MILL BUILDING FLOOR AND BIN INVESTIGATION FORMER SATRALLOY SITE JEFFERSON COUNTY, OHIO

REPORT

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Golder Associates

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1.0 INTRODUCTION

Golder Associates Inc. (Golder) has prepared this report on behalf of Cyprus Amax Minerals Company (Cyprus Amax) for investigation activities conducted at the Former Satralloy Site located in Cross Creek Township, Jefferson County, Ohio (the Site).

1.1 Background

The Site is an abandoned ferro-alloy plant that is currently being evaluated for potential remediation activities (Figure 1). In particular, interim actions are being considered that involve demolition of the two main processing buildings ("Mill Buildings") and associated structures (e.g., concrete bins) and consolidation of baghouse dust and certain other materials for temporary storage until the appropriate final remedial actions for the Site are determined. These other materials consisted of visually distinct piles within the Mill Buildings and residual materials in concrete bins located behind the Mill Buildings, believed to have been raw materials for the processing operations.

1.2 Purpose

The purpose of the field investigation activities was to collect additional data for use in the development of the Interim Action Workplan for the Site.

2.0 FIELD INVESTIGATION

This investigation was designed to:

- Determine concentrations of selected metals and other constituents in the soils on the floors within the Mill Buildings and in the materials within the concrete bins behind the Mill Buildings
- Obtain a general understanding of the presence and depth of metal-impacted soils within the Mill Buildings
- Determine concentrations of other potential contaminants (PCBs, hydrocarbons, and semi-volatile organic compounds) in visually distinct non-soil materials and stained soils within the Mill Buildings
- Compare concentrations of the analytes to screening level concentrations to assist in planning interim actions

2.1 Scope of Work

The field investigation activities were conducted August 7 to 9, 2006 and September 21, 2007 and were consistent with generally accepted procedures. Field personnel from Lawhon & Associates and Golder collected a total of 63 floor soil samples, 15 "special" samples, and 16 bin samples. Sample location maps for the North and South Mill Buildings, including their associated bins, are presented in Figures 2 and 3, respectively. Sample distribution is summarized in Table 1.

2.1.1 Floor Observations

The North Mill Building is approximately 500 feet long by 260 feet wide. The southeast portion of the building floor, denoted by sampling cells 1 through 12 in Figure 2, is concrete; the remainder is soil.

The South Mill Building is approximately 275 feet long by 260 feet wide. An area of approximately 120 feet x 215 feet has a concrete floor. This area is denoted as cells 1 through 8 in Figure 3.

2.1.2 Mill Building Samples

Prior to sampling, the floor space of each building was divided into approximate 60-foot by 60-foot sections or "grid cells" to provide a random selection of samples throughout each of the buildings. Each grid cell was numbered, resulting in 33 cells in the North Mill Building and 20 cells in the South Mill Building (Figures 2 and 3). Sample locations within each grid cell were selected by field personnel with a bias towards areas where enough material was present to collect a sample. If the floor within a cell was comprised of concrete, the sample was collected from solids on the concrete surface.

In areas where concrete was not present and a sufficient quantity of material was available, two samples were collected from the location. One sample was collected from the 0- to 6-inch depth interval and a second sample was collected from the 6- to 12-inch depth interval. This was done to determine whether

vertical migration of contaminants had occurred. The soil samples were collected using a stainless steel hand auger, shovel, or hand spade.

2.1.3 Bin Samples

Prior to sampling, the 34 bins (21 bins behind the North Mill Building and 13 bins behind the South Mill Building) were inspected visually and numbered. Their contents are described in Tables 2 and 3. The locations of the bins are presented in Figures 2 and 3.

Most of the materials located in the bins behind the South Mill Building and in several of the bins behind the North Mill Building were described as a white and/or gray rock or powder-like substance. The materials in the other North Mill Building bins were described as black or brown medium- to fine-grained soil.

Representative samples of materials in 16 of the 34 bins were collected for analysis. Some of the bins were not sampled because they were empty, or contained trees, machinery, and/or other debris. To collect bin samples, field personnel wore disposable latex gloves to protect against sample contamination. The sample was then collected by hand and placed into a sample jar.

2.1.4 Special Samples

Certain materials within each Mill Building appeared to be stained or otherwise impacted. Fifteen “special samples” were collected to characterize these materials. Special sample locations were selected by field personnel based on visual observations of staining or other evidence of potential impact. Special samples were collected using an auger, spade, or by hand (using the method described above). Locations of the special samples are presented in Figures 2 and 3.

The quantity and type of materials associated with the special samples varied from black particulate material to mucky blue and gray soils. Descriptions and estimated quantities of these materials are included in Tables 2 and 3.

2.2 Sample Handling

Samples collected from the Site were labeled and placed directly into laboratory-approved containers. Appropriate chain-of-custody information was completed, and the samples were transferred to Severn Trent Laboratory (STL) in North Canton, Ohio.

All sample equipment was decontaminated between sample locations by brushing soil from the surface then washing the equipment with non-phosphate Liquinox® soap and rinsing with de-ionized water. Additionally, field personnel changed their protective latex gloves between samples to avoid cross-contamination.

2.3 Quality Assurance

During the field investigation, quality assurance/quality control (QA/QC) samples, including duplicate samples, were collected. Laboratory testing was performed in accordance with STL's approved QA/QC procedures.

2.4 Data Validation

The analytical data collected in August 2006 for this project was validated by Mr. Tom Stapp, a senior chemist in Golder's Redmond, Washington, office. Certain data was flagged in the data tables (Tables 5 through 10) with qualifiers. The qualifiers are defined as follows:

U: The analyte was not detected above the indicated reporting limit.

J: The analytical result is an estimated value.

UJ: The analyte was not detected above the indicated reporting limit; the associated reporting limit is an estimated value.

B: The analyte was detected; however, the result was not substantially above the level reported in laboratory or field blanks.

R: The analytical result is unusable.

A data validation summary report is provided in Attachment A.

