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FIELD TASK MODIFICATION REQUEST FORM TO SAMPLING AND ANALYSIS PLAN  
FACILITY INVESTIGATION SOLID WASTE MANAGEMENT UNIT 18 (SWMU 18) LOAD AND  
FILL AREA SUBAREA H BUILDING 198 AREA NSA CRANE IN

2/15/2013  
TETRA TECH



TETRA TECH

## FIELD TASK MODIFICATION REQUEST FORM

<b>Project/Installation Name</b> <u>SWMU 18 – Load and Fill Area, NSA Crane, IN</u>	<b>CTO &amp; Project Number</b> <u>CTO F201; 112G01851</u>	<b>Task Modification Number</b> <u>H001</u>
<b>Modification to:</b> <u>Sampling and Analysis Plan, RCRA Facility Investigation, SWMU 18-Load and Fill Area</u>	<b>Site Location</b> <u>Subarea H – Building 198 Area</u>	<b>Date of Request</b> <u>February 15, 2013</u>

**Background.** Tetra Tech performed RCRA Facility Investigation (RFI) sampling at Subarea H – Building 198 Area – from October 2011 through January 2012 that included the collection of surface and subsurface soil samples, and groundwater samples (Figure H-1). The samples were analyzed for explosives, metals, and volatile organic compounds (VOCs); groundwater samples were also analyzed for ammonia and perchlorate. Composite soil samples were also collected for polychlorinated biphenyls (PCBs). The distribution of constituents in the site media are illustrated on Figures H-2 through H-4.

Based on the human risk assessment, unacceptable risks were estimated for hypothetical future residents for chlorinated VOCs, an explosive (RDX), perchlorate, and metals (arsenic and cobalt) in groundwater. To characterize the nature and extent of contamination in site media at Subarea H, additional activities are proposed.

**Purpose of FTMR.** The purpose of this FTMR form is to present the proposed supplemental proposed RFI activities sampling to collect surface and subsurface soil samples for chlorinated VOCs to assess potential sources areas that may be contributing to groundwater contamination.

**Proposed Supplemental Activities.** The supplemental sampling will be performed as described in this FTMR form and the approved September 2011 SAP. This FTMR form includes figures and tables needed to perform the proposed additional activities.

The approximate locations of the proposed supplemental soil borings and existing groundwater monitoring wells are shown on Figure H-5; the supplemental sampling and analysis is presented on attached Table H-2 and described as follows:

- **Soil Borings:** Five soil borings (18HSB005 through 18HSB009) will be advanced to collect surface and subsurface soil samples to assess potential source areas of the chlorinated VOCs contamination in Building 198. Soil borings 18HSB005 through 18HSB007 are located in the approximate location of the former degreasers, based on historical plans. Soil borings 18HSB008 and 18HSB009 are located between Buildings 198 and 2508 and northeast of Building 2508, in the proximity of historical drain discharge lines from Building 198. A surface soil and subsurface soil sample will be submitted from each location.

Attachments to this FTMR include:

**Figures**

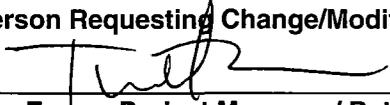
- Figure H-1 2011 Sample Locations
- Figure H-2 Distribution of Constituents in Soil
- Figure H-3 Distribution of Constituents in Groundwater
- Figure H-4 Groundwater Potentiometric Map
- Figure H-5 Proposed Supplemental Sampling Locations

**Table**

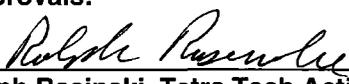
- Table 1 Summary of Receptor-Specific Human Risks and Hazards and Ecological Risks
- Table 2 Proposed Supplemental Sampling and Analysis

**Reason for Change/Modification:** Supplemental activities for characterization of nature and extent of constituents of concern, based on potential unacceptable human health risks

**Person Requesting Change/Modification:**

 2/15/13  
\_\_\_\_\_  
Tim Evans, Project Manager / Date

**Approvals:**

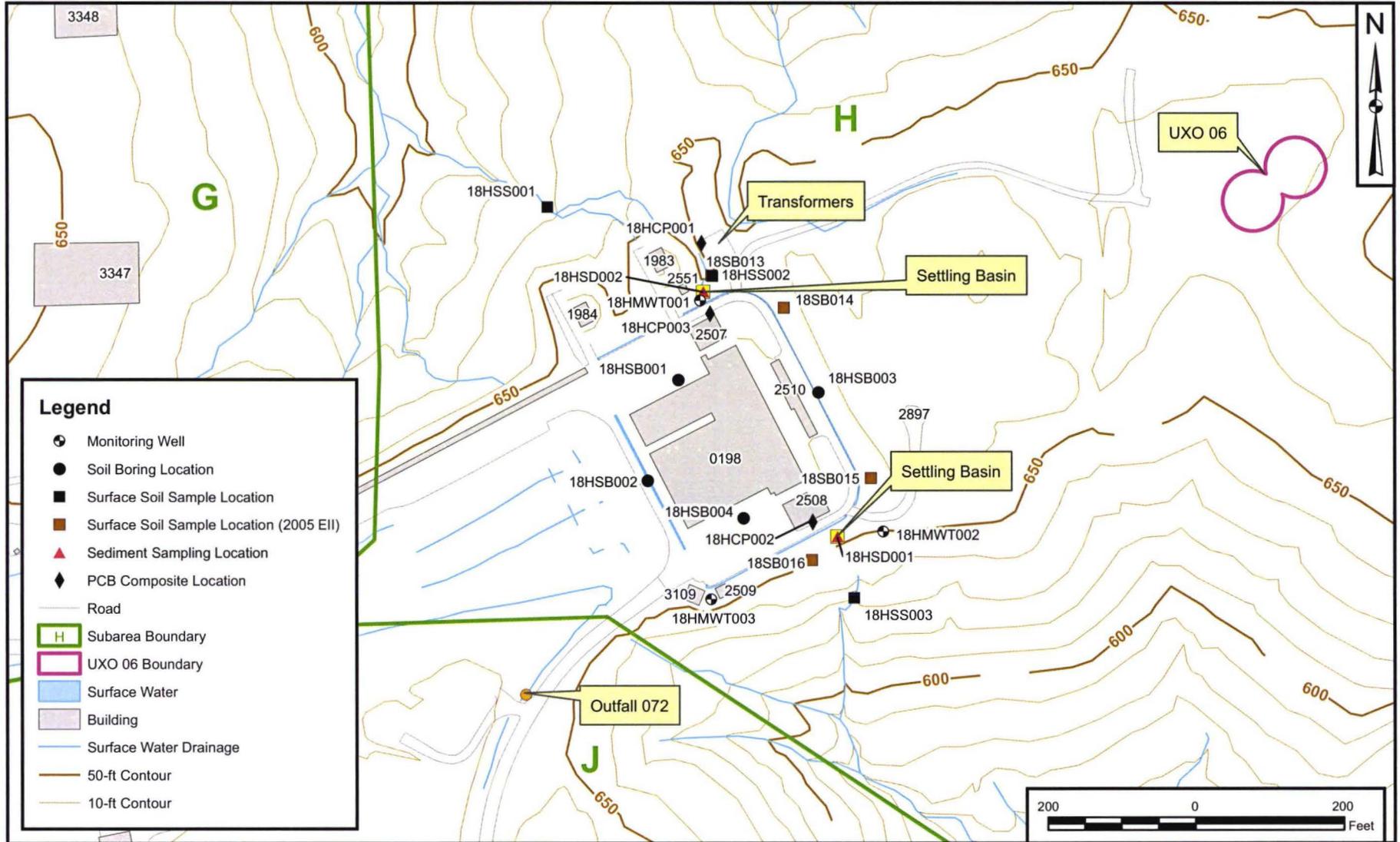
 02/15/13  
\_\_\_\_\_  
Ralph Basinski, Tetra Tech Activity Coordinator / Date

