LAST REV.: | DRAWN BY:
STARTING DATE: 07/23/01 | DRAWN BY: B. VANDERGRIFF

02:26:24 10/23/01

bvanderg
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~~ASO~~ A- 373/374

HTRW DRILLING LOG

DISTRICT: Nashville TN	HOLE NUMBER: ~~ASO 354/355~~ TN	
1. COMPANY NAME: IT	2. DRILL SUBCONTRACTOR: Miller	SHEET 1 OF 2 SHEETS
3. PROJECT: PBOW	4. LOCATION: Bldg 129	
5. NAME OF DRILLER: Harry Huntoon	6. MANUFACTURER'S DESIGNATION OF DRILL: GEOPROBE	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: GeoProbe w/2" MacroCore Barrel	8. HOLE LOCATION: @ ASO303	
	9. SURFACE ELEVATION: 653.31 Ft N: 623947.19 E: 1924687.24	
	10. DATE STARTED: 9/12/00	11. DATE COMPLETED: 9/12/00
12. OVERBURDEN THICKNESS: 10'	15. DEPTH GROUNDWATER ENCOUNTERED: 7'	
13. DEPTH DRILLED INTO ROCK: 0'	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: —	
14. TOTAL DEPTH OF HOLE: 10'	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): —	

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
	—	—	—

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY
	—	—	Nitro Arom	—	—	— %

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
	✓	—	—	Tony E. Nolen

LOCATION SKETCH/COMMENTS: see sample log SCALE: —

Screening

PROJECT: PBOW HOLE NO. ~~ASO 354/355~~ TN

ENG FORM 5056-R, AUG 94 (Proponent: CECW-EG)

~~ASO~~ A- 373/374

~~ASO~~ A-373/374

HTRW DRILLING LOG

HOLE NUMBER ~~ASO 354/355~~ TN

PROJECT PBOW | INSPECTOR T. Nolen | SHEET 2 OF 2 SHEETS

ELEV. (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	FIELD SCREENING RESULTS (d)	GEOTECH SAMPLE OR CORE BOX NO. (e)	ANALYTICAL SAMPLE NO. (f)	REMARKS (g)
	1	Topsoil & roots	~~NA~~ TN	~~NA~~ TN		
	2		PID	BZ		
	3	Dark gray clayey SILT (5YR 3/1),		CO 0 / H_2S 0		
	4	sl. moist.		LEL 0 / O_2 20.7	ASO	4
	5	ml	0.0		~~354~~ TN 373	
	6					6
	7	— H_2O				water @ 7'
	8	Strong Brown silt, w/ Shale Frags ml			ASO	8
	9		0.0		~~355~~ TN 374	
	10	STOP Total Depth = 10.0 Ft				10

PROJECT PBOW

HOLE NO. ~~ASO 354/355~~ TN

~~ASO~~ A-373/374

HTRW DRILLING LOG

DISTRICT: Nashville, TN	HOLE NUMBER: A-389/390	
1. COMPANY NAME: IT Corp	2. DRILL SUBCONTRACTOR: Miller Drilling	SHEET 1 OF 2 SHEETS
3. PROJECT: PBOW	4. LOCATION: Bldg 131	
5. NAME OF DRILLER: Harry Huntoon	6. MANUFACTURER'S DESIGNATION OF DRILL: GeoProbe	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: GEOPROBE w/ 2" MACROCORE BARREL	8. HOLE LOCATION: Stake ASO-062	
	9. SURFACE ELEVATION: 659.29 ft N: 623115.68 E: 1923300.05	
	10. DATE STARTED: 9-15-00	11. DATE COMPLETED: 9-15-00
12. OVERBURDEN THICKNESS: —	15. DEPTH GROUNDWATER ENCOUNTERED: — Not encountered	
13. DEPTH DRILLED INTO ROCK: —	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: —	
14. TOTAL DEPTH OF HOLE: 6' (1st try) / 10' on 2nd try	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): —	

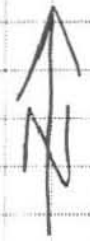
18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
—	—	—	—

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY
—	—	—	Nitro Arom.	—	—	— %

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
—	✓	—	—	Tony E. Nolen

LOCATION SKETCH/COMMENTS: see sample log SCALE: —

Screening



ASC-062 (AAO 389) 4-6' moved 5' south – retry to collect (8-10' sample, AAO-390)

PROJECT: PBOW HOLE NO. A-389/390

HTRW DRILLING LOG (CONTINUATION SHEET)

HOLE NUMBER A-389/390

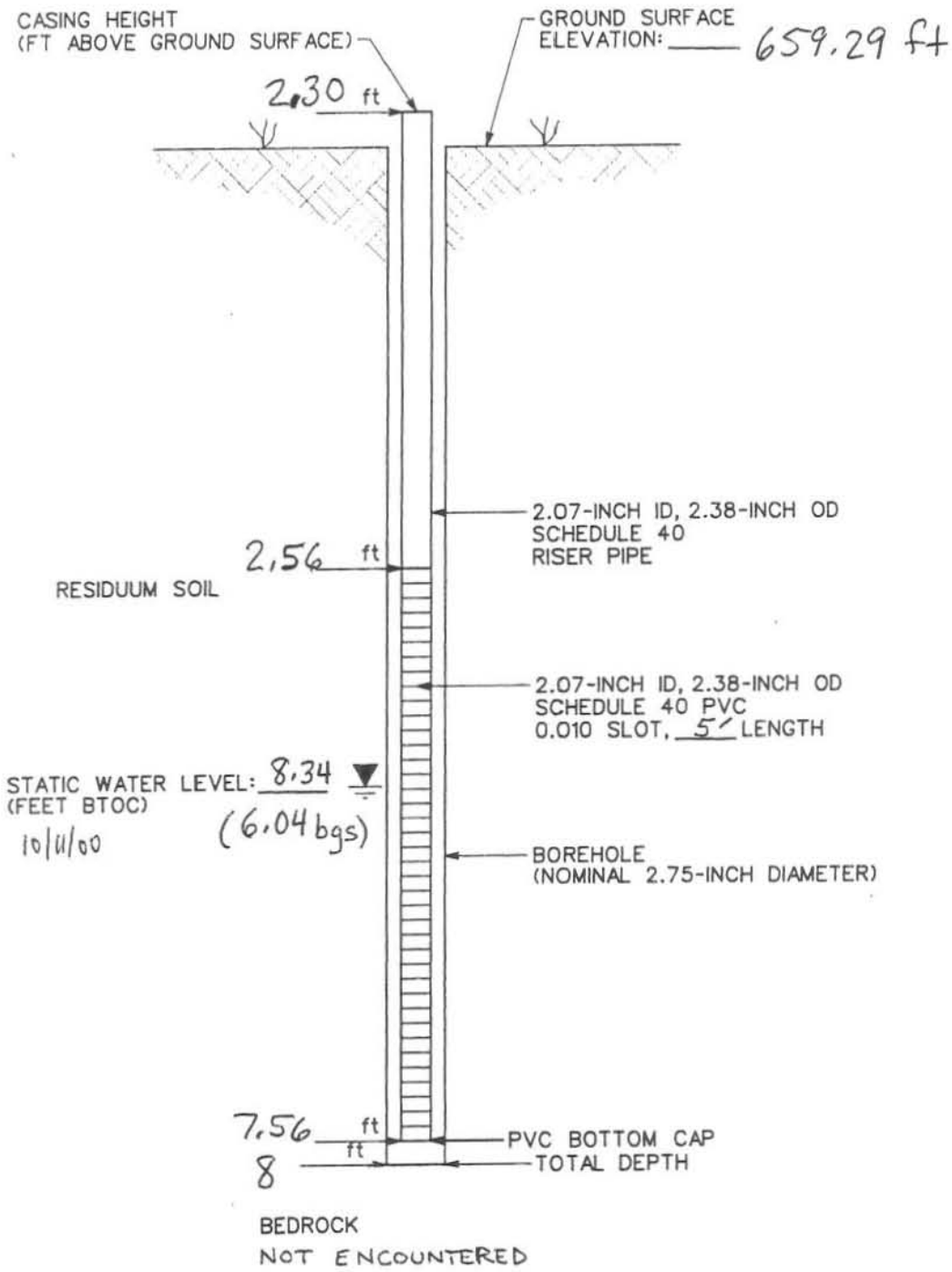
PROJECT PBOW | INSPECTOR T. Nolen | SHEET 2 OF 2 SHEETS

ELEV (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	HNU SCREENING RESULTS (d)	PUSH / SAMPLE INTERVAL (e)	ANALYTICAL SAMPLE NO (f)	USCS (g)	REMARKS (h)
	1	Topsoil, grass, organic de	PID 0.0	BZ CO 0 / H_2S 0 / LEL 0 / O_2 21.0			
	2						
	3	Yellowish Red (5YR 4/6) clayey					
	4	sandy SILT, very fine, sl. moist.					
	5	ml	0.0 (Refusal @ 6' 1st try)		ASO-389 4'-6'	ml	
	6						
	7	Yellowish Red shale fragments					
	8	in/ silt, dry.					
	9	(5YR/4/6) ml	0.0		ASO-390 8'-10'	ml	
	10	END BORING Total Depth = 10.0 Ft	(2nd try)				

PROJECT PBOW | HOLE NO. A-389/390

TEMPORARY SHALLOW PIEZOMETER CONSTRUCTION DIAGRAM

LOCATION: INTA Bldg 131



NOTES:

PIEZOMETER NO.: GW08

DATE INSTALLED: 9/29/00

DATE REMOVED: 10/12/00

NOT TO SCALE

PIEZOMETER CONSTRUCTION DIAGRAM

prepared for:
USACE - NASHVILLE
PLUM BROOK ORDNANCE WORKS

IT CORPORATION
A Member of The IT Group

STARTING DATE: 07/23/01	DATE LAST REV.:	DRAFT. CHCK. BY: C. TUMLIN	INITIATOR: C. WILLIAMS	DWG. NO.:\825635ES.018
DRAWN BY: B. VANDERGRIFF	DRAWN BY:	ENGR. CHCK. BY: C. WILLIAMS	PROJ. MGR.: SPANGBERG	PROJ. NO.: 825635