3.0 SCREENING LEVEL CONCENTRATIONS AND ANALYTICAL METHODS

3.1 Analytical Methods

Samples were submitted to STL for one or more of the following analyses:

- Mercury by SW846 Method 7471A
- Target Analyte List (TAL) and RCRA Metals by SW846 Method 6010B
- Polychlorinated Biphenyls (PCB) by SW846 Method 8082
- Total Petroleum Hydrocarbons (TPH) by SW846 Method 8015B
- Semi-Volatile Organic Compounds (SVOC) by SW846 Method 8270C

A distribution of sample analyses is shown in Table 4.

3.2 Soil Screening

The analytical results for the samples collected during field investigation activities were evaluated for use as guidance in selecting materials to stockpile at the site. The screening criteria used were the United States Environmental Protection Agency (USEPA) Region 9 Regional Screening Levels (RSL), as updated May 2012, for residential direct contact. A concentration higher than the selected screening level does not mean that a significant risk exists.

4.0 RESULTS

Analytical results for the floor soil, bin, and special samples are presented in Tables 5 through 11. Sample analytical results from bin, floor soil, and special samples that are greater than their respective screening criteria are described in detail below.

4.1 Bin Samples

Total metals analyses for the bin samples are presented in Table 5. Arsenic, chromium and thallium were detected above the RSL. Arsenic was detected in concentrations greater than the RSL in all of the samples. Thallium was detected in 11 of the 16 samples above the RSL. Total chromium was detected at concentrations greater than the RSL for hexavalent chromium in all of the 16 samples. However, the total chromium concentrations in all of the samples were below the RSL for trivalent chromium. Chromium concentrations are presented in Figures 2 and 3.

4.2 Floor Soil Samples

4.2.1 South Mill Building

Total metal analytical results for the samples collected from the South Mill Building are presented in Table 6. Samples were collected from 20 floor sample locations in the South Mill Building. Surface samples were collected at eight locations, a sample from the 0- to 6-inch sampling interval was collected at 12 locations, and at two locations (S-12 and S-19) samples were also collected from the 6- to 12-inch interval. A total of 22 floor soil samples were collected in the South Mill Building.

Arsenic was detected above the RSL in all of the 22 samples in the South Mill Building. Concentrations in samples from the upper 6-inch interval ranged from 2.8 mg/kg to 80 mg/kg. The sample with the highest arsenic concentration was collected from surface soils within grid cell S-6, in the eastern part of the building.

Total chromium was detected at concentrations greater than the RSL for hexavalent chromium in all of the 22 samples in the South Building. However, total chromium concentrations in all of the samples were all below the RSL for trivalent chromium. Total chromium concentrations ranged from 215 mg/kg to 4,910 mg/kg. The sample with the highest total chromium concentration of 4,910 mg/kg was collected in a surface soils sample in grid cell S-4, which was located in the southeast corner of the building.

Lead was detected at concentrations greater than the RSL in only 2 of the 22 samples. Sample S-6 was collected in the center of the building and had a lead concentration of 2,020 mg/kg and S-16 was located in the mill building near the northern end of the building by the door.

4.2.2 North Mill Building

Total metal analytical results for the samples collected from floors of the North Mill Building are presented in Table 7. Samples were collected from 34 floor sample locations in the North Mill Building. Surface soil samples were collected at 12 locations in cells 1-12. A sample was collected from the 0- to 6-inch sampling interval in 22 locations in cells 13 though 14, and at seven locations samples were also collected from the 6- to 12-inch interval. A total of 41 samples were collected from floor soils in the North Mill Building.

Arsenic was detected at concentrations greater than the RSL in 39 of the 41 samples ranging from 1.5 mg/kg to 46.7 mg/kg. Lead was detected at concentrations above the RSL in three 0-6" interval samples at N-10, N-20 and N-32(Dup). Total chromium was detected at concentrations greater than the RSL value for hexavalent chromium in all of the samples in the North Building, ranging from 595 mg/kg at N-21 to 70,600 mg/kg at N-3. However, total chromium concentrations were all below the trivalent chromium RSL in the North Mill Building.

The distribution of samples where total chromium concentrations exceeded the RSL for hexavalent chromium covers virtually the entire floor of the building. Total chromium concentrations are shown in Figures 2 and 3.

4.2.3 Special Samples

Analytical results for the special samples collected from both Mill Buildings are presented in Tables 8 through 11. A total of 15 special samples were collected. Six samples were collected from the North Mill Building and nine samples from the South Mill Building.

4.2.3.1 RCRA Metals

The analytical results for metals in the "special samples" are presented in Table 8.

Arsenic was detected above the RSL in all of the samples and lead was detected above the RSL in S-Special #4 located in the South Mill Building. The concentration of total chromium was greater than the RSL for hexavalent chromium in all of the special samples. However, the concentration of total chromium was below the RSL for trivalent chromium in all of the special samples.

4.2.3.2 Polychlorinated Biphenyls

PCBs were detected in sample N-Special #5, and S-Special #3, S-Special #5, S-Special #6 and S-Special #7, but none of the results were above the RSL. All of the samples were collected from the 0- to 6-inch depth interval. The analytical results for PCBs are presented in Table 9.

4.2.3.3 Semi-Volatile Organic Constituents

The analytical results for SVOCs are presented in Tables 10a through 10d. Nine of the 15 special samples were analyzed for SVOCs. Six of the samples had concentrations greater than the USEPA RSLs. Benzo(a)anthracene was detected in N-Special #3, S-Special #5 and S-Special #9. Benzo(b)flouranthene was identified in S-Special #3, S-Special #5 and S-Special #9 and benzo(a)pyrene was identified in S-Special #3, S-Special #4, S-Special #5, S-Special #7, S-Special #8 and S-Special #9. Indeno(1,2,3-cd)pyrene was also identified in Samples S-Special #3, S-Special #5, and S-Special #9.

Other parameters were also identified above the RSL, however, in these cases the parameter was not detected in the sample because the sample was either diluted and the detection limit was raised or the detection limits were above the current RSLs.