**Modifications to the HASP required based on this change?**  Yes  No  NA

\_\_\_\_\_  
**Health Safety Manager (Signature)**

\_\_\_\_\_  
**Date**

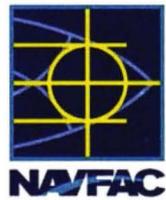
## FIGURES



**Legend**

- Monitoring Well
- Soil Boring Location
- Surface Soil Sample Location
- Surface Soil Sample Location (2005 EII)
- ▲ Sediment Sampling Location
- ◆ PCB Composite Location
- Road
- ▭ Subarea Boundary
- ▭ UXO 06 Boundary
- Surface Water
- ▭ Building
- Surface Water Drainage
- 50-ft Contour
- 10-ft Contour

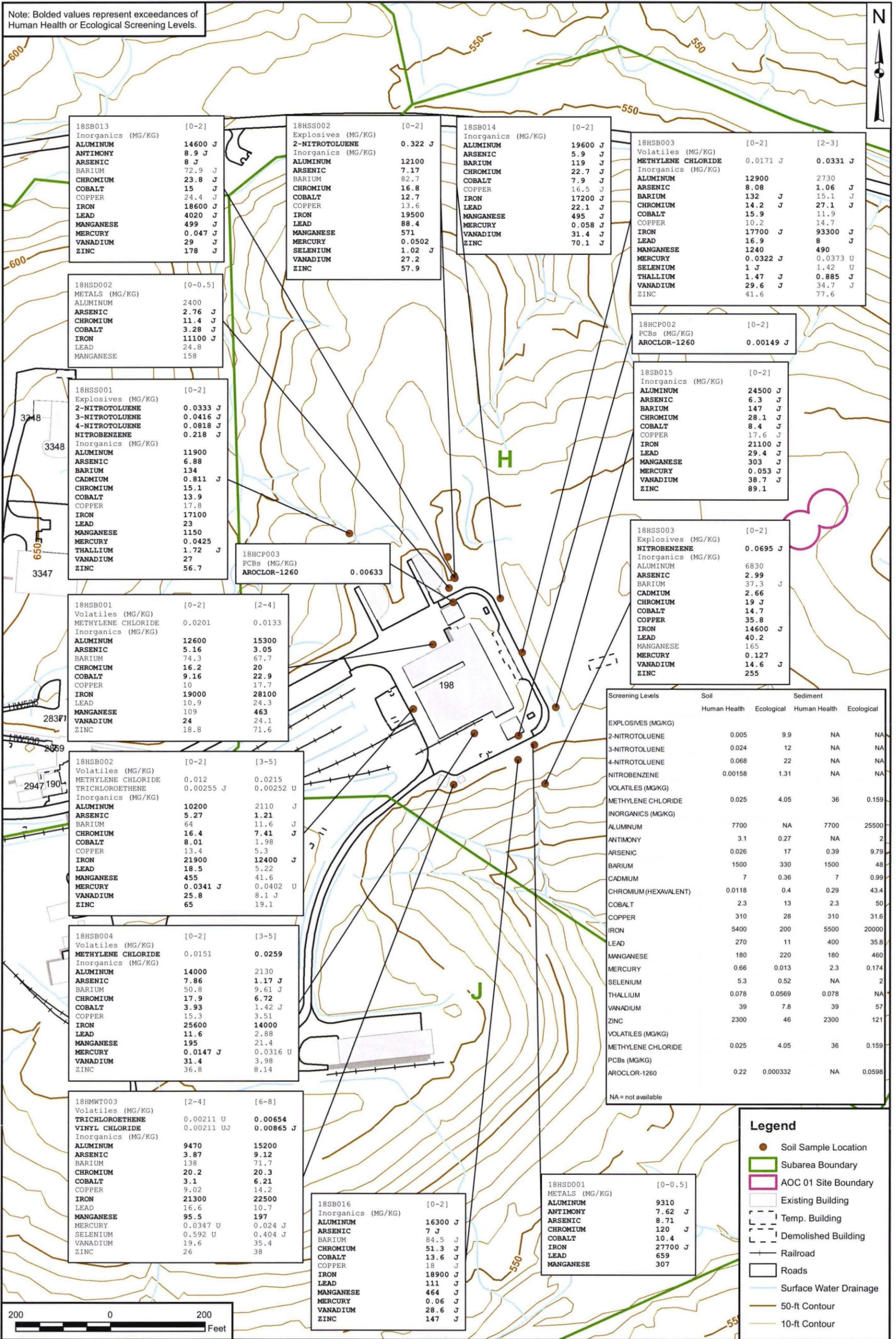
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**SUBAREA H - BUILDING 198 AREA**  
**SAMPLE LOCATIONS**  
**SWMU 18 - LOAD & FILL AREA**  
**NSA CRANE**  
**CRANE, INDIANA**

CONTRACT NUMBER 1851	CTO NUMBER F201
APPROVED BY —	DATE —
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FIGURE NO. FIGURE H-1	REV 0

Note: Bolded values represent exceedances of Human Health or Ecological Screening Levels.