02:26:24 10/23/01

bvanderg c:\cadd\design\825635es.018

HTRW DRILLING LOG

DISTRICT: Nashville, TN	HOLE NUMBER: A-391/392	
1. COMPANY NAME: IT Corp	2. DRILL SUBCONTRACTOR: Miller Drilling	SHEET 1 OF 2 SHEETS
3. PROJECT: PBOW	4. LOCATION: Bld 132	
NAME OF DRILLER: Harry Huntoon	6. MANUFACTURER'S DESIGNATION OF DRILL: GeoProbe	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: GeoProbe w/ 2" MACROCORE BARREL	8. HOLE LOCATION: Bld 132 / New Stake middle of 052/053/054	
	9. SURFACE ELEVATION: NS	
	10. DATE STARTED: 9-15-00	11. DATE COMPLETED: 9-15-00
12. OVERBURDEN THICKNESS: N/A	15. DEPTH GROUNDWATER ENCOUNTERED: ~~6.4'~~ (N) 6.4'	
13. DEPTH DRILLED INTO ROCK: N/A	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: —	
14. TOTAL DEPTH OF HOLE: 10'	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): —	

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
—	—	—	—

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY
—	—	—	NitroArom.	—	—	— %

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
—	✓	—	—	[signature]

LOCATION SKETCH/COMMENTS: see sample log SCALE: —

Screening

0	0
0	20.7

PROJECT: PBOW	HOLE NO. A-391/392

HTRW DRILLING LOG (CONTINUATION SHEET)

HOLE NUMBER: A-391/392

PROJECT: PBOW

INSPECTOR: T. Nolen

SHEET 2 OF 2 SHEETS

ELEV (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	HNU SCREENING RESULTS (d)	PUSH / SAMPLE INTERVAL (e)	ANALYTICAL SAMPLE NO (f)	USCS (g)	REMARKS (h)
	1	topsoil, organics roots, grass	PID 0.0	BZ CO 0 / H_2S 0			
	2			LEL 0 / O_2 20.7			
	3						
	4	Reddish, tan. Gravelly loose, sandy silt (2.5yr 4/6)				ml	
	5		0.0		ASO 391 4-6'		
	6	H_2O					Encountered water at 6.4 ft
	7	Rubble zone					
	8					cl	
	9	gray, moist, stiff Clay w/silt (10yr 6/1)	0.0		ASO 392 8-10'		
	10	end of boring Total Depth = 10.0 ft					

PROJECT: PBOW

HOLE NO. A-391/392

HTRW DRILLING LOG

DISTRICT: Nashville, TN	HOLE NUMBER: A-393/394	
1. COMPANY NAME: IT Corp	2. DRILL SUBCONTRACTOR: Miller Drilling	SHEET 1 OF 2 SHEETS
3. PROJECT: PBOW	4. LOCATION: Bldg 133	
NAME OF DRILLER: Harry Huntoon	6. MANUFACTURER'S DESIGNATION OF DRILL: GeoProbe	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: Geoprobe w/ 2" ~~Macro Probe~~ Barrel MACROCORE	8. HOLE LOCATION: New Stake 15ft from Stake 043	
	9. SURFACE ELEVATION: NS	
	10. DATE STARTED: 9-15-00	11. DATE COMPLETED: 9-15-00
12. OVERBURDEN THICKNESS: N/A	15. DEPTH GROUNDWATER ENCOUNTERED: 6'	
13. DEPTH DRILLED INTO ROCK: N/A	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: —	
14. TOTAL DEPTH OF HOLE: 10'	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): —	

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
—	—	—	—

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY
—	—	—	NitroArom.	—	—	— %

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
—	✓	—	—	[illegible]

LOCATION SKETCH/COMMENTS see sample log SCALE: —

Screening

0 | 0
0 | 20.7

~~389/39~~ (TN)

PROJECT PBOW

HOLE NO. A-395/394

A-393/394 ~~381/390~~

HTRW DRILLING LOG (CONTINUATION SHEET)

HOLE NUMBER ~~393/394~~

PROJECT PBOW | INSPECTOR T. Nolen | SHEET 2 OF 2 SHEETS

ELEV (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	HNU SCREENING RESULTS (d)	PUSH / SAMPLE INTERVAL (e)	ANALYTICAL SAMPLE NO (f)	USCS (g)	REMARKS (h)
	1	topsoil, roots, grass	PID 0.0	BZ CO 0% / H_2S 0% / LEL 0% / O_2 20.8			
	2						
	3						
	4	Reddish tan, Sandy silt. loose. (2.5yr 4/6)			ASO 393 4-6'	ml	
	5						
	6	H_2O	0.0				Water encountered at 6 ft
	7	Brownish gray. Stiff. moist. (2.5yr 3/2)				ml	
	8	as above			ASO 394 8-10'		
	9		0.0			ml	
	10	end of boring Total Depth - 10.0 ft					

PROJECT PBOW | HOLE NO. A-393/394

HTRW DRILLING LOG

DISTRICT	Nashville, TN
HOLE NUMBER	A-395/396
1. COMPANY NAME	IT Corp
2. DRILL SUBCONTRACTOR	Miller Drilling
SHEET / SHEETS	1 OF 2
3. PROJECT	PBOW
4. LOCATION	Bld. 136
NAME OF DRILLER	Harry Huntoon
6. MANUFACTURER'S DESIGNATION OF DRILL	GeoProbe
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT	~~GeoProbe (TM) 2" Macro barrel~~ GeoProbe (TM) w/2" MACROCORE (TM) Barrel
8. HOLE LOCATION	Bld 136 Stalk ASO-337
9. SURFACE ELEVATION	NS
10. DATE STARTED	9-15-00
11. DATE COMPLETED	9-15-00
12. OVERBURDEN THICKNESS	N/A
13. DEPTH DRILLED INTO ROCK	N/A
14. TOTAL DEPTH OF HOLE	10'
15. DEPTH GROUNDWATER ENCOUNTERED	water on surface / 0-10' dry
16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED	—
17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY)	—

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
—	—	—	—

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY
—	—	—	NitroArom.	—	—	— %

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
—	✓	—	—	[signature]

LOCATION SKETCH/COMMENTS see sample log SCALE: —

Screening

BZ

LEL 0	0 H_2O
C 0	20.7

PROJECT PBOW	HOLE NO. A-395/396

HTRW DRILLING LOG (CONTINUATION SHEET)

HOLE NUMBER A-395/396

PROJECT PBOW | INSPECTOR T. Nolen | SHEET 2 OF 2 SHEETS

ELEV (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	HNU SCREENING RESULTS (d)	PUSH / SAMPLE INTERVAL (e)	ANALYTICAL SAMPLE NO (f)	USCS (g)	REMARKS (h)
	1	topsoil, organics grass, roots, standing water	PID 0.0	BZ CO 0% H_2S 0% LEL 0% O_2 20.7			
	2						
	3						
	4	gray, stiff, moist silty clay (10YR 6/1)	0.0		AAO-395 4-6'	~~AA 395 4-6'~~	cl TN
	5						
	6						
	7						
	8	gray, crumbly, silty clay (10YR 6/1)	0.0		AAO 396 8-10'	~~AA 396 8-10'~~	cl TN
	9						
	10	end of boring Total Depth = 10.0 ft					

PROJECT PBOW | HOLE NO. A-395/396

HTRW DRILLING LOG

DISTRICT: Nashville, TN	HOLE NUMBER: A-375/376	
1. COMPANY NAME: IT	2. DRILL SUBCONTRACTOR: Miller	SHEET 1 OF 2 SHEETS
3. PROJECT: PBOW	4. LOCATION: Bldg 139	
5. NAME OF DRILLER: Harry Huntoon	6. MANUFACTURER'S DESIGNATION OF DRILL: GeoProbe	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: GeoPROBE w/2" MACROCORE BARREL	8. HOLE LOCATION: ASO-040	
	9. SURFACE ELEVATION: 654.48 ft N: 623323.21 E: 1923085.76	
	10. DATE STARTED: 9-13-00	11. DATE COMPLETED: 9-13-00
12. OVERBURDEN THICKNESS: N/A	15. DEPTH GROUNDWATER ENCOUNTERED: —	
13. DEPTH DRILLED INTO ROCK: N/A	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: —	
14. TOTAL DEPTH OF HOLE: 10'	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): —	

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
	—	—	—

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY %
	—	—	Nitroform	—	—	

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
	✓	—	—	Tony E. Nolen

LOCATION SKETCH/COMMENTS: See ~~Esize Map~~ (FN) sample log. SCALE: —

Screening

PROJECT: PBOW HOLE NO. A-375/376

ENG FORM 5056-R, AUG 94 (Proponent: CECW-EG)

HTRW DRILLING LOG

HOLE NUMBER A-375/376

PROJECT PBOW | INSPECTOR T. Nolen | SHEET 1 OF 2 SHEETS

ELEV. (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	FIELD SCREENING RESULTS (d)	GEOTECH SAMPLE OR CORE BOX NO. (e)	ANALYTICAL SAMPLE NO. (f)	REMARKS (g)
	1	Topsoil w/roots	PID	BZ		
	2			CO 0, H_2S 0		
	3	Yellow Red, stiff silty CLAY, shale frags, (5YR 5/8) + fine to coarse sand		LEL 0, O_2 20.7		
	4		0.0			
	5				ASO 375	
	6	cl			4-6	
	7					
	8	Same as above but more shale frags.				
	9	cl	0.0		ASO 376 8-10	
	10	Total Depth = 10.0 ft	END BORING			

HTRW DRILLING LOG

DISTRICT: Nashville TN	HOLE NUMBER: A-377/378	
1. COMPANY NAME: IT	2. DRILL SUBCONTRACTOR: Miller	SHEET 1 OF SHEETS 2
3. PROJECT: PBOW	4. LOCATION: Bldg 141	
5. NAME OF DRILLER: Harry Huntoon	6. MANUFACTURER'S DESIGNATION OF DRILL: GEOPROBE	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: GEOPROBE w/2" MACROCORE BARREL	8. HOLE LOCATION: ASO-297	
	9. SURFACE ELEVATION: 659.57 ft N: 622836.85 E: 1922885.58	
	10. DATE STARTED: 9/13/00	11. DATE COMPLETED: 9/13/00
12. OVERBURDEN THICKNESS: —	15. DEPTH GROUNDWATER ENCOUNTERED: —	
13. DEPTH DRILLED INTO ROCK: —	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: —	
14. TOTAL DEPTH OF HOLE: 10'	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): —	