4.2.3.4 Total Petroleum Hydrocarbons

Certain special samples were analyzed for two carbon ranges of total petroleum hydrocarbons (TPH) to determine the nature of possible petroleum constituents, including C10-20 for gasoline or “middle” range and C20-34 for “heavy” constituents such as diesel fuel. The USEPA has not established an RSL for TPH. TPH concentrations for both C10-20 and C20-34 were observed in special samples S-Special #3, $4, #6, #7 and #9 from the South Mill Building In addition, TPH was identified in the C10-20 range in sample S-Special #5. The analytical results for TPH are presented in Table 11.

5.0 SUMMARY

The floors of the Mill Buildings and materials in the bins located behind the buildings were investigated by collecting soil or solids samples. Analytical results from these samples were compared to 2012 USEPA RSLs. Results of the investigation are summarized below:

- Total chromium concentrations in all of the samples from the floors of the North and South Mill Buildings were above the USEPA residential direct contact RSL for hexavalent chromium (0.29 mg/kg). However, none of these samples were above the USEPA residential direct contact RSL for trivalent chromium (120,000 mg/kg).
- Total chromium concentrations in all of the bin samples were above the USEPA residential direct contact RSL for hexavalent chromium. However, none of these samples were above the USEPA residential direct contact RSL for trivalent chromium.
- Arsenic concentrations in all of the 22 of the floor samples in the South Mill Building were above USEPA residential direct contact RSL (0.39 mg/kg). Arsenic concentrations in the floor samples in the North Mill Building were above the RSL in 39 of the 41 samples.
- Arsenic concentrations in all of the bin samples were above the USEPA residential direct contact RSL.
- Thallium concentrations in 11 of the 16 bin samples were above the USEPA residential direct contact RSL (0.78 mg/kg).
- Lead concentrations in two samples from the floor of the South Mill Building and three samples from the floor of the North Mill Building were above the USEPA residential direct contact RSL (400 mg/kg).
- Lead concentrations in all of the bin samples were below the USEPA residential direct contact RSL.
- TPH was detected in six Special Samples from the South Mill Building. There is no RSL for TPH.
- PCBs concentrations in all samples analyzed were below the USEPA residential direct contact RSLs.
- In six of the 15 special samples, concentrations of several semi-volatile organic compounds (SVOCs) were found in concentrations above the USEPA residential direct contact RSLs. Most SVOCs were below detection limits.

Based on initial screening of the data collected during the field investigation activities, the materials in the bins, on the concrete areas in the buildings, and in soil areas of the building floors up to a depth of 12 inches contain total chromium in concentrations above the screening level for hexavalent chromium.

TABLES

TABLE 1
SAMPLE DISTRIBUTION IN THE MILL BUILDINGS
Former Satralloy Site

Sample Location	Number of Samples
North Mill Building	41
South Mill Building	22
North Mill Bins	9
South Mill Bins	4
North Special Samples	6
South Special Samples	9
Duplicate Samples	5

TABLE 2
SOUTH MILL BUILDING SPECIAL SAMPLE DESCRIPTIONS
Former Satralloy Site

Sample ID	Grid Cell Location	Measured Extent of sampled material (L x W x H)	Description
S-Special #1	S-2	5 cubic yards (estimate)	White to Gray pile of "gravel."
S-Special #2	S-7	20 ft. x 8 ft. (surficial*)	Dark-colored stained soil.
S-Special #3	S-9	68 ft. x 35 ft. x 12 ft.	Black stained soil pile.
S-Special #4	S-8	20 cubic yards (estimate)	Gray soil / material with dark staining piled in bin. Bin dimensions are 21 ft. x 18 ft. x 5ft. (LxWxH) Material fills about 1/3 of bin.
S-Special #5	S-1	10 cubic yards (estimate)	Powder-like substance in conveyor room.
S-Special #6	S-7	24 ft. x 15 ft. (surficial)	Very similar in appearance to S-Special #2 and from the same Grid Cell.
S-Special #7	S-6	2 cubic yards (estimate)	Stained soil pile in corner of building.
S-Special #8	S-11 and surrounding cells.	Intermittent throughout center of building. Largest patch is 129 ft. x 20 ft. (surficial*)	Orange-brown surface layer on muck
S-Special #9	S-14 and surrounding cells.	Intermittent in Cells S-14, -15 and -16. Covers virtually all areas of cells S-17 and -18.	Dark Stained / Burnt soil and debris surrounding large concrete foundations of furnaces.

Notes:
*Impact observed on soil surface inside building. Vertical penetration of impacted soil was not measured.

TABLE 3
NORTH MILL BUILDING SPECIAL SAMPLE DESCRIPTIONS
Former Satralloy Site

Sample ID	Grid Cell Location	Measured Extent of sampled material (L x W x H)	Description
N-Special #1	N-23	60 ft. x 60 ft. area (surficial*)	Bright Yellow (almost Fluorescent) powder. A portion of the material appears to be residual dripped from the large vats above.
N-Special #2	N-23	Same as N-Special #1	Appears to be same material as N-Special #1
N-Special #3	N-20	6 broken "sacks" of this material, approximately 1 cubic yard in each sack.	Black sandy material (looks like and is packaged like Activated Carbon)
N-Special #4	N-15	51 ft. x 24 ft. (surficial*)	Gray Powder / soil
N-Special #5	N-26, 15 & 16	60 ft. x 60 ft. (surficial*)	Stained soil. Looks more like moisture than an "oily stain" (Lawhon description was "oily stain")
N-Special #6	N-9	Unknown	According to Lawhon "Flue Dust" was present in this grid cell. Golder did not observe any material resembling dust here.

Notes:
*Impact observed on soil surface inside building. Vertical penetration of impacted soil was not measured.