18SB013	Inorganics (MG/KG)	[0-2]
ALUMINUM	14600	J
ANTIMONY	8.9	J
ARSENIC	8	J
BARIUM	72.9	J
CHROMIUM	23.8	J
COBALT	15	J
COPPER	24.4	J
IRON	18600	J
LEAD	4020	J
MANGANESE	499	J
MERCURY	0.047	J
VANADIUM	29	J
ZINC	178	J

18HSS002	Explosives (MG/KG)	[0-2]
2-NITROTOLUENE	0.322	J
Inorganics (MG/KG)		
ALUMINUM	12100	
ARSENIC	7.17	
BARIUM	82.7	
CHROMIUM	16.8	
COBALT	12.7	
COPPER	13.6	
IRON	19500	
LEAD	88.4	
MANGANESE	571	
MERCURY	0.0502	
SELENIUM	1.02	J
VANADIUM	27.2	
ZINC	57.9	

18SB014	Inorganics (MG/KG)	[0-2]
ALUMINUM	19600	J
ARSENIC	5.9	J
BARIUM	119	J
CHROMIUM	22.7	J
COBALT	7.9	J
COPPER	16.5	J
IRON	17200	J
LEAD	22.1	J
MANGANESE	495	J
MERCURY	0.058	J
VANADIUM	31.4	J
ZINC	70.1	J

18HSB003	Volatiles (MG/KG)	[0-2]	[2-3]
METHYLENE CHLORIDE	0.0171	J	0.0331
Inorganics (MG/KG)			
ALUMINUM	12900		2730
ARSENIC	8.08		1.06
BARIUM	132	J	15.1
CHROMIUM	14.2	J	27.1
COBALT	15.9		11.9
COPPER	10.2		14.7
IRON	17700	J	93300
LEAD	16.9		8
MANGANESE	1240		490
MERCURY	0.0322	J	0.0373
SELENIUM	1	J	1.42
THALLIUM	1.47	J	0.885
VANADIUM	29.6	J	34.7
ZINC	41.6		77.6

18HSD002	METALS (MG/KG)	[0-0.5]
ALUMINUM	2400	
ARSENIC	2.76	J
CHROMIUM	11.4	J
COBALT	3.28	J
IRON	11100	J
LEAD	24.8	
MANGANESE	158	

18HSS001	Explosives (MG/KG)	[0-2]
2-NITROTOLUENE	0.0333	J
3-NITROTOLUENE	0.0416	J
4-NITROTOLUENE	0.0818	J
NITROBENZENE	0.218	J
Inorganics (MG/KG)		
ALUMINUM	11900	
ARSENIC	6.88	
BARIUM	134	
CADMIUM	0.811	J
CHROMIUM	15.1	
COBALT	13.9	
COPPER	17.8	
IRON	17100	
LEAD	23	
MANGANESE	1150	
MERCURY	0.0425	
THALLIUM	1.72	J
VANADIUM	27	
ZINC	56.7	

18HCP003	PCBs (MG/KG)	
AROCLOL-1260	0.00633	

18HCP002	PCBs (MG/KG)	[0-2]
AROCLOL-1260	0.00149	J

18SB015	Inorganics (MG/KG)	[0-2]
ALUMINUM	24500	J
ARSENIC	6.3	J
BARIUM	147	J
CHROMIUM	28.1	J
COBALT	8.4	J
COPPER	17.6	J
IRON	21100	J
LEAD	29.4	J
MANGANESE	303	J
MERCURY	0.053	J
VANADIUM	38.7	J
ZINC	89.1	J

18HSS003	Explosives (MG/KG)	[0-2]
NITROBENZENE	0.0695	J
Inorganics (MG/KG)		
ALUMINUM	6830	
ARSENIC	2.99	
BARIUM	37.3	J
CADMIUM	2.66	
CHROMIUM	19	J
COBALT	14.7	
COPPER	35.8	
IRON	14600	J
LEAD	40.2	
MANGANESE	165	
MERCURY	0.127	
VANADIUM	14.6	J
ZINC	255	

18HSB001	Volatiles (MG/KG)	[0-2]	[2-4]
METHYLENE CHLORIDE	0.0201		0.0133
Inorganics (MG/KG)			
ALUMINUM	12600		15300
ARSENIC	5.16		3.05
BARIUM	74.3		67.7
CHROMIUM	16.2		20
COBALT	9.16		22.9
COPPER	10		17.7
IRON	19000		28100
LEAD	10.9		24.3
MANGANESE	109		463
VANADIUM	24		24.1
ZINC	18.8		71.6

18HSB002	Volatiles (MG/KG)	[0-2]	[3-5]
METHYLENE CHLORIDE	0.012		0.0215
TRICHLOROETHENE	0.00255	J	0.00252
Inorganics (MG/KG)			
ALUMINUM	10200		2110
ARSENIC	5.27		1.21
BARIUM	64		11.6
CHROMIUM	16.4		7.41
COBALT	8.01		1.98
COPPER	13.4		5.3
IRON	21900		12400
LEAD	18.5		5.22
MANGANESE	455		41.6
MERCURY	0.0341	J	0.0402
VANADIUM	25.8		8.1
ZINC	65		19.1