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
	—	—	—

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY %
	—	—	NitroAroM	—	—	

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
	✓	—	—	Tony E. Nolen

LOCATION SKETCH/COMMENTS: see sample log SCALE: —

Screening

PROJECT: PBOW	HOLE NO. A-377/378

ENG FORM 5056-R, AUG 94 (Proponent: CECW-EG)

HTRW DRILLING LOG

HOLE NUMBER A-377/378

PROJECT PBOW | INSPECTOR T. Nolen | SHEET 1 OF SHEETS 2

ELEV. (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	FIELD SCREENING RESULTS (d)	GEOTECH SAMPLE OR CORE BOX NO. (e)	ANALYTICAL SAMPLE NO. (f)	REMARKS (g)
		Topsoil w/ roots		~~HA~~ (TN)		
	1		PID			
	2			BZ		
	3	Reddish Brown (5YR 5/4)		CO 0 / H_2S 0		
	4	silty CLAY, gravelly, moist to sl. moist	0.0	LEL 0 / O_2 20.7		
	5				ASO 377 4-6'	
	6	cl				
	7					
	8	Tan to gray (7.5YR 7/1)				
	9	clayey SILT, stiff, moist. ml	0.0		ASO 378 8-10'	
	10	END BORING				
	11	Total Depth = 10 Ft				
	12					

HTRW DRILLING LOG

DISTRICT: Nashville TN	HOLE NUMBER: A-379/380	
1. COMPANY NAME: IT	2. DRILL SUBCONTRACTOR: E Miller	SHEET 1 OF 2 SHEETS
3. PROJECT: PBOW	4. LOCATION: Bldg 142	
5. NAME OF DRILLER: Harry Huntoon	6. MANUFACTURER'S DESIGNATION OF DRILL: GEOPROBE	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: GEOPROBE w/2" MACROCORE BARREL	8. HOLE LOCATION: ASO-016	
	9. SURFACE ELEVATION: 653.02 Ft N:623141.30 E:1922676.45	
	10. DATE STARTED: 9-13-00	11. DATE COMPLETED: 9-13-00
12. OVERBURDEN THICKNESS: —	15. DEPTH GROUNDWATER ENCOUNTERED: 4'	
13. DEPTH DRILLED INTO ROCK: —	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: —	
14. TOTAL DEPTH OF HOLE: 10'	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): —	

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
	—	—	—

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY %
	—	—	Nitro Arom	—	—	

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
	✓	—	—	Tony E. Nolen

LOCATION SKETCH/COMMENTS: see sample log

SCALE: —

Screening

PROJECT: PBOW	HOLE NO. A-379/380

ENG FORM 5056-R, AUG 94

(Proponent: CECW-EG)

HTRW DRILLING LOG

HOLE NUMBER A-379/380

PROJECT PBOW | INSPECTOR T. Nolen | SHEET 2 OF 2 SHEETS

ELEV. (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	FIELD SCREENING RESULTS (g)	GEOTECH SAMPLE OR CORE BOX NO. (e)	ANALYTICAL SAMPLE NO. (f)	REMARKS (d)
	1	Topsoil, grass, roots	~~NA~~ DKK 0.0 PID	~~NA~~ TN BZ		
	2			CO 0 / H_2S 0		
	3	Reddish Brown (5YR 5/4) clayey SILT, moist trace fine sand		LEL 0 / O_2 20.7		
	4	water ml			4	water @ 4'
	5	as above, but more gravel, rubble	0.0		ASO 379	
	6				6	
	7					
	8	Darker 8 Reddish Brown (5YR 5/4)			8	
	9	silty CLAY, sandy, cl WET. Rubbly frags.	0.0		ASO 380	
	10	END BORING			10	
		Total Depth - 10.0 ft				

HTRW DRILLING LOG

DISTRICT: Nashville, TN	HOLE NUMBER: A-381/382	
1. COMPANY NAME: IT	2. DRILL SUBCONTRACTOR: Miller	SHEET 1 OF 2 SHEETS
3. PROJECT: PBOW	4. LOCATION: Bldg 143	
5. NAME OF DRILLER: Harry Huntoon	6. MANUFACTURER'S DESIGNATION OF DRILL: GEOPROBE	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: GEOPROBE w/2" MACROCORE BARREL	8. HOLE LOCATION: ASO-035	
	9. SURFACE ELEVATION: 651.24 ft N: 623313.78 E: 1922906.96	
	10. DATE STARTED: 9-13-00	11. DATE COMPLETED: 9-13-00
12. OVERBURDEN THICKNESS: N/A	15. DEPTH GROUNDWATER ENCOUNTERED: 7'	
13. DEPTH DRILLED INTO ROCK: 0'	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: —	
14. TOTAL DEPTH OF HOLE: 10'	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): —	

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
	—	—	—

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY %
	—	—	Nitrofrom	—	—	

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
	✓	—	—	Tony E. Nolen

LOCATION SKETCH/COMMENTS: see sample log

SCALE: —

Screening

PROJECT: PBOW

HOLE NO. A-381/382

ENG FORM 5056-R, AUG 94

(Proponent: CECW-EG)

HTRW DRILLING LOG

HOLE NUMBER A-381/382

PROJECT PBOW | INSPECTOR T. Nolen | SHEET 2 OF 2 SHEETS

ELEV. (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	FIELD SCREENING RESULTS (d)	GEOTECH SAMPLE OR CORE BOX NO. (e)	ANALYTICAL SAMPLE NO. (f)	REMARKS (g)
	1	Topsoil (Roots, grass)	~~NA~~ DILL PID	NA BZ		
	2	Reddish Brown (5YR 5/4) fine sandy SILT, moist, w/ occasional Gray clay lenses from 4-8' ml	0.0	CO 0 / H_2S 0 / LEL 0 / O_2 20.7	ASO 381 4-6'	
	3					
	4					
	5					
	6					
	7	water @ 7'				Encountered water at 7 Ft
	8	Yellowish Red (5YR 5/8) fine sandy clayey SILT, moist to wet. ml	0.0		ASO 382 8-10'	
	9					
	10	END BORING Total Depth = 10.0 Ft				

HTRW DRILLING LOG

DISTRICT: Nashville, TN	HOLE NUMBER: A-383/384	
1. COMPANY NAME: IT	2. DRILL SUBCONTRACTOR: Miller	SHEET 1 OF SHEETS 2
3. PROJECT: PBOW	4. LOCATION: Bldg 146	
5. NAME OF DRILLER: Harry Huntoon	6. MANUFACTURER'S DESIGNATION OF DRILL: GeoProbe	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: GEOPROBE w/2" MACROCORE BARREL	8. HOLE LOCATION: ASO-080	
	9. SURFACE ELEVATION: 636.69 Ft N: 623441.95 E: 1922581.90	
	10. DATE STARTED: 9/13/00	11. DATE COMPLETED: 9/13/00
12. OVERBURDEN THICKNESS: —	15. DEPTH GROUNDWATER ENCOUNTERED: 0' Boring at swampy area	
13. DEPTH DRILLED INTO ROCK: —	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: —	
14. TOTAL DEPTH OF HOLE: 10'	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): —	

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
	—	—	—

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY %
	—	—	Nitro Arom	—	—	

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
	✓	—	—	Tony E. Nolen

LOCATION SKETCH/COMMENTS: see sample log

SCALE: —

Screening

PROJECT: PBOW	HOLE NO.: A-383/384

ENG FORM 5056-R, AUG 94

(Proponent: CECW-EG)