TABLE 4
SAMPLE ANALYSES
Former Satralloy Site

Sample Location	Number of Samples	Analyses
North Mill Building	41	RCRA Metals
South Mill Building	22	RCRA Metals
North Mill Bins	9	TAL Metals
South Mill Bins	4	TAL Metals
North Special Samples	6	RCRA Metals (6 samples) PCBs (1 sample) SVOCs (1 sample)
South Special Samples	9	RCRA Metals (9 samples) PCBs (7 samples) TPH (6 samples) SVOCs (8 samples)
Duplicate samples	5	RCRA Metals (4 samples) TAL Metals (1 sample)

TABLE 5
TOTAL METALS
NORTH AND SOUTH MILL BUILDING BIN SAMPLES
Former Satralloy Site
(values in mg/kg)

Parameter	Aluminum	Antimony	Arsenic	Barium	Beryllium	Calcium	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
USEPA RSL Residential Direct Contact	**77,000**	**31.0**	**0.39**	**15,000**	**15,000**	**NC**	**70.0**	**120,000 (Cr+3) 0.29 (Cr+6)**	**23.0**	**3,100**	**55,000**	**400**	**NC**	**1,800**	**10.0**	**1,500**	**NC**	**390**	**390**	**NC**	**0.78**	**390**	**23,000**
NB-3	8,930	2.0 B	***9.9***	85.6	0.31 B	33,600	5.5	***1,270***	8.2	44.3	35,200	156	37,600	1,400 J	0.057 B	98.0	676	0.84	<1.1	90.4 B	***2.1***	15.4	499
NB-6	10,600	0.6 B	***7.5***	56.6	1.1	28,200	0.21 B	***20.9***	15.5	29.5	21,800	18.9	4,890	475 J	0.032 B	41.0	2,690	<0.55	<1.1	75.6 B	***1.3***	12.1	85.6
NB-9	8,790	1.1 B	***6.8***	93.5	0.7	16,200	0.41 B	***254***	9.6	24.1	27,300	23.4	9,550	759 J	0.029 B	30.4	1,130	0.89	<1.2	<584	***1.1 B***	18.6	97.6
NB-12	1,400	0.36 B	***5.1***	8.7 B	<0.52	3,940	0.14 B	***398***	8.8	5.6	7,450	2.3	42,500	444 J	0.043 B	598	2,660	0.49 B	<1.0	2,350	***1.1***	4.4 B	13.5
NB-14	12,600	1.4 B	***14.3***	63.8	0.038 B	56,600	1.2	***1,780***	3.3 B	6.9	5,290	21.9	36,900	1,490 J	0.026 B	18.2	529 B	<0.59	<1.2	<586	***1.5***	27.6	125
NB-16	13,700	0.82 B	***6.4***	71.1	0.32 B	38,400	0.58	***1,710***	3.3 B	5.7	3,840	10.4	52,100	925 J	<0.1	28.4	410 B	<0.52	<1.0	77.2 B	***1.4***	12.3	57.9
NB-18	10,600	1.5 B	***7.4***	55.9	0.078 B	41,800	0.64	***2,140***	4.1 B	10.3	7,560	11.6	46,800	1,460 J	0.016 B	22.5	438 B	<0.55	<1.1	<553	***2.2***	18.0	77.4
NB-19	9,750	1.3 B	***5.2***	71.9	<0.52	48,900	0.37 B	***1,330***	2.2 B	8.8	8,760	13.7	39,100	584 J	0.015 B	13.0	233 B	<0.52	<1.0	<522	***0.86 B***	17.8	52.4
NB-21	11,800	1.3 B	***6.7***	76.0	0.28 B	35,500	0.53	***1,620***	3.4 B	7.0	6,580	11.7	49,200	1,130 J	0.044 B	26.8	445 B	<0.51	<1.0	75.8 B	***1.4***	12.5	75.9
SB-2	2,240	2.0 B	***6.1***	26.4 B	<0.69	34,000	0.059 B	***2,020***	21.1	16.0	9,030	7.3	12,800	895 J	<0.14	368	139 B	<0.69	<1.4	<687	***1.1 B***	11.2	28.8
SB-4	17,500	1.5 B	***0.88 B***	26.8 B	<0.72	280,000	<0.72	***1,740***	3.1 B	1.6 B	1,680	2.2	46,500	193 J	<0.14	8.0	81.3 B	<0.72	<1.4	<717	***<1.4***	45.4	19.9
SB-7	480	<8.5	***0.99 B***	72.4	<0.71	318,000	0.073 B	***51.2***	0.7 B	2.1 B	3,660	14.6	1,400	75.2 J	<0.14	2.9 B	74.0 B	<0.71	<1.4	101 B	***<1.4***	3.1 B	70.0
SB-10	14,200	1.7 B	***2.3***	43.2	<0.69	243,000	0.2 B	***1,450***	3.4 B	6.6	9,180	7.8	32,300	315 J	<0.14	13.9	276 B	<0.69	<1.4	<693	***1.2 B***	31.2	74.6
E (SB-10 DUP)	15,100	2.1 B	***3.4***	49.7	<0.69	263,000 J	0.33 B	***1,380 J***	3.8 B	8.0	13,400	28.7	34,800 J	297 J	<0.14	13.9 J	340 B,J	<0.69	<1.4	<690	***<1.4***	34.6	101 J
(NB) BIN-15	NA	NA	***13.0***	NA	NA	NA	NA	***1,500***	NA	NA	3,900	15.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
(NB) BIN-17	NA	NA	***17.0***	NA	NA	NA	NA	***1,500***	NA	NA	3,600	17.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
(NB) BIN-20	NA	NA	***13.0***	NA	NA	NA	NA	***2,000***	NA	NA	3,500	13.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1. "NC" - No RSL.
2. "NA" = Not Analyzed.
3. "J" - Value estimated by the laboratory.
4. "U" - Value indicated has been raised to the reporting limit and determined 'non-detect' due to associated blank contamination.
5. "B" - Estimated value less than reporting limit.
5. ***Bold Italics*** - indicates value is above the RSL.