18HSB004	Volatiles (MG/KG)	[0-2]	[3-5]
METHYLENE CHLORIDE	0.0151		0.0259
Inorganics (MG/KG)			
ALUMINUM	14000		2130
ARSENIC	7.86		1.17
BARIUM	50.8		9.61
CHROMIUM	17.9		6.72
COBALT	3.93		1.42
COPPER	15.3		3.51
IRON	25600		14000
LEAD	11.6		2.88
MANGANESE	195		21.4
MERCURY	0.0147	J	0.0316
VANADIUM	31.4		3.98
ZINC	36.8		8.14

18HMT003	Volatiles (MG/KG)	[2-4]	[6-8]
TRICHLOROETHENE	0.00211	U	0.00654
VINYL CHLORIDE	0.00211	U	0.00865
Inorganics (MG/KG)			
ALUMINUM	9470		15200
ARSENIC	3.87		9.12
BARIUM	138		71.7
CHROMIUM	20.2		20.3
COBALT	3.1		6.21
COPPER	9.02		14.2
IRON	21300		22500
LEAD	16.6		10.7
MANGANESE	95.5		197
MERCURY	0.0347	U	0.024
SELENIUM	0.592	U	0.404
VANADIUM	19.6		35.4
ZINC	26		38

18SB016	Inorganics (MG/KG)	[0-2]
ALUMINUM	16300	J
ARSENIC	7	J
BARIUM	84.5	J
CHROMIUM	51.3	J
COBALT	13.6	J
COPPER	18	J
IRON	18900	J
LEAD	111	J
MANGANESE	464	J
MERCURY	0.06	J
VANADIUM	28.6	J
ZINC	147	J

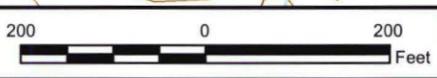
18HSD001	METALS (MG/KG)	[0-0.5]
ALUMINUM	9310	
ANTIMONY	7.62	J
ARSENIC	8.71	J
CHROMIUM	120	J
COBALT	10.4	J
IRON	27700	J
LEAD	659	J
MANGANESE	307	J

Screening Levels	Soil		Sediment	
	Human Health	Ecological	Human Health	Ecological
EXPLOSIVES (MG/KG)				
2-NITROTOLUENE	0.005	9.9	NA	NA
3-NITROTOLUENE	0.024	12	NA	NA
4-NITROTOLUENE	0.068	22	NA	NA
NITROBENZENE	0.00158	1.31	NA	NA
VOLATILES (MG/KG)				
METHYLENE CHLORIDE	0.025	4.05	36	0.159
INORGANICS (MG/KG)				
ALUMINUM	7700	NA	7700	25500
ANTIMONY	3.1	0.27	NA	2
ARSENIC	0.026	17	0.39	9.79
BARIUM	1500	330	1500	48
CADMIUM	7	0.36	7	0.99
CHROMIUM (HEXAVALENT)	0.0118	0.4	0.29	43.4
COBALT	2.3	13	2.3	50
COPPER	310	28	310	31.6
IRON	5400	200	5500	20000
LEAD	270	11	400	35.8
MANGANESE	180	220	180	460
MERCURY	0.66	0.013	2.3	0.174
SELENIUM	5.3	0.52	NA	2
THALLIUM	0.078	0.0569	0.078	NA
VANADIUM	39	7.8	39	57
ZINC	2300	46	2300	121
VOLATILES (MG/KG)				
METHYLENE CHLORIDE	0.025	4.05	36	0.159
PCBs (MG/KG)				
AROCLOL-1260	0.22	0.000332	NA	0.0598

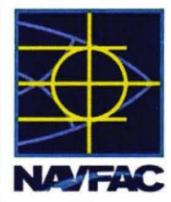
NA = not available

**Legend**

- Soil Sample Location
- ▭ Subarea Boundary
- ▭ AOC 01 Site Boundary
- ▭ Existing Building
- - - Temp. Building
- - - Demolished Building
- Railroad
- ▭ Roads
- Surface Water Drainage
- 50-ft Contour
- 10-ft Contour



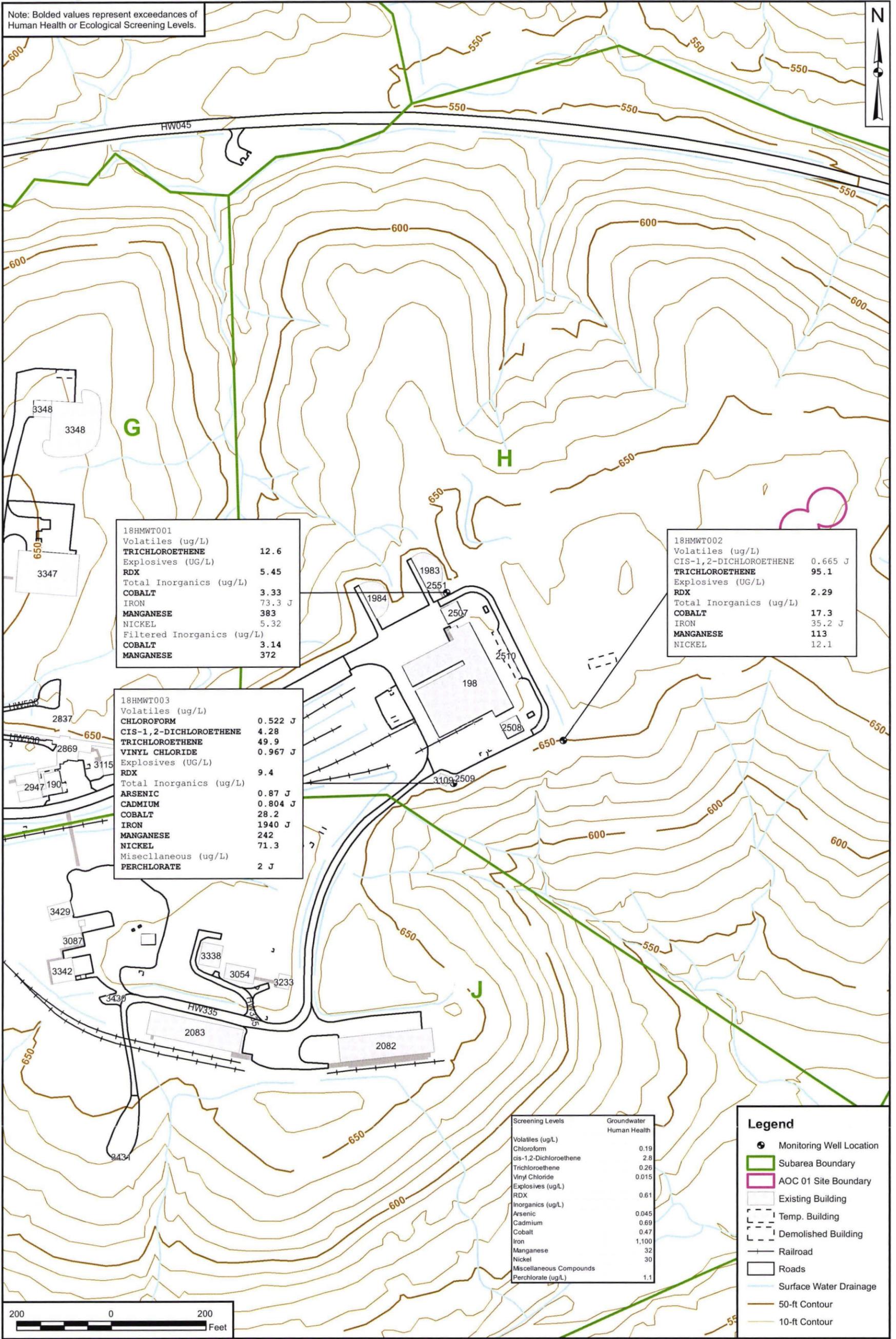
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SCALE	
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SUBAREA H - BUILDING 198 AREA  
EXCEEDANCES OF ANALYTES IN SOIL  
SAMU 18 - LOAD & FILL AREA  
NSA CRANE  
CRANE, INDIANA