HTRW DRILLING LOG

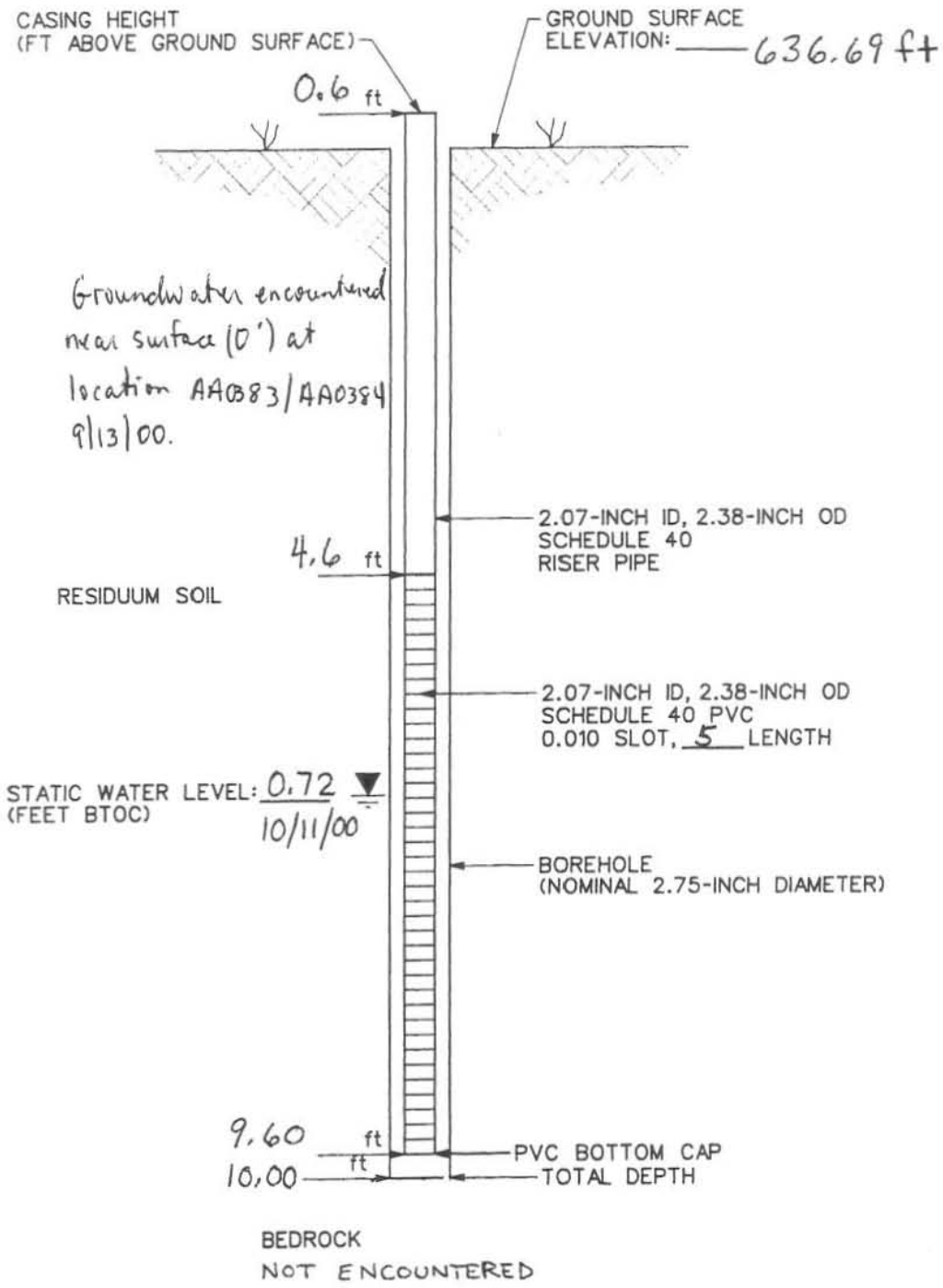
HOLE NUMBER A-383/384

PROJECT PBOW | INSPECTOR T. Nolen | SHEET 2 OF 2 SHEETS

ELEV. (D)	DEPTH (D)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS (G)	GEOTECH SAMPLE OR CORE BOX NO. (B)	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
	1	Swamp surface; organic muck		~~NA~~ (TN) BZ		water at 0'
	2			CO 0 / H_2S 0		
	3	(7.5YR 5/8) (7.5YR 6/1) Brown to gray silty sandy CLAY, wet	PID 0.0	LEL 0 / O_2 20.7		
	4				ASO 383	
	5		cl 0.0			
	6				4-6'	
	7					
	8	very stiff dense gray (7.5YR 7/1) CLAY moist.			ASO 384	
	9		cl 0.0			
	10				8-10'	
		END BORING Total Depth = 10.0 ft				

TEMPORARY SHALLOW PIEZOMETER CONSTRUCTION DIAGRAM

LOCATION: TNT A - Bldg 146



NOTES:

PIEZOMETER NO.: GW 05
DATE INSTALLED: 9/29/00
DATE REMOVED: 10/11/00

PIEZOMETER CONSTRUCTION DIAGRAM

prepared for:
USACE - NASHVILLE
PLUM BROOK ORDNANCE WORKS

NOT TO SCALE

IT CORPORATION
A Member of The IT Group

DWG. NO.: \825635ES.018 | PROJ. NO.: 825635
INITIATOR: C. WILLIAMS | PROJ. MGR.: SPANGBERG
DRAFT. CHCK. BY: C. TUMLIN | ENGR. CHCK. BY: C. WILLIAMS
DATE LAST REV.: | DRAWN BY:
STARTING DATE: 07/23/01 | DRAWN BY: B. VANDERGRIFF
02:26:24 10/23/01
bvanderg c:\cadd\design\825635es.018

HTRW DRILLING LOG

DISTRICT: Nashville, TN	HOLE NUMBER: A-401/402	
1. COMPANY NAME: IT Corp	2. DRILL SUBCONTRACTOR: Miller Drilling	SHEET 1 OF 2 SHEETS
3. PROJECT: PBOW	4. LOCATION: Bldg 149	
NAME OF DRILLER: Harry Huntoon	6. MANUFACTURER'S DESIGNATION OF DRILL: GeoProbe	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: GeoPROBE w/ 2" MACROCORE BARREL	8. HOLE LOCATION: Stake ASO-059	
	9. SURFACE ELEVATION: NS	
	10. DATE STARTED: 9-15-00	11. DATE COMPLETED: 9-15-00
12. OVERBURDEN THICKNESS: —	15. DEPTH GROUNDWATER ENCOUNTERED: 5'	
13. DEPTH DRILLED INTO ROCK: —	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: —	
14. TOTAL DEPTH OF HOLE: 8' (1st try) / 8' 2nd try / 8' 3rd try	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): —	

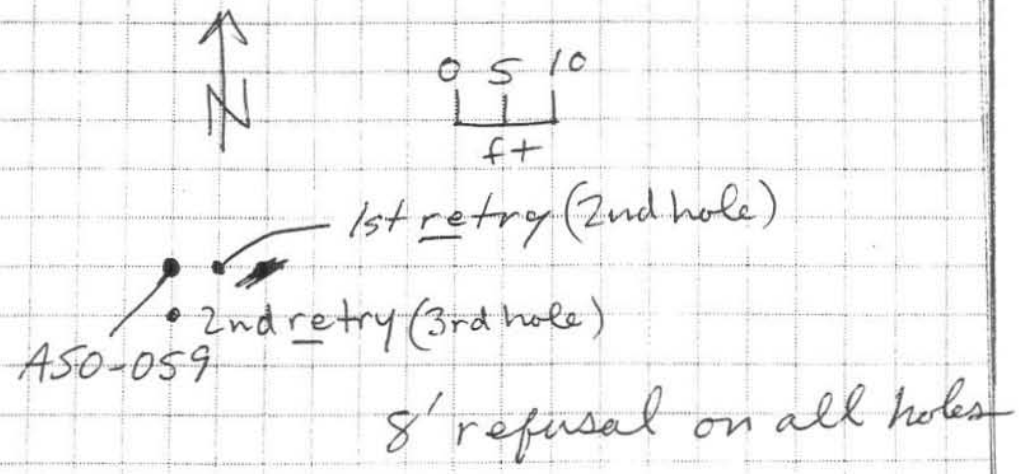
18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
—	—	—	—

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY
—	—	—	NitroArom.	—	—	— %

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
—	✓	—	—	Tony E. Nolen

LOCATION SKETCH/COMMENTS: see sample log SCALE: —

Screening



8' refusal on all holes

PROJECT: PBOW HOLE NO. A-401/402

HTRW DRILLING LOG (CONTINUATION SHEET)

HOLE NUMBER A-401/402

PROJECT PBOW | INSPECTOR T. Nolen | SHEET 2 OF 2 SHEETS

ELEV (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	HNU SCREENING RESULTS (d)	PUSH / SAMPLE INTERVAL (e)	ANALYTICAL SAMPLE NO (f)	USCS (g)	REMARKS (h)
	1	Topsoil, grass + roots.	PID	BZ			
	2		0.0	CO / H_2S			
	3	Reddish yellow (7.5YR 6/6)		LEL / O_2			
	4	clayey SILT, sandy, sl. moist			AAO-401	ml	
	5		0.0			ml	
	6				4'-6'		
	7	as above plus shale frags				ml	
	8		0.0				refusal on 1st trys 2nd, 3rd
	9	Total Depth = 8.0 Ft			AAO 402 NOT COLLECTED		
	10				8'-10'		

PROJECT PBOW | HOLE NO. A-401/402

HTRW DRILLING LOG

DISTRICT: Nashville, TN	HOLE NUMBER: A-397/398	
1. COMPANY NAME: IT Corp	2. DRILL SUBCONTRACTOR: Miller Drilling	SHEET 1 OF 2 SHEETS
3. PROJECT: PBOW	4. LOCATION: Bld. 182	
NAME OF DRILLER: Harry Huntoon	6. MANUFACTURER'S DESIGNATION OF DRILL: GeoProbe	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: GEOPROBE 2" Macro barrel	8. HOLE LOCATION: ASO-094	
	9. SURFACE ELEVATION: 653.42 Ft N: 623220.83 E: 1924922.54	
	10. DATE STARTED: 9-15-00	11. DATE COMPLETED: 9-15-00
12. OVERBURDEN THICKNESS: N/A	15. DEPTH GROUNDWATER ENCOUNTERED: ~7' (bottom of saprolite/top of b.r.	
13. DEPTH DRILLED INTO ROCK: N/A	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: —	
14. TOTAL DEPTH OF HOLE: 7'/4.5'/7' 3tries	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): —	

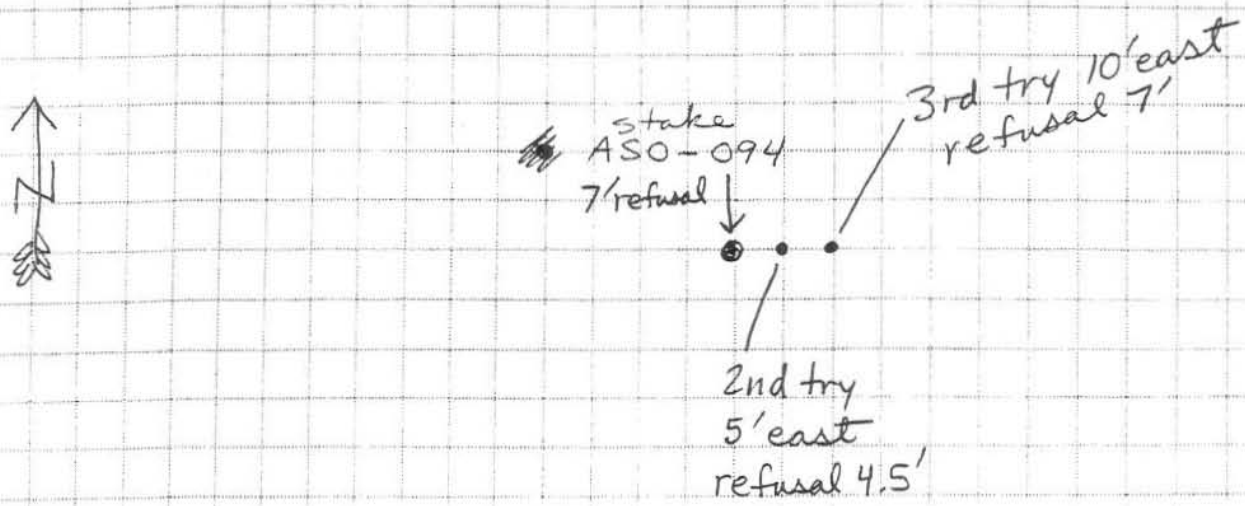
18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
—	—	—	—