TABLE 6
TOTAL METALS
SOUTH MILL BUILDING FLOOR SAMPLES
Former Satralloy Site
(values in mg/kg)

Parameter		Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
USEPA RSL Residential Direct Contact Soil		**0.39**	**15,000**	**70.0**	**120,000 (Cr+3) 0.29 (Cr+6)**	**400**	**10.0**	**390**	**390**
S-1	Surface	***2.8***	50.5	0.26 B	***1,840***	9.0	0.061 B	<2.8	<5.5
S-2	Surface	***32.8***	145	5.9	***2,170***	149	0.057 B	3.5	<6.1
S-3	Surface	***10.3***	70.8	0.95	***1,810***	22.8	0.022 B	<0.61	<1.2
S-4	Surface	***22.8***	89.1	6.4	***4,910***	419	0.029 B	1.0	<1.3
S-5	Surface	***4.8***	47.5	0.29 B	***1,520***	16.1	< 0.15	0.77	<1.5
S-6	Surface	***80.4***	177	1.9	***2,040***	***2,020***	0.062 B	<10.3	<20.6
A (S-6 DUP)	Surface	***35.2***	145	1.7	***1,510 J***	83.0	0.064 B	<5.1	<10.2
S-7	Surface	***7.4***	55.0	0.65	***988***	68.5	< 0.1	0.65	<1.0
S-8	Surface	***60.9***	155	17.6	***1,600***	276	0.070 B	3.2 B,G	<7.2
S-9	0-6"	***5.6***	68.9	0.56	***1,750***	36.3	< 0.11	0.42 B	<1.1
S-10	0-6"	***15.3***	80.6	1.9	***1,870***	451	0.031 B	0.42 B	<1.1
S-11	0-6"	***12.3***	96.1	1.6	***1,200***	35.5	0.038 B	0.44 B	<1.3
B (S-11 DUP)	0-6"	***6.1***	60.8	0.61	***1,670 J***	17.5	0.023 B	<0.57	<1.1
S-12	0-6"	***9.3***	70.7	2.9	***1,820***	17.2	0.023 B	<0.59	<1.2
S-12	6-12"	***4.7***	50.8	0.34 UR	***1,220***	7.0	0.015 B	<0.56	<1.1
S-13	0-6"	***27.2***	106	4.6	***930***	186	0.052 B	3.6 B, G	<8.0
S-14	0-6"	***40.0***	88.8	0.93	***621***	272	0.056 B	2.5 B, G	<6.4
S-15	0-6"	***5.5***	98.9	0.28 UR	***215***	15.2	0.042 B	0.57 B	<1.6
S-16	0-6"	***14.3***	50.4	5.2	***1,510***	***921***	0.15	2.9	0.92 B
S-17	0-6"	***18.4***	95.9	1.0 UR	***497***	190	0.029 B	3.3 B, G	<1.5
S-18	0-6"	***10.3***	42.6	1.3	***845***	190	0.043 B	<0.62	0.38 B
S-19	0-6"	***6.6***	85.4	0.38 UR	***590***	14.9	0.026 B	<0.62	<1.2
S-19	6-12"	***6.0***	85.3	0.38 UR	***721***	29.6	0.022 B	<0.75	<1.5
S-20	0-6"	***12.4***	91.6	1.1	***793***	101	0.034 B	0.48 B	<1.4

Notes:

1. "NC" - No RSL.
2. "J" - Value estimated by the laboratory
3. "B" - Estimated value less than reporting limit.
4. "UR" - Data is rejected at the quantitation limit due to a laboratory quality control deficiency.
5. "G" - Elevated detection limit due to matrix interferences.
6. ***Bold Italics*** - indicates value is above the RSL.

TABLE 7
TOTAL METALS
NORTH MILL BUILDING FLOOR SAMPLES
Former Satralloy Site
(values in mg/kg)

Parameter		Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
USEPA RSL Residential Direct Contact Soil		**0.39**	**15,000**	**70.0**	**120,000 (Cr+3) 0.29 (Cr+6)**	**400**	**10.0**	**390**	**390**
N-1	Surface	***1.5***	45.6	0.39 UR	***3,010***	45.5	0.018 B	0.48 B	<1.1
N-2	Surface	***11.6***	67.5	1.8	***2,920***	286	1.1	0.69	0.54 B
N-3	Surface	***<20.2***	39.1 B, G	2.0 UR	***70,600***	344	0.061 B	<10.1	<20.2
N-4	Surface	***7.6***	51.2	3.3	***1,560***	384	0.069 B	<0.6	5.5
N-5	Surface	***21.8***	415	2.9	***2,690***	300	0.037 B	<2.9	<1.2
N-6	Surface	***3.9***	38.4	0.57 B	***1,550***	30.5	<0.12	0.55 B	<1.2
N-7	Surface	***16.8***	49.9	0.40 B	***1,790***	41.0	0.016 B	0.51 B	<1.1
N-8	Surface	***9.8***	130	5.0	***1,340***	225	0.49	2.4 B, G	<1.3
N-9	Surface	***4.3***	58.6	0.96	***1,730***	65.3	0.038 B	0.46 B	<1.2
N-10	Surface	***10.8***	69.0	3.8	***2,910***	507	0.050 B	0.70	0.68 B
N-11	Surface	***8.4***	94.4	4.8	***2,930***	133	0.15 B	1.4	<1.9
N-12	Surface	***<1.1***	41.4	0.47 B	***1,730***	27.3	<0.11	0.62	<1.1
N-13	0-6"	***4.2***	48.7	0.42 B	***1,010***	35.2	0.11 B	<0.7	<1.4
N-13	6-12"	***5.3***	80.0	0.70	***1,460***	276	0.079 B	1.1	<1.2
N-14	0-6"	***8.0***	89.3	1.0	***1,560***	127	0.067 B	0.57	<1.0
N-14	6-12"	***6.4***	85.8	0.25 B	***310***	21.9	<0.12	<0.6	<1.2
N-15	0-6"	***10***	92.2	18.7	***2,080***	303	0.058 B	0.62 B	<1.3
N-16	0-6"	***3.1***	47.7	0.86	***1,220***	55.6	0.044 B	<0.65	<1.3
N-17	0-6"	***6.9***	92.4	0.93	***2,100***	88.6	<0.11	0.45 B	<1.1
N-17	6-12"	***7.0***	90.3	0.33 B	***878***	36.2	0.029 B	0.55 B	<1.2
N-18	0-6"	***6.2***	88.2	0.42 B	***2,030***	39.6	<0.12	0.48 B	<1.2
N-18	6-12"	***4.0***	71.0	0.19 B	***1,380***	11.9	<0.12	0.55 B	<1.2
N-19	0-6"	***6.7***	77.3	1.1	***2,230***	122	<0.13	0.65	<1.3
N-19	6-12"	***5.5***	62.2	0.31 B	***1,970***	37.9	<0.11	0.63	<1.1
N-20	0-6"	***18.1***	81.2	1.8	***1,750***	***406***	0.052 B	<0.59	<1.2
N-21	0-6"	***0.87 B***	8.0 B	0.23 B	***595***	80.8	0.016 B	<0.52	<1.0
N-22	0-6"	***1.9***	41.6	0.51 B	***3,130***	28.7	<0.12	0.81	<1.2
N-23	0-6"	***3.7***	43.2	0.48 B	***5,030***	142	0.023 B	<0.63	<1.3
N-24	0-6"	***3.1***	29.5	0.25 B	***1,660***	49.9	0.024 B	0.48 B	<1.3
N-24	6-12"	***7.7***	55.6	0.27 B	***2,460***	40.7	0.096 B	0.46 B	<1.3
N-25	0-6"	***29.0***	165	5.9	***2,240***	285	0.06 B	0.78	<1.4
N-26	0-6"	***16.7***	15.3 B, G	<6.5	***142***	21.9	0.29	8.1	6.2 B, G
N-27	0-6"	***5.9***	73.6	0.61 B	***841***	217	0.074 B	1.3	<1.3
N-28	0-6"	***12.9***	83.9	0.79	***814***	231	0.29	1.1	<1.1
N-29	0-6"	***7.6***	29.8	0.22 B	***1,140***	41.2	0.28	<0.55	<1.1
N-29	6-12"	***4.8***	99.3	0.21 B	***428***	130	0.058 B	0.81	<1.1
N-30	0-6"	***6.7***	106	0.82	***925***	125	0.14	1.1	<1.1
N-31	0-6"	***14.3***	96.8	4.8	***1,240***	339	0.36	1.6	<1.2
N-32	0-6"	***11.3***	45.3	0.68 B, G	***1,130***	41.0	0.11	2.1 B, G	<1.1
N-33	0-6"	***19.6***	4.9 B, G	7.1	***72.9***	32.0	0.56	11.2	6.7 B, G
N-34	0-6"	***17.0***	133	3.6	***1,540***	213	1.7	0.92	1.7
C (N-15 DUP)	0-6"	***7.3***	75.7	2.6	***1580 J***	182	0.082 B	<0.57	<1.1
D (N-32 DUP)	0-6"	***46.7***	83.1	4.7 B	***657 J***	***920***	0.97	8.1	0.50 B