CONTRACT NUMBER	CTO NUMBER
1851	F201
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FIGURE H-2	0

Note: Bolded values represent exceedances of Human Health or Ecological Screening Levels.



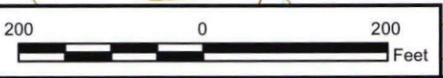
18HMWT001	
Volatiles (ug/L)	
<b>TRICHLOROETHENE</b>	<b>12.6</b>
Explosives (UG/L)	
<b>RDX</b>	<b>5.45</b>
Total Inorganics (ug/L)	
<b>COBALT</b>	<b>3.33</b>
<b>IRON</b>	<b>73.3 J</b>
<b>MANGANESE</b>	<b>383</b>
<b>NICKEL</b>	<b>5.32</b>
Filtered Inorganics (ug/L)	
<b>COBALT</b>	<b>3.14</b>
<b>MANGANESE</b>	<b>372</b>

18HMWT002	
Volatiles (ug/L)	
CIS-1,2-DICHLOROETHENE	0.665 J
<b>TRICHLOROETHENE</b>	<b>95.1</b>
Explosives (UG/L)	
<b>RDX</b>	<b>2.29</b>
Total Inorganics (ug/L)	
<b>COBALT</b>	<b>17.3</b>
<b>IRON</b>	<b>35.2 J</b>
<b>MANGANESE</b>	<b>113</b>
<b>NICKEL</b>	<b>12.1</b>

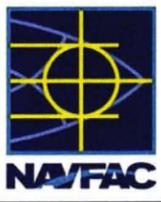
18HMWT003	
Volatiles (ug/L)	
CHLOROFORM	0.522 J
CIS-1,2-DICHLOROETHENE	4.28
<b>TRICHLOROETHENE</b>	<b>49.9</b>
VINYL CHLORIDE	0.967 J
Explosives (UG/L)	
<b>RDX</b>	<b>9.4</b>
Total Inorganics (ug/L)	
<b>ARSENIC</b>	<b>0.87 J</b>
<b>CADMIUM</b>	<b>0.804 J</b>
<b>COBALT</b>	<b>28.2</b>
<b>IRON</b>	<b>1940 J</b>
<b>MANGANESE</b>	<b>242</b>
<b>NICKEL</b>	<b>71.3</b>
Miscellaneous (ug/L)	
<b>PERCHLORATE</b>	<b>2 J</b>

Screening Levels	Groundwater Human Health
Volatiles (ug/L)	
Chloroform	0.19
cis-1,2-Dichloroethene	2.8
Trichloroethene	0.26
Vinyl Chloride	0.015
Explosives (ug/L)	
RDX	0.61
Inorganics (ug/L)	
Arsenic	0.045
Cadmium	0.69
Cobalt	0.47
Iron	1,100
Manganese	32
Nickel	30
Miscellaneous Compounds	
Perchlorate (ug/L)	1.1

Legend	
●	Monitoring Well Location
▭	Subarea Boundary
▭	AOC 01 Site Boundary
▭	Existing Building
▭	Temp. Building
▭	Demolished Building
—	Railroad
▭	Roads
—	Surface Water Drainage
—	50-ft Contour
—	10-ft Contour