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY
—	—	—	NitroArom.	—	—	— %

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
—	✓	—	—	[signature]

LOCATION SKETCH/COMMENTS see sample log SCALE: —

Screening



PROJECT PBOW HOLE NO. A-397/398

HTRW DRILLING LOG (CONTINUATION SHEET)

HOLE NUMBER A-397/398

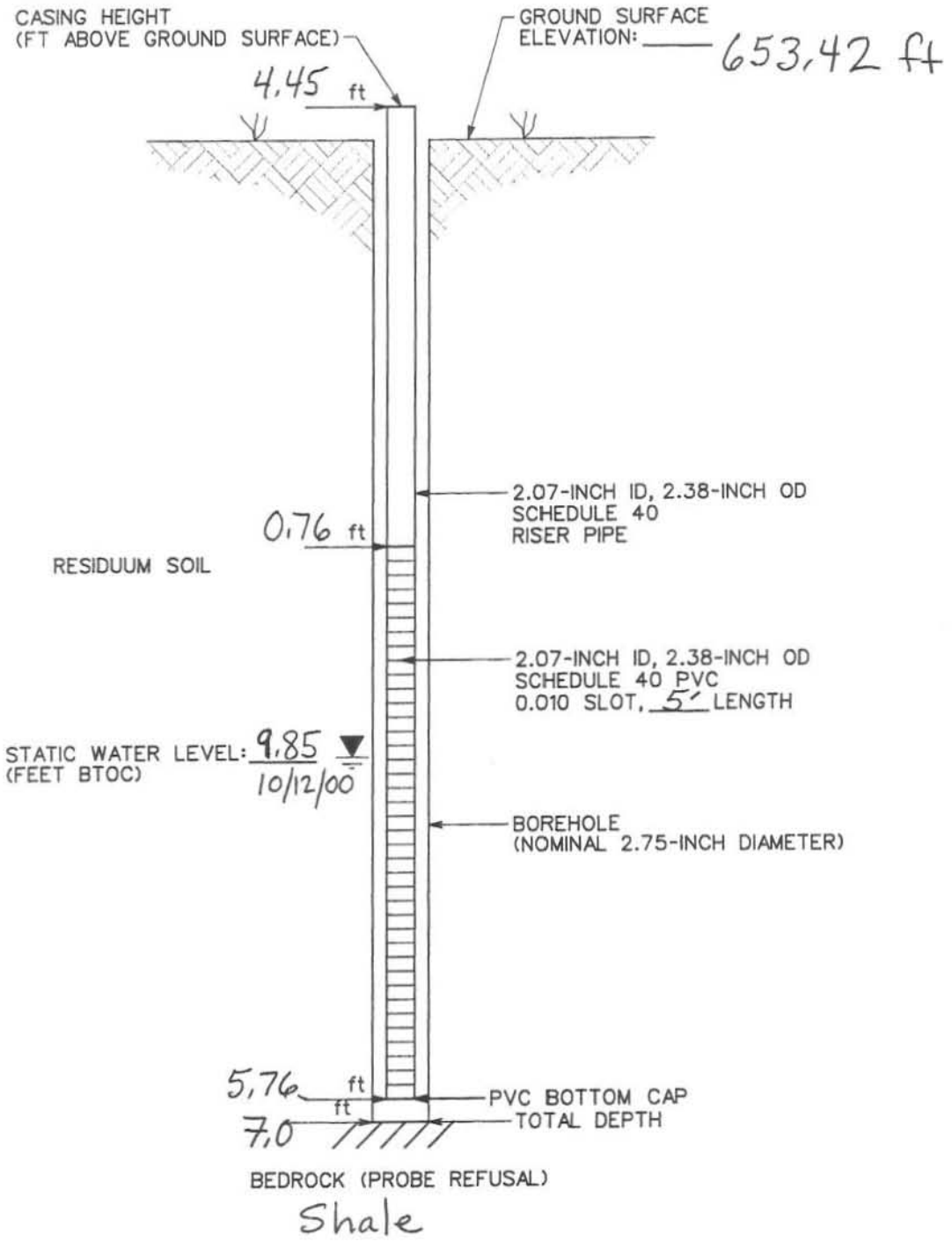
PROJECT PBOW | INSPECTOR T. Nolen | SHEET 2 OF 2 SHEETS

ELEV (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	HNU SCREENING RESULTS (d)	PUSH / SAMPLE INTERVAL (e)	ANALYTICAL SAMPLE NO (f)	USCS (g)	REMARKS (h)
			0.0	BZ			
	1	topsoil, grass, roots organics		0 | 0			
	2			0 | 20.8			
	3					cl	
	4				4		
		reddish brown, silty shale. fragments of shale (2.5 YR 4/2)	4.5 refusal (2nd try)		AA0397		
	5				4-6' 6		
	6	silty clay mix of shale fragments (5 YR 4/2) moist reddish brown gray			AA0398	cl	
		H2O refusal (1st try) = H2O 3rd try)			6-7' 7		
	7						
	8						
		end of boring Total Depth = 7 Ft			~~AA0399~~ DFR		
	9						
			0.0				
	10						
		~~end of boring~~					

PROJECT PBOW | HOLE NO. A-397/398

TEMPORARY SHALLOW PIEZOMETER CONSTRUCTION DIAGRAM

LOCATION: TNT A - Bldg 182



NOTES:

PIEZOMETER NO.: GW09
DATE INSTALLED: 9/29/00
DATE REMOVED: 10/12/00

NOT TO SCALE

PIEZOMETER CONSTRUCTION DIAGRAM

prepared for:
USACE - NASHVILLE
PLUM BROOK ORDNANCE WORKS

IT CORPORATION
A Member of The IT Group

STARTING DATE: 07/23/01	DATE LAST REV.:	DRAFT. CHCK. BY: C. TUMLIN	INITIATOR: C. WILLIAMS	DWG. NO.:\825635ES.018
DRAWN BY: B. VANDERGRIFF	DRAWN BY:	ENGR. CHCK. BY: C. WILLIAMS	PROJ. MGR.: SPANGBERG	PROJ. NO.: 825635

02:26:24 10/23/01

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HTRW DRILLING LOG

DISTRICT: Nashville, TN	HOLE NUMBER: A-399/400	
1. COMPANY NAME: IT Corp	2. DRILL SUBCONTRACTOR: Miller Drilling	SHEET 1 OF 2 SHEETS
3. PROJECT: PBOW	4. LOCATION: Bldg 185	
NAME OF DRILLER: Harry Huntoon	6. MANUFACTURER'S DESIGNATION OF DRILL: GeoProbe	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: GeoProbe w/ 2" MACROCORE BARREL	8. HOLE LOCATION: new stake near NE corner of foundation	
	9. SURFACE ELEVATION: 655.65 ft N: 623733.76 E: 1924757.50	
	10. DATE STARTED: 9-15-00	11. DATE COMPLETED: 9-15-00
12. OVERBURDEN THICKNESS: N/A	15. DEPTH GROUNDWATER ENCOUNTERED: 4'	
13. DEPTH DRILLED INTO ROCK: N/A	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: —	
14. TOTAL DEPTH OF HOLE: 10'	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): —	

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
—	—	—	—

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY
—	—	—	Nitroarom	—	—	— %

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
—	✓	—	—	Tony E. Nolen

LOCATION SKETCH/COMMENTS: see sample log SCALE: —

Screening

PROJECT: PBOW	HOLE NO. A-399	400

HTRW DRILLING LOG (CONTINUATION SHEET)

HOLE NUMBER A-399/400

PROJECT PBOW | INSPECTOR T. Nolen | SHEET 2 OF 2 SHEETS

ELEV (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	HNU SCREENING RESULTS (d)	PUSH / SAMPLE INTERVAL (e)	ANALYTICAL SAMPLE NO (f)	USCS (g)	REMARKS (h)
	1	Topsoil, grass + roots.	PID 0.0	BZ CO 0 / H_2S 0			
	2			LEL 0 / O_2 20.9			
	3	tan silty SAND (10YR 6/4) fine, sl. moist				SM	
	4	water @ 4' SM					Encountered water at 4 Ft
	5		0.0		ASO-399 4-6		
	6						
	7						
	8	Dk Brown silty mix w/ shale frags, wet. (10YR 3/2) ml					
	9				ASO-400 8'-10'	ml	
	10		0.0				
		Total Depth = 10.0 Ft					

PROJECT PBOW | HOLE NO A-399/400

HTRW DRILLING LOG

DISTRICT: Nashville	HOLE NUMBER: A-478/479	
1. COMPANY NAME: IT Corp	2. DRILL SUBCONTRACTOR: Miller	SHEET 1 OF 2 SHEETS
3. PROJECT: PBOW	4. LOCATION: A-Area Bldg 185	
5. NAME OF DRILLER: Don Jerome	6. MANUFACTURER'S DESIGNATION OF DRILL: GeoProbe	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: ~~Geoprobe~~ w/ 2" MACROCORE BARREL	8. HOLE LOCATION: Stake 399/400	
	9. SURFACE ELEVATION: 655.65 Ft N: 623733.76 E: 1924757.50	
	10. DATE STARTED: 9-26-00	11. DATE COMPLETED: 9-26-00
12. OVERBURDEN THICKNESS: ≥9'	15. DEPTH GROUNDWATER ENCOUNTERED: 8'	
13. DEPTH DRILLED INTO ROCK: <1'	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: 8' (immed.)	
14. TOTAL DEPTH OF HOLE: 10'	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): —	

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
—	—	—	—

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY
—	✓	✓	Nitroarom.	—	—	—

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
—	✓	—	—	Gary E. Nolen

LOCATION SKETCH/COMMENTS: See sample log SCALE: NTS

Confirmation

PROJECT: PBOW HOLE NO. A-478/479

HTRW DRILLING LOG (CONTINUATION SHEET)