Notes:

1. "NC" - No RSL.
2. "J" - Value estimated by the laboratory
3. "B" - Estimated value less than reporting limit.
4. "UR" - Data is rejected at the quantitation limit due to a laboratory quality control deficiency.
5. "G" - Elevated detection limit due to matrix interferences.
6. ***Bold Italics*** - indicates value is above the RSL.

TABLE 8
TOTAL METALS
NORTH AND SOUTH MILL BUILDINGS - SPECIAL SAMPLES
Former Satralloy Site
(values in mg/kg)

Parameter	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
USEPA RSL Residential Direct Contact Soil	**0.39**	**15,000**	**70.0**	**120,000 (Cr+3) 0.29 (Cr+6)**	**400**	**10.0**	**390**	**390**
N-Special #1	***1.6***	38.3	0.21 B	***2,170***	78.2	<0.12	0.57 B	<1.2
N-Special #2	***<12.2***	14.9 B, G	<6.1	***25,100***	11.1	<0.12	<6.1	<12.2
N-Special #3	***1.8***	2.8 B	0.057 B	***404***	9.4	<0.10	<0.51	<1.0
N-Special #4	***9.3***	53.0	1.8	***1,650 J***	145	0.075 B	1.6	0.40 B
N-Special #5	***11.1 B, G***	88.6 B, G	1.8 B, G	***931***	97.3	0.08 B	7.0	<12.3
N-Special #6	***1.3***	24.6	0.16 B	***1,540 J***	4.1	<0.10	<0.52	<1.0
S-Special #1	***9.0***	72.6	0.77	***2,420 J***	17.8	0.019 B	<0.51	<1.0
S-Special #2	***9.5***	82.0	1.8	***1,930 J***	92.5	<0.11	<2.7	<5.4
S-Special #3	***12.5***	35.2	2.2	***1,760 J***	303	0.077 B	0.99	0.54 B
S-Special #4	***32.4***	155	1.3	***1,550 J***	***1,130***	<0.12	<0.58	0.48 B
S-Special #5	***13.3***	92.0	1.5	***3,060 J***	49.8	<0.18	<0.90	<1.8
S-Special #6	***7.0***	60.9	1.2	***1,680 J***	70.4	<0.10	<0.51	<1.0
S-Special #7	***6.1***	60.6	0.62	***1,850 J***	65.1	0.015 B	<0.54	<1.1
S-Special #8	***5.1***	88.7	0.46 B	***451 J***	15.3	0.042 B	<0.81	<1.6
S-Special #9	***60.7***	44.4	1.3	***2,500 J***	555	0.049 B	1.7	<2.2

Notes:

1. "NC" - No RSL.
2. "J" - Indicates a result that is estimated by the laboratory
3. "B" - Estimated result. Result less than reporting limit.
4. ***Bold Italics*** - indicates value is above the RSL.