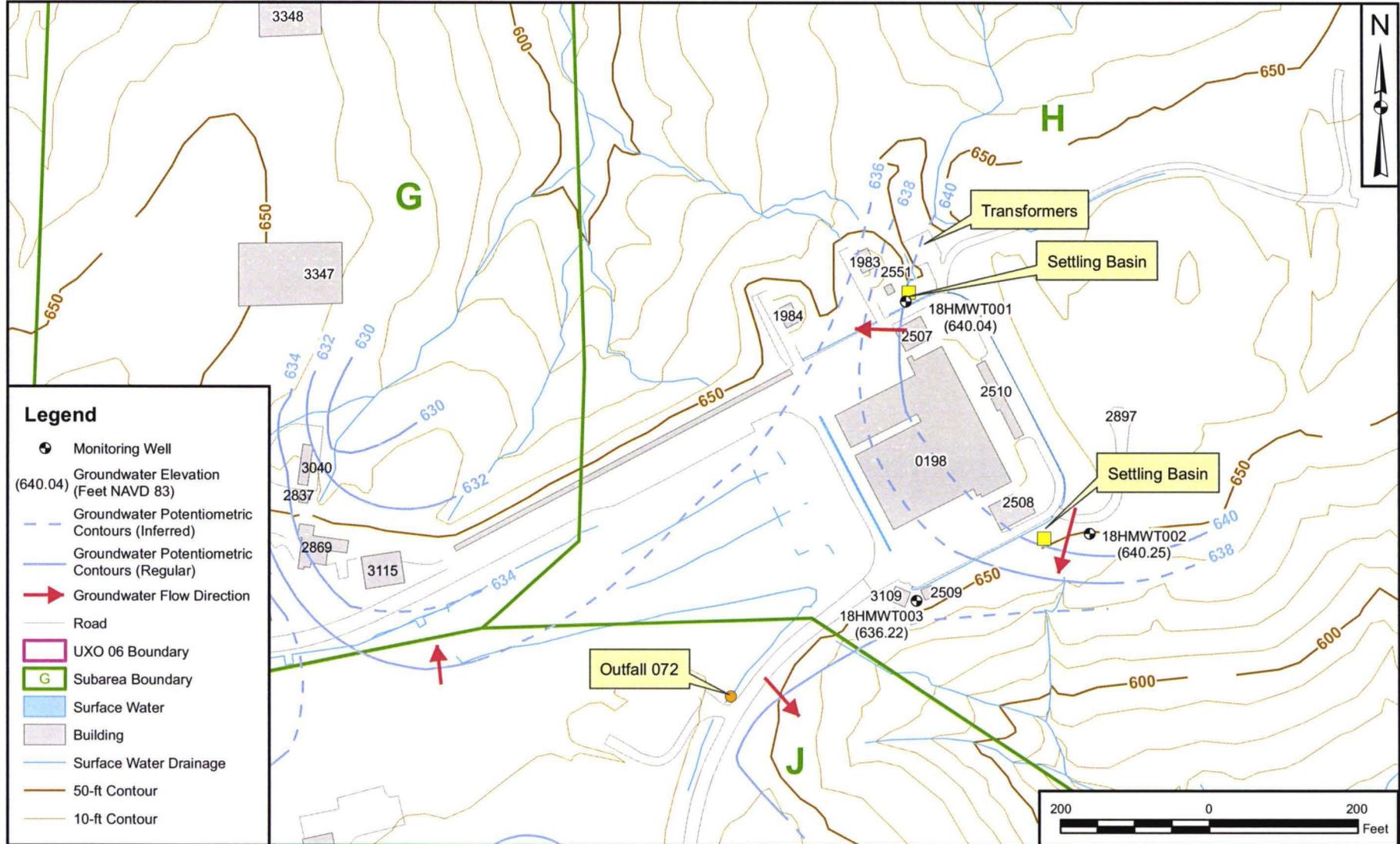


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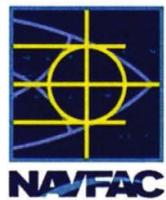


**SUBAREA H - BUILDING 198 AREA**  
**EXCEEDANCES OF ANALYTES IN GROUNDWATER**  
**SAMU 18 - LOAD & FILL AREA**  
**NSA CRANE**  
**CRANE, INDIANA**

CONTRACT NUMBER	CTO NUMBER
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FIGURE H-3	0