HOLE NUMBER A-478/479

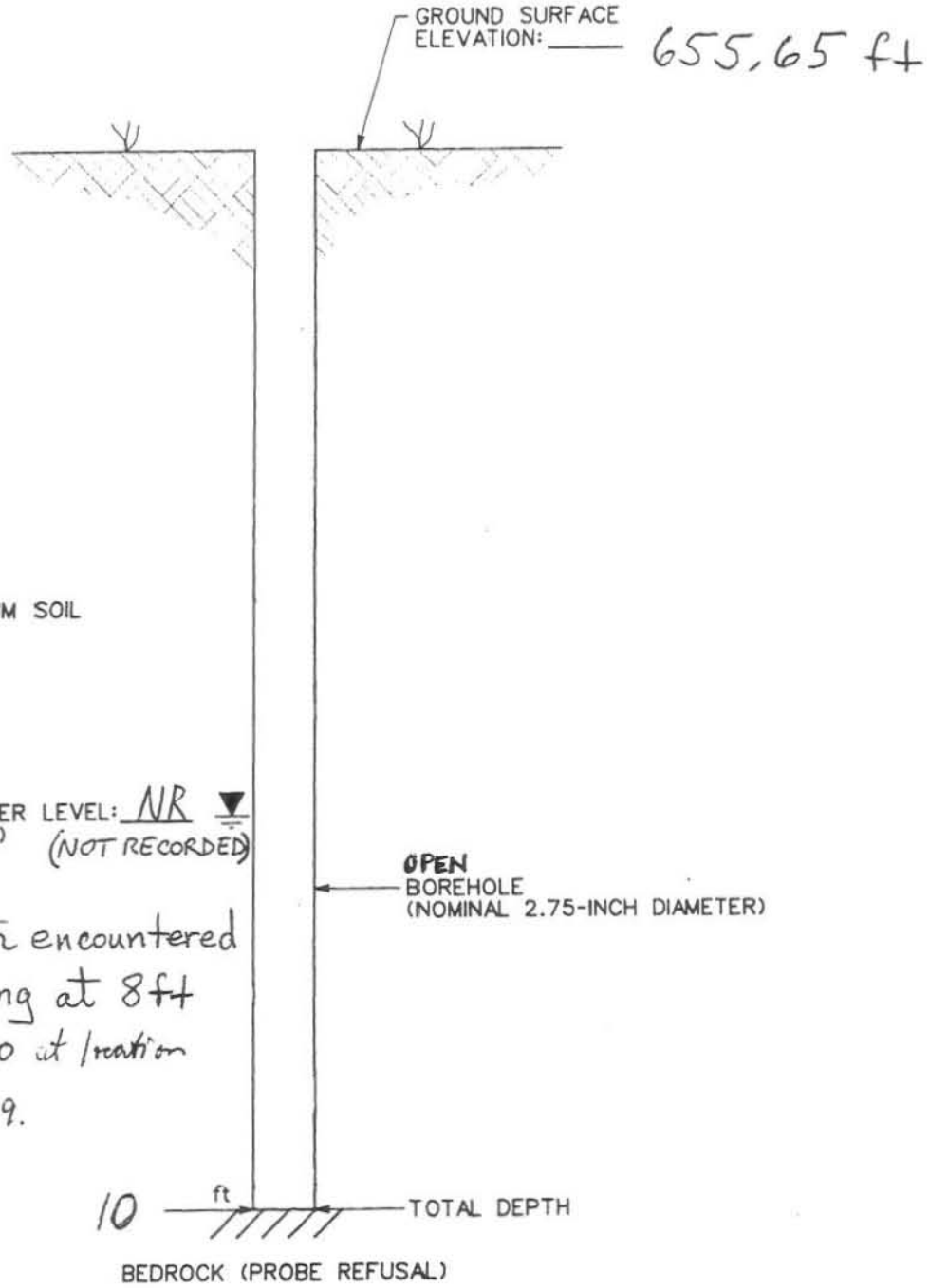
PROJECT PBOW | INSPECTOR T. Nolen | SHEET 2 OF 2 SHEETS

ELEV (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	HNU SCREENING RESULTS (d)	PUSH / SAMPLE INTERVAL (e)	ANALYTICAL SAMPLE NO (f)	USCS (g)	REMARKS (h)
	1	Grass, Roots, Topsoil	PID	BZ CO 0 / H_2S 0 LEL 0 / O_2 21.0			
	2						
	3	Dark yellowish Red (5YR5/6) fine silty SAND, moist.	0.0			Sp	
	4				AA0478		
	5				4-6'		
	6						
	7	as above↑	0.0			Sp	
	8						▽ water @ 8'
	9	as above, but w/ shale frags.			AA0479		
	10	shale saprolite - fractured but not very weathered. refusal (shale) at 10'			8-10'	Sh	
		SHALE, competent	END of borehole 10'				

PROJECT PBOW | HOLE NO. A-478/479

TEMPORARY SHALLOW PIEZOMETER CONSTRUCTION DIAGRAM

LOCATION: INT A Bldg 185



Groundwater encountered during drilling at 8ft bgs 9/26/00 at location AA0478/AA0479.

NOTES:

PIEZOMETER NO.: GW 10
DATE INSTALLED: 9/26/00
DATE REMOVED: 9/26/00

NOT TO SCALE

PIEZOMETER CONSTRUCTION DIAGRAM

prepared for:
USACE - NASHVILLE
PLUM BROOK ORDNANCE WORKS

IT CORPORATION
A Member of The IT Group

STARTING DATE: 07/23/01	DATE LAST REV.:	DRAFT. CHCK. BY: C. TUMLIN	INITIATOR: C. WILLIAMS	DWG. NO.:\825635ES.018
DRAWN BY: B. VANDERGRIFF	DRAWN BY:	ENGR. CHCK. BY: C. WILLIAMS	PROJ. MGR.: SPANGBERG	PROJ. NO.: 825635

02:26:24 10/23/01

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HTRW DRILLING LOG

DISTRICT: Nashville TN	HOLE NUMBER: A-385/386	
1. COMPANY NAME: IT	2. DRILL SUBCONTRACTOR: Miller	SHEET 1 OF 2 SHEETS
3. PROJECT: PBOW	4. LOCATION: Bldg 192	
5. NAME OF DRILLER: Harry Huntoon —	6. MANUFACTURER'S DESIGNATION OF DRILL: Geoprobe	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: GEOPROBE w/2" MACROCORE BARREL	8. HOLE LOCATION: ASO-279 N: 622457.12 E: 1923359.34	
	9. SURFACE ELEVATION: 653.81 Ft	
	10. DATE STARTED: 9-13-00	11. DATE COMPLETED: 9-13-00
12. OVERBURDEN THICKNESS: 4' (3 retry's all 4')	15. DEPTH GROUNDWATER ENCOUNTERED: — Not encountered	
13. DEPTH DRILLED INTO ROCK: 0'	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: —	
14. TOTAL DEPTH OF HOLE: 4' (4' on 3 retry's)	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): —	

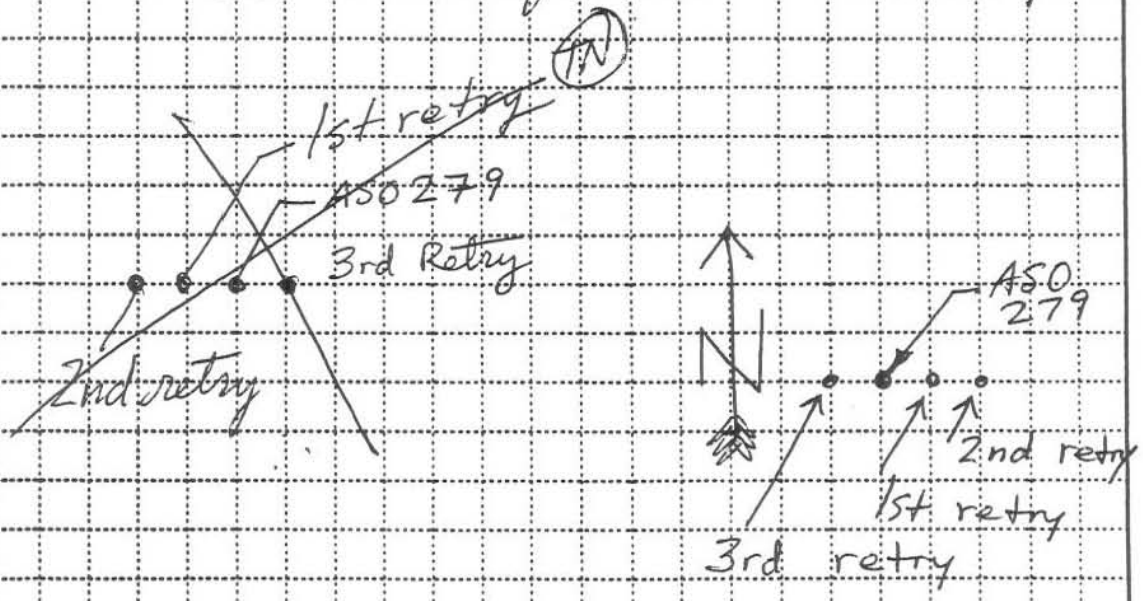
18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
			—

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY %
	—	—	Nitroarom	—	—	

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
	✓	—	—	Tony E. Nolen

LOCATION SKETCH/COMMENTS See sample log - Screening SCALE: —

Per Melanie Lesley, USACE, 3 retry's were performed but all met refusal around 4' depth



PROJECT: PBOW HOLE NO. A-385/386

ENG FORM 5056-R, AUG 94 (Proponent: CECW-EG)

HTRW DRILLING LOG

HOLE NUMBER A-385/386

PROJECT PBOW | INSPECTOR T. Nolen | SHEET 2 OF 2 SHEETS

ELEV. (1)	DEPTH (2)	DESCRIPTION OF MATERIALS (3)	FIELD SCREENING RESULTS (4)	GEOTECH SAMPLE OR CORE BOX NO. (5)	ANALYTICAL SAMPLE NO. (6)	REMARKS (7)
	1		~~NA~~ DKK	~~NA~~ (TN)		
			PID	BZ		
	2	m1 Dark Brown sandy clayey SILT, moist (7.5YR 3/2)		CO 0 / H_2S 0		2
	3		0.0 ppm	LEL 0 / O_2 20.7	ASO 385	
	4	~~Refusal~~ Refusal (also on 3 retry's)			ASO 385 moved	4
	5	Total Depth = 4.0 Ft				
	6					
	7					
	8				ASO 386	
	9			NOT collected		
	10					