TABLE 9
POLYCHLORINATED BIPHENYLS (PCB)
NORTH AND SOUTH MILL BUILDINGS - SPECIAL SAMPLES
Former Satralloy Site
(values in mg/kg)

Parameter	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260
USEPA RSL Residential Direct Contact	**3.9**	**0.14**	**0.14**	**0.22**	**0.22**	**0.22**	**0.22**
N-Special #1	NA	NA	NA	NA	NA	NA	NA
N-Special #2	NA	NA	NA	NA	NA	NA	NA
N-Special #3	<0.038	<0.038	<0.038	<0.038	<0.038	<0.038	<0.038
N-Special #4	NA	NA	NA	NA	NA	NA	NA
N-Special #5	<0.041	<0.041	<0.041	0.16	<0.041	<0.041	<0.041
N-Special #6	NA	NA	NA	NA	NA	NA	NA
S-Special #1	NA	NA	NA	NA	NA	NA	NA
S-Special #2	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
S-Special #3	<0.038	<0.038	<0.038	<0.038	<0.038	<0.038	0.021 J
S-Special #4	<0.038	<0.038	<0.038	<0.038	<0.038	<0.038	<0.038
S-Special #5	<0.059	<0.059	<0.059	<0.059	<0.059	<0.059	0.029 J
S-Special #6	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	0.042
S-Special #7	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	0.12
S-Special #8	NA	NA	NA	NA	NA	NA	NA
S-Special #9	<0.036	<0.036	<0.036	<0.036	<0.036	<0.036	0.027 J

Notes:

1. "NC" - No RSL.
2. "NA" - Not Analyzed.
3. "J" - Value estimated by the laboratory.
4. ***Bold Italics*** - Indicates value above the RSL.

TABLE 10A
SEMI - VOLATILE ORGANICS
NORTH AND SOUTH MILL BUILDINGS - SPECIAL SAMPLES
Former Satralloy Site
(values mg/kg)

Parameter	Acenaphthene	Acenaphthylene	Acetophenone	Anthracene	Atrazine	Benzaldehyde	Benzo(a)anthracene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(ghi)perylene	Benzo(a)pyrene	1,1'-Biphenyl	bis(2-Chloroethoxy)methane	bis(2-Chloroethyl) ether	bis(2-Ethylhexyl) phthalate	4-Bromophenyl phenyl ether	Butyl benzyl phthalate	Caprolactam
USEPA RSL Residential Direct Contact Soil	**3,400**	**NC**	**7,800**	**17,000**	**2.1**	**7,800**	**0.15**	**0.15**	**1.5**	**NC**	**0.015**	**51.0**	**180**	**0.21**	**35.0**	**NC**	**260.0**	**31000.0**
N-Special #1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Special #2	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Special #3	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Special #4	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Special #5	<10.0	<10.0	<2.0	<10.0	<10.0	<10.0	***0.65 J***	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	***<10.0***	<10.0	<10.0	<10.0	<10.0
N-Special #6	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-Special #1	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-Special #2	<350	<350	<71	<350	***<350***	<350	***<350***	***<350***	***<350***	<350	***<350***	***<350***	***<350***	***<350***	***<350***	<350	<350	<350
S-Special #3	<1.5	<1.5	<0.3	0.83 J	<1.5	<1.5	***1.6***	***1.6***	0.57 J	0.45 J	***0.89 J***	<1.5	<1.5	***<1.5***	<1.5	<1.5	<1.5	<1.5
S-Special #4	<0.38	<0.38	<.077	<0.38	<0.38	<0.38	0.026 J	0.065 J	0.022 J	0.053 J	***0.043 J***	<0.38	<0.38	***<0.38***	0.066 J	<0.38	<0.38	<0.38
S-Special #5	<1.5	<1.5	<0.3	.047 J	<1.5	<1.5	***0.2 J***	***0.35 J***	0.14 J	0.22 J	***0.27 J***	<1.5	<1.5	***<1.5***	0.19 J	<1.5	<1.5	<1.5
S-Special #6	<250	<250	<51.0	<250	***<250***	<250	***<250***	***<250***	***<250***	<250	***<250***	***<250***	***<250***	***<250***	***<250***	<250	<250	<250
S-Special #7	<0.35	<0.35	<.071	<0.35	<0.35	<0.35	0.033 J	0.065 J	0.035 J	0.058 J	***0.047 J***	<0.35	<0.35	***<0.35***	0.35 U	<0.35	<0.35	0.35 U
S-Special #8	<0.54	<0.54	<0.11	<0.54	<0.54	<0.54	0.023 J	0.047 J	0.017 J	0.027 J	***0.024 J***	<0.54	<0.54	***<0.54***	0.14 J	<0.54	<0.54	<0.54
S-Special #9	0.12 J	<1.4	<0.29	0.25 J	<1.4	<1.4	***0.52 J***	***0.78 J***	0.28 J	0.38 J	***0.42 J***	<1.4	<1.4	***<1.4***	1.4 U	<1.4	<1.4	<1.4

Notes:
1. "NC" - No RSL.
2. "NA" - Not Analyzed.
3. "J" - Value estimated by the laboratory.
4. "U" - Value has been raised to the reporting limit and is considered not detected due to associated blank contamination.
5. ***Bold Italics*** - indicates value above the RSL.

TABLE 10B
SEMI - VOLATILE ORGANICS
NORTH AND SOUTH MILL BUILDINGS - SPECIAL SAMPLES
Former Satralloy Site
(values mg/kg)

Parameter	Carbazole	4-Chloroaniline	4-Chloro-3-methylphenol	2-Chloronaphthalene	2-Chlorophenol	2,2'-oxybis(1-Chloropropane)	4-Chlorophenyl phenyl ether	Chrysene	Dibenz(a,h)anthracene	Dibenzofuran	3,3'-Dichlorobenzidine	2,4-Dichlorophenol	Diethyl phthalate	2,4-Dimethylphenol	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate
USEPA RSL Residential Direct Contact Soil	**NC**	**2.4**	**NC**	**NC**	**390**	**NC**	**NC**	**15.0**	**0.015**	**78.0**	**1.1**	**180**	**49,000**	**1,200**	**NC**	**6100**	**NC**
N-Special #1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Special #2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Special #3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Special #4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Special #5	<10.0	***<10.0***	<10.0	<10.0	<10.0	<10.0	<10.0	1.0 J	***<10.0***	<10.0	***<49.0***	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
N-Special #6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-Special #1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-Special #2	<350	***<350***	<350	<350	<350	<350	<350	***<350***	***<350***	***<350***	***<1,700***	***<350***	<350	<350	<350	<350	<350
S-Special #3	0.49 J	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	1.9	0.13 J	0.33 J	***<7.3***	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
S-Special #4	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	0.035 J	0.009 J	<0.38	***<1.9***	<0.38	<0.38	<0.38	<0.38	.029 J	<0.38
S-Special #5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	0.23 J	0.054 J	<1.5	***<7.2***	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
S-Special #6	<250	***<250***	<250	<250	<250	<250	<250	***<250***	***<250***	***<250***	***<1,200***	***<250***	<250	<250	<250	<250	<250
S-Special #7	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	0.043 J	0.013 J	<0.35	***<1.7***	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35
S-Special #8	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	0.038 J	***<0.54***	<0.54	***<2.6***	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54
S-Special #9	0.15 J	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	0.71 J	0.099 J	<1.4	***<6.9***	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4

Notes:

1. "NC" - No RSL.
2. "NA" - Not Analyzed.
3. "J" - Value estimated by the laboratory.
4. "U" - Value has been raised to the reporting limit and is considered not detected due to associated blank contamination.
5. ***Bold Italics*** - indicates value above the RSL.