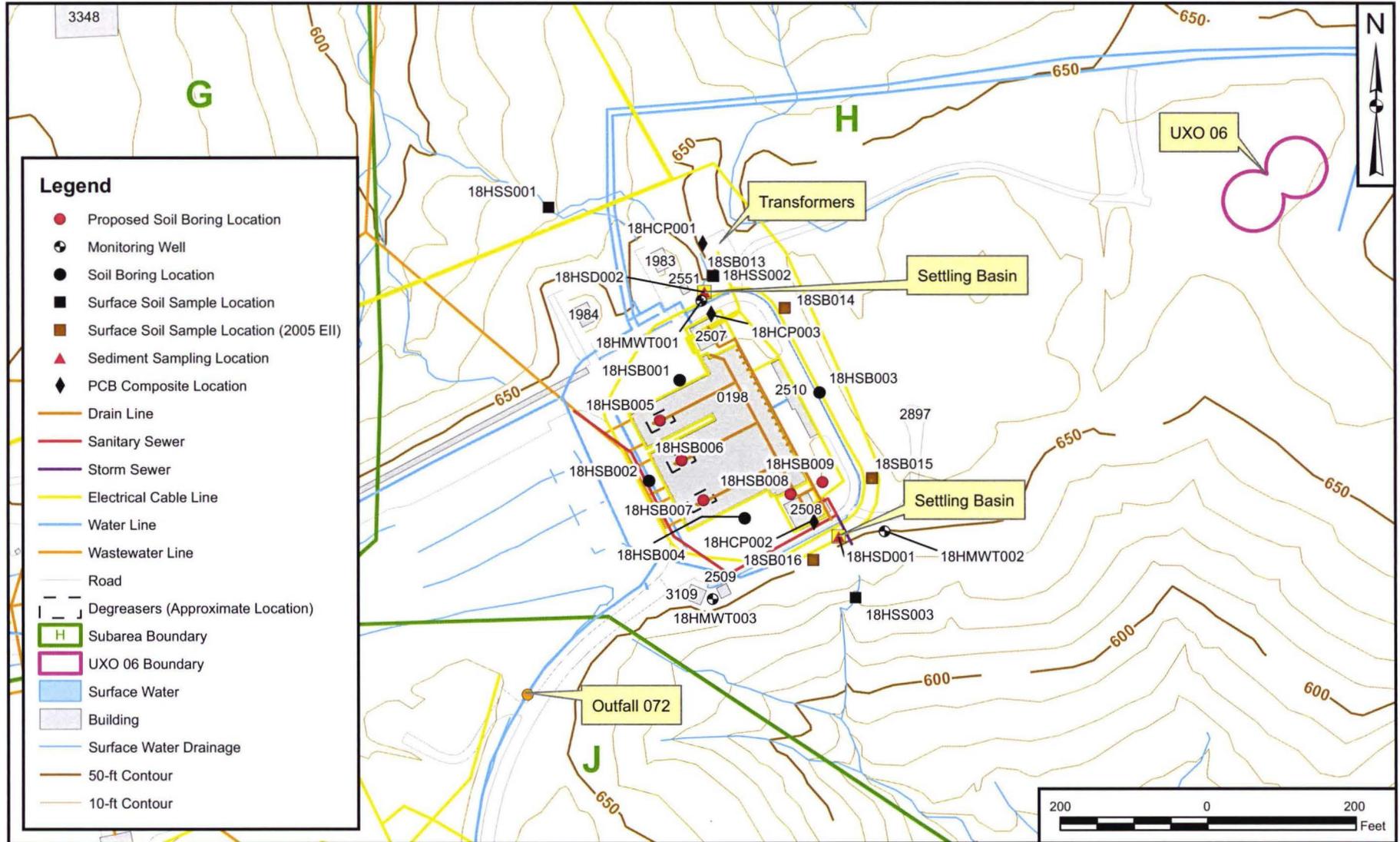


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C. TULLY	03/06/12
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T. EVANS	10/03/12
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J. ENGLISH	10/03/12
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**SUBAREA H - BUILDING 198 AREA**  
**GROUNDWATER POTENTIOMETRIC MAP**  
**SWMU 18 - LOAD & FILL AREA**  
**NSA CRANE**  
**CRANE, INDIANA**

CONTRACT NUMBER	CTO NUMBER
1851	F201
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FIGURE NO.	REV
FIGURE H-4	0



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J. ENGLISH	10/04/12
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T. EVANS	02/13/13
REVISED BY	DATE
D. COUCH	02/13/13
SCALE AS NOTED	



**SUBAREA H - BUILDING 198 AREA**  
**PROPOSED SAMPLE LOCATIONS**  
**SWMU 18 - LOAD & FILL AREA**  
**NSA CRANE**  
**CRANE, INDIANA**

CONTRACT NUMBER 1851	CTO NUMBER F201
APPROVED BY —	DATE —
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FIGURE NO. FIGURE H-5	REV 0

## **TABLES**

TABLE H-1

SUMMARY OF ENVIRONMENTAL SAMPLES AND LABORATORY ANALYSIS  
 SUBAREA H - BUILDING 198 AREA  
 SWMU 18 - LOAD AND FILL AREA  
 NAVAL SUPPORT ACTIVITY  
 CRANE, INDIANA  
 PAGE 1 OF 1

Sample Location	Sample Identification	Sample Type	Date Sampled	Sample Depth Interval Sampled (feet bgs)	Energetics		Metals		VOCs	PCBs	Miscellaneous		Comments
					Nitroaromatics/ Nitramines	Perchlorate	TAL Metals (total)	TAL Metals (dissolved)			pH	Ammonia	
<b>Subarea H - Building 198 Area</b>													
18HSS001	18HSS0010002	Surface Soil	22-Oct-11	0-2	X		X				X		Field Duplicate FD-102211-04
18HSS002	18HSS0020002	Surface Soil	22-Oct-11	0-2	X		X						
18HSS003	18HSS0030002	Surface Soil	22-Oct-11	0-2	X		X						
18HSB001	18HSB0010002	Surface Soil	22-Oct-11	0-2	X		X		X		X		
	18HSB0010204	Subsurface Soil	22-Oct-11	2-4	X		X		X				
18HSB002	18HSB0020002	Surface Soil	22-Oct-11	0-2	X		X		X				
	18HSB0020305	Subsurface Soil	22-Oct-11		X		X		X				Field Duplicate FD102211-02, VOCs, Metals only
18HSB003	18HSB0030002	Surface Soil	22-Oct-11	0-2	X		X		X				
	18HSB0030203	Subsurface Soil	22-Oct-11	2-3	X		X		X				
18HSB004	18HSB0040002	Surface Soil	22-Oct-11	0-2	X		X		X				
	18HSB0040305	Subsurface Soil	22-Oct-11	3-5	X		X		X				
18HCP001	18HCP0010002	Composite Soil	22-Oct-11	0-2						X			
18HCP002	18HCP0020002	Composite Soil	22-Oct-11	0-2						X			
18HCP003	18HCP0030002	Composite Soil	22-Oct-11	0-2						X			
18HSD001	18HSD0010006	Sediment	22-Oct-11	0-5	X		X		X				
18HSD002	18HSD0020006	Sediment	22-Oct-11	0-5	X		X		X				
18HMWT001	18HGWT001	Groundwater	21-Jan-12	15-25	X	X	X	X	X			X	
18HMWT002	18HGWT002	Groundwater	21-Jan-12	10-20	X	X	X	X	X			X	
18HMWT003	18HGWT003	Groundwater	21-Jan-12	23-33	X	X	X	X	X			X	

TABLE H-2

SUMMARY OF RECEPTOR-SPECIFIC HUMAN RISKS AND HAZARDS AND ECOLOGICAL RISKS  
 SUBAREA H - BUILDING 198 AREA  
 SWMU 18 - LOAD AND FILL AREA  
 NSA CRANE  
 CRANE, INDIANA

PAGE 1 OF 3

Receptor Population	Environmental Media	Overall Carcinogenic Risk (Human)	Overall Hazard Index (Human)	Overall Risk (Ecological)	Critical Pathways & Chemicals of Concern
Current/Future Trespassers (Adolescent)	Surface Soil	1E-06	0.005	NA	NA
	Subsurface Soil	No carcinogenic COPCs	0.02	NA	NA
Future Construction Worker (Adult)	Surface Soil	4E-06	0.1	NA	NA
	Subsurface Soil	No carcinogenic COPCs	0.2	NA	NA
	Groundwater	2E-08	0.03	NA	NA
Future Industrial Worker (Adult)	Surface Soil	5E-06	0.03	NA	NA
	Subsurface Soil	No carcinogenic COPCs	0.1	NA	NA
Future Recreational User (Adult)	Surface Soil	9E-07	0.003	NA	NA
	Subsurface Soil	No carcinogenic COPCs	0.01	NA	NA
Future Recreational User (Child)	Surface Soil	6E-06	0.03	NA	NA
	Subsurface Soil	0E+00	0.09	NA	NA
Future Recreational User (Lifelong)	Surface Soil	7E-06	NA	NA	NA
	Subsurface Soil	No carcinogenic COPCs	NA	NA	NA