PROJECT PBOW | HOLE NO. A-385/386

A-476/477

HTRW DRILLING LOG

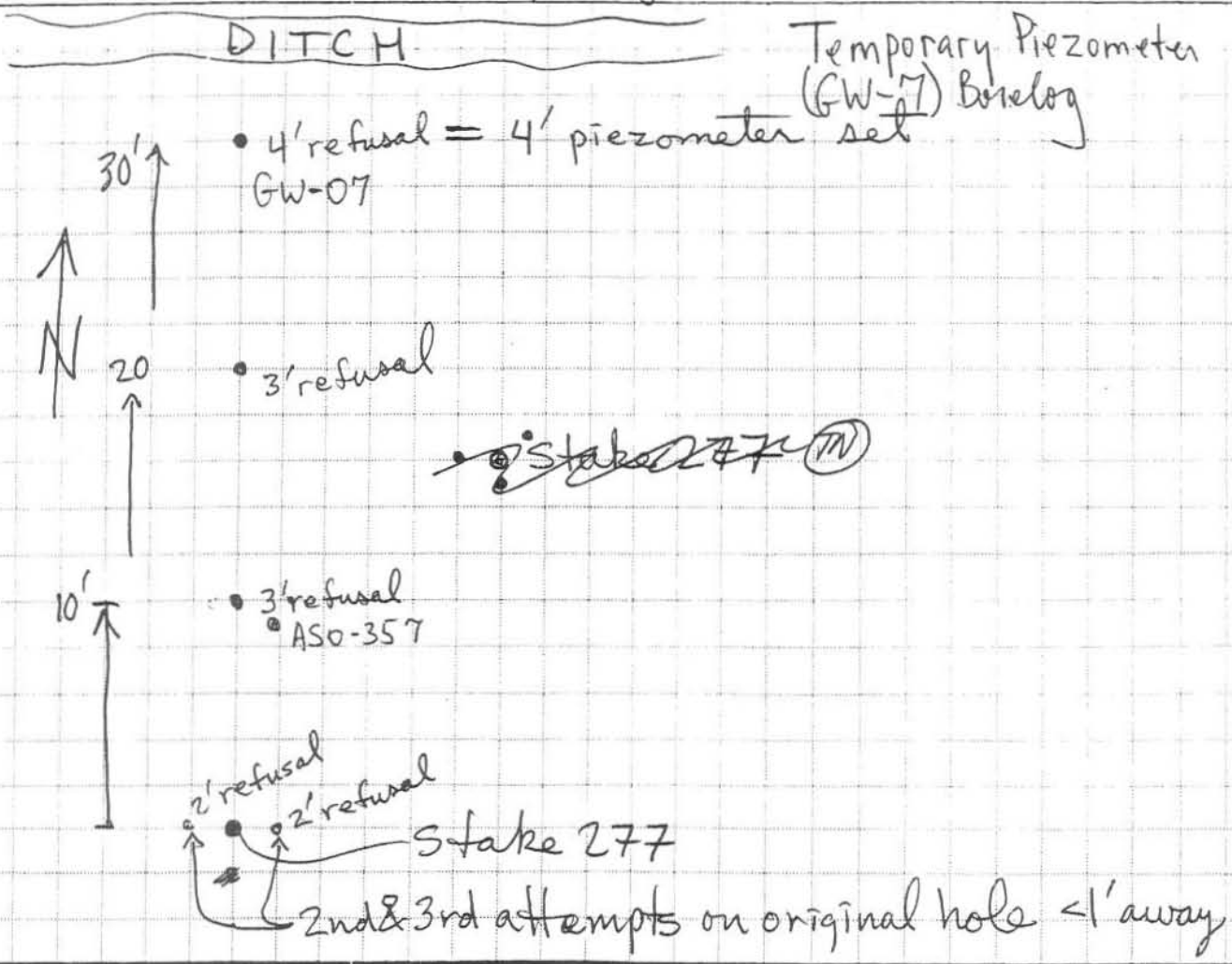
DISTRICT Nashville (AAO 476 477)		HOLE NUMBER ~~ASO-277~~	
1. COMPANY NAME IT Corp	2. DRILL SUBCONTRACTOR Miller	SHEET 1 OF 2	
3. PROJECT PBOW	4. LOCATION Bldg 192		
5. NAME OF DRILLER Don Jerome	6. MANUFACTURER'S DESIGNATION OF DRILL GeoProbe		
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT GeoProbe w/2" MACROCORE BARREL	8. HOLE LOCATION Stake ASO-277		
	9. SURFACE ELEVATION 653.42 ft N: 622467.46 E: 1923363.16		
	10. DATE STARTED 9-29-00	11. DATE COMPLETED 9-29-00	
12. OVERBURDEN THICKNESS 4'	15. DEPTH GROUNDWATER ENCOUNTERED 3.8'		
13. DEPTH DRILLED INTO ROCK 0	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED 3.8' (immed)		
14. TOTAL DEPTH OF HOLE 4'	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY) —		

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
—	—	—	—

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY
—	—	—	~~NitroArom.~~	—	—	—

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
—	—	piezometer	—	Gary E. Nole

LOCATION SKETCH/COMMENTS See sample log SCALE: NTS



PROJECT PBOW HOLE NO. A-476/477

HTRW DRILLING LOG (CONTINUATION SHEET)

HOLE NUMBER: ~~AAO~~ A- 476/477 ~~(ASO-277)~~ DKK

PROJECT: PBOW

INSPECTOR: T. Nolen

SHEET 2 OF 2 SHEETS

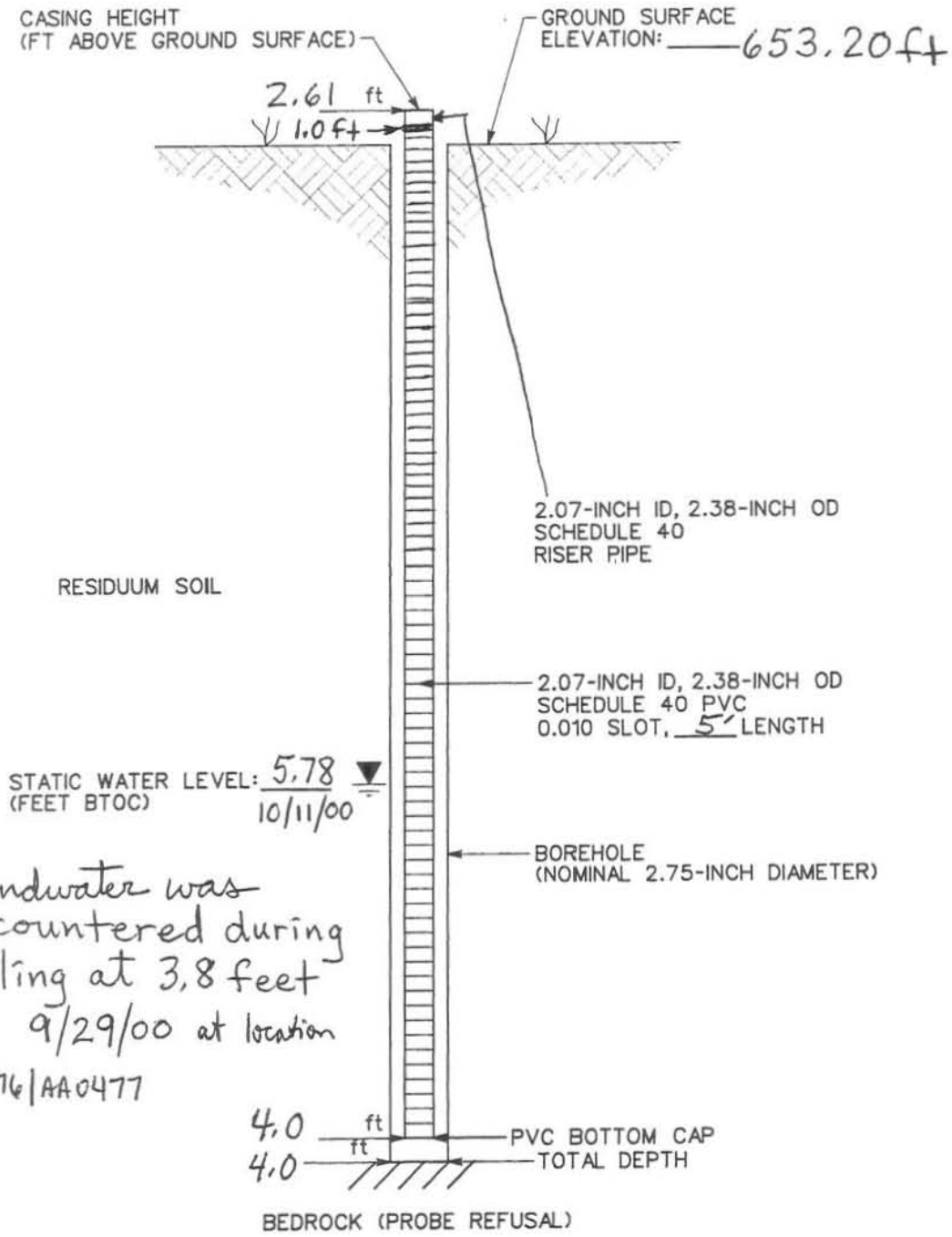
ELEV (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	HNU SCREENING RESULTS (d)	PUSH / SAMPLE INTERVAL (e)	ANALYTICAL SAMPLE NO (f)	USCS (g)	REMARKS (h)
		Grass/Roots	PID	BZ			
	1	Topsoil 1.4	0.0	CO 0 / H_2S 0			
	2	Dark Brown clayey SILT, organics.		LEL 0 / O_2 21.0		ML	
	3	3.0 Reddish Brown to Gray clayey SILT, shale frags				ML	▽ water at 3.8'
	4	Refusal @ 4' bgs END OF BORING 4'					
	5	SHALE					
	6						
	7	Total Depth = 4.0 ft					
	8						
	9						
	10						