TABLE H-2

SUMMARY OF RECEPTOR-SPECIFIC HUMAN RISKS AND HAZARDS AND ECOLOGICAL RISKS  
 SUBAREA H - BUILDING 198 AREA  
 SWMU 18 - LOAD AND FILL AREA  
 NSA CRANE  
 CRANE, INDIANA

PAGE 2 OF 3

Receptor Population	Environmental Media	Overall Carcinogenic Risk (Human)	Overall Hazard Index (Human)	Overall Risk (Ecological)	Critical Pathways & Chemicals of Concern
Future Resident (Adult)	Surface Soil	1E-05	0.04	NA	NA
	Subsurface Soil	No carcinogenic COPCs	0.1	NA	NA
	Groundwater (Direct Contact)	1E-04	13	NA	Ingestion of groundwater (trichloroethene, cobalt)
	Groundwater (Vapor Intrusion)	4E-07	0.1	NA	NA
Future Resident (Child)	Surface Soil	8E-05	0.4	NA	NA
	Subsurface Soil	No carcinogenic COPCs	1	NA	NA
	Groundwater (Direct Contact)	1E-04	26	NA	Ingestion of groundwater (trichloroethene, cobalt, perchlorate)
	Groundwater (Vapor Intrusion)	2E-07	0.1	NA	NA

TABLE H-2

SUMMARY OF RECEPTOR-SPECIFIC HUMAN RISKS AND HAZARDS AND ECOLOGICAL RISKS  
 SUBAREA H - BUILDING 198 AREA  
 SWMU 18 - LOAD AND FILL AREA  
 NSA CRANE  
 CRANE, INDIANA

PAGE 3 OF 3

Receptor Population	Environmental Media	Overall Carcinogenic Risk (Human)	Overall Hazard Index (Human)	Overall Risk (Ecological)	Critical Pathways & Chemicals of Concern
Future Resident (Lifelong)	Surface Soil	1E-04	NA	NA	NA
	Subsurface Soil	No carcinogenic COPCs	NA	NA	NA
	Groundwater (Direct Contact)	2E-04	NA	NA	Ingestion of groundwater (trichloroethene, vinyl chloride, RDX, arsenic)
	Groundwater (Vapor Intrusion)	6E-07	NA	NA	NA
Mammals and Birds	Surface Soil	NA	NA	Acceptable	NA
Terrestrial Plants and Invertebrates	Surface Soil	NA	NA	Acceptable	NA

**Notes**

NA = Not Applicable

Shaded cells have unacceptable risk or hazard.

Bolded parameters represent significant contributor to overall risk or hazard.

(1) Target organs hazard index is less than 1.

(2) Chromium was evaluated in the human health risk assessment as hexavalent chromium. Value in parenthesis is cancer risk or hazard index if chromium is evaluated as trivalent chromium.

**TABLE H-3**

**GROUNDWATER QUALITY DATA  
SUBAREA H - BUILDING 198 AREA  
SWMU 18 - LOAD AND FILL AREA  
NSA CRANE, IN**

<b>Well Number</b>	<b>Sample ID</b>	<b>Sample Date</b>	<b>pH</b>	<b>Spec Cond (mS/cm)</b>	<b>Temp (dC)</b>	<b>Turb (NTU)</b>	<b>Diss Oxygen (mg/L)</b>	<b>ORP (mV)</b>
18HMWT001	18HGWT001	1/21/2012	5.63	0.251	12.71	72.6	1.21	233
18HMWT002	18HGWT002	1/21/2012	4.91	0.240	5.94	9.4	3.61	334
18HMWT003	18HGWT003	1/21/2012	3.82	0.187	10.95	1.5	0.72	335

TABLE H-4

PROPOSED SUPPLEMENTAL SAMPLING AND ANALYSIS  
 SWMU 18 - LOAD AND FILL AREA  
 SUBAREA H - BUIDLING 198 AREA  
 NAVAL SUPPORT ACTIVITY, CRANE, INDIANA  
 PAGE 1 OF 1

Sampling Location	ID Number	Matrix	Depth (feet bgs)	Analysis	Number of Samples	Sampling SOP Reference <sup>(1)</sup>
18HSB005	18HSB0050002	Soil	0 - 2 <sup>(3)</sup>	VOCs	1	SOP-08, SOP-09, SOP-10
	18HSB005XXXX <sup>(2)</sup>		X - X'	VOCs	X	
18HSB006	18HSB0060002	Soil	0 - 2 <sup>(3)</sup>	VOCs	1	SOP-08, SOP-09, SOP-10
	18HSB006XXXX <sup>(2)</sup>		X - X'	VOCs	X	
18HSB007	18HSB0070002	Soil	0 - 2 <sup>(3)</sup>	VOCs	1	SOP-08, SOP-09, SOP-10
	18HSB007XXXX <sup>(2)</sup>		X - X'	VOCs	X	
18HSB008	18HSB0080002	Soil	0 - 2 <sup>(3)</sup>	VOCs	1	SOP-08, SOP-09, SOP-10
	18HSB008XXXX <sup>(2)</sup>		X - X'	VOCs	X	
18HSB009	18HSB0090002	Soil	0 - 2 <sup>(3)</sup>	VOCs	1	SOP-08, SOP-09, SOP-10
	18HSB009XXXX <sup>(2)</sup>		X - X'	VOCs	X	

**Note:**

<sup>(1)</sup> Sampling SOP reference from SWMU 18 RFI UFP-SAP (Tetra Tech, September 2011)

<sup>(2)</sup> XXXX and X - X' represents the interval of the sample from below 2 feet bgs and above top of bedrock. Depth will be determined in the field based on visual and olfactory observations and where bedrock is encountered. For example, if sample is collected from 8 to 10 feet bgs, the depth will be recorded as 0810.

<sup>(3)</sup> Represents 0-to-2-foot interval of soil below floor and subgrade.

FD = Field Duplicate