PROJECT: PBOW

HOLE NO. A- 476/477

TEMPORARY SHALLOW PIEZOMETER CONSTRUCTION DIAGRAM

LOCATION: TNT A Bldg 192



Groundwater was encountered during drilling at 3.8 feet bgs 9/29/00 at location AA0476|AA0477

NOTES:

PIEZOMETER NO.: GW 07

DATE INSTALLED: 9/29/00

DATE REMOVED: 10/12/00

NOT TO SCALE

PIEZOMETER CONSTRUCTION DIAGRAM

prepared for:
USACE - NASHVILLE
PLUM BROOK ORDNANCE WORKS

IT CORPORATION
A Member of The IT Group

DWG. NO.: \825635ES.018	PROJ. NO.: 825635
INITIATOR: C. WILLIAMS	PROJ. MGR.: SPANGBERG
DRAFT. CHCK. BY: C. TUMLIN	ENGR. CHCK. BY: C. WILLIAMS
DATE LAST REV.:	DRAWN BY:
STARTING DATE: 07/23/01	DRAWN BY: B. VANDERGRIFF

02:26:24 10/23/01

bvanderg c:\cadd\design\825635es.018

HTRW DRILLING LOG

DISTRICT: Nashville TN	HOLE NUMBER: A-387/388	
1. COMPANY NAME: IT	2. DRILL SUBCONTRACTOR: Miller	SHEET 1 OF 2 SHEETS
3. PROJECT: PBOW	4. LOCATION: Bldg 195	
5. NAME OF DRILLER: Harry Huntoon	6. MANUFACTURER'S DESIGNATION OF DRILL: GeoPROBE	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: GeoPROBE w/2" MACROCORE BARREL	8. HOLE LOCATION: ASO-012	
	9. SURFACE ELEVATION: 660.14 ft N:622405.61 E:1923104.88	
	10. DATE STARTED: 9-13-00	11. DATE COMPLETED: 9-13-00
12. OVERBURDEN THICKNESS: 6' (1st try) / 5' (2nd try) / 7' (3rd try)	15. DEPTH GROUNDWATER ENCOUNTERED: — Not encountered	
13. DEPTH DRILLED INTO ROCK: 0'	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: —	
14. TOTAL DEPTH OF HOLE: 6' (1st try) / 5' (2nd try) / 7' (3rd try)	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): —	

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
	—	—	—

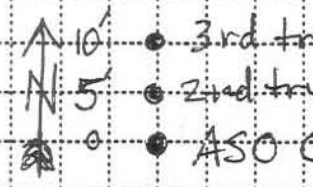
20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY %
	—	—	Nitro Arom	—	—	

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
	✓	—	—	Tony E. Nole

LOCATION SKETCH/COMMENTS: Screening

SCALE:

Made 2nd attempt after refusal at 6'
moved 5' North (2nd attempt reached 5')
moved 10' North 3rd attempt reached 7'



PROJECT: PBOW

HOLE NO.: A-387/388

ENG FORM 5056-R, AUG 94

(Proponent: CECW-EG)

HTRW DRILLING LOG

HOLE NUMBER A-387/388

PROJECT PBOW | INSPECTOR T. Nolen | SHEET 2 OF 2 SHEETS

ELEV. (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	FIELD SCREENING RESULTS (d)	GEOTECH SAMPLE OR CORE BOX NO. (e)	ANALYTICAL SAMPLE NO. (f)	REMARKS (g)
	1	Topsoil, grass, roots	~~NA~~ DKR	~~NA~~ (IN)		
	2	— — — — 2	PID	BZ CO 0 / H_2S 0 LEL 0 / O_2 20.7		
	3	Yellowish Red (5YR 5/8) sandy gravel, silty dry. gm	0.0			
	4				ASO 387	4
	5	TRY #2 — — — — 5	0.0			
	6	TRY #1 as above w/o silt. gw				6
	7	TRY #3 END BORING				
	8	Total Depth = 7.0 Ft				
	9				ASO 388 NOT COLLECTED	
	10					

REFUSAL

APPENDIX C

LAND SURVEY DATA

PBOW Survey Data - TNTA

PLUM BROOK ORDNANCE WORKS (OCTOBER 2000):

THESE VALUES WERE SCALED TO THE OHIO STATE PLANE COORDINATE SYSTEM (NORTH ZONE). A COMBINED FACTOR OF 0.999927034 WAS USED IN THIS DETERMINATION. THESE COORDINATES ARE NAD 1983 DATUM EXPRESSED IN FEET. VERTICAL DATUM IS NGVD 1929.

TNT AREA "A" CONFIRMATION BORINGS

MHS PT #	N(y)	E(x)	ELEV	I.T. #
1207	622905.612	1923104.883	660.14	TNTA-SO012
1210	623141.302	1922676.450	653.02	TNTA-SO016
1210 IS ALSO SAMPLE LOCATION TNTA-SO311				
1213	623313.775	1922906.958	651.24	TNTA-SO035
1209	623323.211	1923085.764	654.48	TNTA-SO040
1208	623115.683	1923300.046	659.29	TNTA-SO062
1208 IS ALSO A PIEZOMETER LOCATION				
1215	623958.052	1922855.830	636.18	TNTA-SO077
1211	623441.946	1922581.899	636.69	TNTA-SO080
1211 IS ALSO A PIEZOMETER LOCATION				
1212	623448.734	1922606.772	636.74	TNTA-SO081
1226	623220.827	1924922.540	653.42	TNTA-SO094
1226 IS ALSO A PIEZOMETER LOCATION				
1225	623762.926	1925105.475	649.35 GW03	TNTA-SO105
1225 IS ALSO A PIEZOMETER LOCATION				
1222	623914.528	1924921.839	653.28	TNTA-SO111
1222 IS ALSO A PIEZOMETER LOCATION GW01				
1224	624157.941	1925235.974	655.62	TNTA-SO123
1223	624181.632	1925253.952	654.65 GW02	TNTA-SO128
1228 IS ALSO A PIEZOMETER LOCATION				
1236	624391.520	1925327.482	639.56	TNTA-SO196
1233	624482.219	1925315.132	638.59 GW04	TNTA-SO201
1233 IS ALSO A PIEZOMETER LOCATION				
1314	623427.545	1922611.357	637.36	TNTA-SO225
1228	624335.770	1924183.965	637.80	TNTA-SO261
1229	624306.956	1924253.582	638.12	TNTA-SO263
1201	622474.613	1923330.522	653.75	TNTA-SO276
1203	622467.459	1923363.163	653.42	TNTA-SO277
1202	622457.117	1923359.336	653.81	TNTA-SO279
1206	622836.851	1922885.576	659.57	TNTA-SO297
1221	623947.190	1924687.243	653.31	TNTA-SO303
1220	623800.079	1923338.080	636.55	TNTA-SO334
1227	623733.757	1924757.501	655.65 - GW10	TNTA-SO399
1313	624171.503	1925281.109	655.01	TNTA-SO409

TNT AREA "A" PIEZOMETER LOCATION

1204	622497.549	1923371.335	653.20	TNTA-GW07
1204 IS ASSOCIATED WITH SAMPLE TNTA-SO277				-1203

PLUM BROOK ORDNANCE WORKS (OCTOBER 2000):

THESE VALUES WERE SCALED TO THE OHIO STATE PLANE COORDINATE SYSTEM (NORTH ZONE). A COMBINED FACTOR OF 0.999927034 WAS USED IN THIS DETERMINATION. THESE COORDINATES ARE NAD 1983 DATUM EXPRESSED IN FEET. VERTICAL DATUM IS NGVD 1929.

TNT AREA "A" COLLOCATED SURFACE WATER / SEDIMENT SAMPLES

MHS PT #	N(y)	E(x)	SEDIMENT	I.T. #
1205	622284.397	1923254.659	650.63	TNTA-SW001/SD001
SURFACE WATER ELEVATION @ 1205 650.78				
1214	623543.110	1922823.421	635.91	TNTA-SW002/SD002
SURFACE WATER ELEVATION @ 1214 636.46				
1219	624324.431	1923148.655	627.53	TNTA-SW003/SD003
SURFACE WATER ELEVATION @ 1219 627.43				
1232	624369.742	1924071.329	633.54	TNTA-SW004/SD004
SURFACE WATER ELEVATION @ 1232 634.59				
1217	623992.058	1922521.431	630.01	TNTA-SW005/SD005
SURFACE WATER ELEVATION @ 1217 630.66				
1230	624630.557	1924228.863	625.94	TNTA-SW006/SD006
SURFACE WATER ELEVATION @ 1230 627.19				
1231	624691.011	1924156.707	625.54	TNTA-SW007/SD007
SURFACE WATER ELEVATION @ 1231 626.34				
1234	624662.233	1925220.478	630.96	TNTA-SW008/SD008
NO SURFACE WATER PRESENT @ 1234				
1235	624783.592	1925548.694	624.54	TNTA-SW009/SD009
SURFACE WATER ELEVATION @ 1235 625.04				
1237	624461.632	1925565.721	626.85	TNTA-SW010/SD010
SURFACE WATER ELEVATION @ 1237 627.30				

PLUM BROOK ORDNANCE WORKS (2000): PAGE 3 0F 3

HORIZONTAL AND VERTICAL COORDINATES SHOWN WERE ESTABLISHED BY STATIC GPS METHODS USING HORIZONTAL STATION SKYWAY RM 2 AND FIRST ORDER CONTROL BENCHMARK J318. THESE COORDINATES ARE SCALED TO THE OHIO STATE PLANE COORDINATE SYSTEM (NORTH ZONE), NAD 83, AND ARE EXPRESSED IN FEET. A COMBINED SCALE FACTOR OF 0.999927034 WAS USED IN THIS DETERMINATION. THE VERTICAL DATUM IS NGVD 1929.

TNTA OFF-SITE SURFACE WATER AND SEDIMENT SAMPLES

MHS PT #	N(y)	E(x)	Surface Elevation	Sediment Elevation	I.T. #
1192	640948.491	1930601.404	572.06	571.01	SW/SD-11
1193	640949.229	1930611.188	571.97	570.21	SW/SD-12
1197	640949.535	1930621.274	572.02	570.06	SW/SD-13
1182	642207.781	1930333.542	571.83	568.42	SW/SD-14
1184	642211.564	1930364.548	571.97	569.94	SW/SD-15