TABLE 10C
SEMI - VOLATILE ORGANICS
NORTH AND SOUTH MILL BUILDINGS - SPECIAL SAMPLES
Former Satralloy Site
(values mg/kg)

Parameter	4,6-Dinitro-2-methylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-cd)pyrene	Isophorone	2-Methylnaphthalene	2-Methylphenol	4-Methylphenol	Naphthalene	2-Nitroaniline
USEPA RSL Residential Direct Contact Soil	**NC**	**NC**	**1.6**	**61.0**	**2,300**	**2,300**	**0.3**	**6.2**	**370**	**12.0**	**0.15**	**510**	**NC**	**3100**	**6100**	**3.6**	**610**
N-Special #1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Special #2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Special #3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Special #4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Special #5	<49.0	<49.0	***<10.0***	<10.0	0.46 J	<10.0	***<10.0***	***<10.0***	<49.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<49.0
N-Special #6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-Special #1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-Special #2	<1,700	<1,700	***<350***	***<350***	<350	<350	***<350***	***<350***	***<1,700***	***<350***	***<350***	<350	<350	<350	<350	***<350***	***<1,700***
S-Special #3	<7.3	<7.3	<1.5	<1.5	4.7	0.4 J	***<1.5***	<1.5	<7.3	<1.5	***0.39 J***	<1.5	.120 J	<1.5	<1.5	0.28 J	<7.3
S-Special #4	<1.9	<1.9	<0.38	<0.38	0.036 J	<0.38	***<0.38***	<0.38	<1.9	<0.38	0.035 J	<0.38	<0.38	<0.38	<0.38	<0.38	<1.9
S-Special #5	<7.2	<7.2	<1.5	<1.5	0.37 J	<1.5	***<1.5***	<1.5	<7.2	<1.5	***0.19 J***	<1.5	<1.5	<1.5	<1.5	<1.5	<7.2
S-Special #6	<1,200	<1,200	***<250***	***<250***	<250	<250	***<250***	***<250***	***<1,200***	***<250***	***<250***	<250	<250	<250	<250	***<250***	***<1,200***
S-Special #7	<1.7	<1.7	<0.35	<0.35	.049 J	<0.35	***<0.35***	<0.35	<1.7	<0.35	0.044 J	<0.35	0.012 J	<0.35	<0.35	<0.35	<1.7
S-Special #8	<2.6	<2.6	<0.54	<0.54	.043 J	<0.54	***<0.54***	<0.54	<2.6	<0.54	0.02 J	<0.54	<0.54	<0.54	<0.54	<0.54	<2.6
S-Special #9	<6.9	<6.9	<1.4	<1.4	1.1 J	0.11 J	***<1.4***	<1.4	<6.9	<1.4	***0.31 J***	<1.4	<1.4	<1.4	<1.4	0.058 J	<6.9

Notes:

1. "NC" - No RSL.
2. "NA" - Not Analyzed.
3. "J" - Value estimated by the laboratory.
4. "U" - Value has been raised to the reporting limit and is considered not detected due to associated blank contamination.
5. ***Bold Italics*** - indicates value above the RSL.
6. "R" - Data is rejected at the quantitation limit due to a laboratory quality control deficiency.

TABLE 10D
SEMI - VOLATILE ORGANICS
NORTH AND SOUTH MILL BUILDINGS - SPECIAL SAMPLES
Former Satralloy Site
(values mg/kg)

Parameter	3-Nitroaniline	4-Nitroaniline	Nitrobenzene	2-Nitrophenol	4-Nitrophenol	N-Nitrosodi-n-propylamine	N-Nitrosodiphenylamine	Pentachlorophenol	Phenanthrene	Phenol	Pyrene	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol
USEPA RSL Residential Direct Contact Soil	**NC**	**24.0**	**4.8**	**NC**	**NC**	**0.069**	**99.0**	**0.89**	**NC**	**18,000**	**1,700**	**6,100**	**44.0**
N-Special #1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Special #2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Special #3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Special #4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Special #5	<49.0	***<49.0***	***<10.0***	<10.0	<49.0 R	***<10.0***	<10.0	<10.0 R	0.78 J	<10.0	2.2 J	<10.0	<10.0
N-Special #6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-Special #1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-Special #2	<1,700	***<1,700***	***<350***	<350	<1,700	***<350***	<350	***<350***	<350	<350	<350	<350	***<350***
S-Special #3	<7.3	<7.3	<1.5	<1.5	<7.3	***<1.5***	<1.5	***<1.5***	3.7	<1.5	3.7	<1.5	<1.5
S-Special #4	<1.9	<1.9	<0.38	<0.38	<1.9	***<0.38***	<0.38	<0.38	0.015 J	<0.38	0.032 J	<0.38	<0.38
S-Special #5	<7.2	<7.2	<1.5	<1.5	<7.2	***<1.5***	<1.5	<1.5	0.18 J	<1.5	0.3 J	<1.5	<1.5
S-Special #6	<1,200	***<1,200***	***<250***	<250	<1,200	***<250***	<250	***<250***	<250	<250	<250	<250	***<250***
S-Special #7	<1.7	<1.7	<0.35	<0.35	<1.7	***<0.35***	<0.35	<0.35	0.023 J	<0.35	0.038 J	<0.35	<0.35
S-Special #8	<2.6	<2.6	<0.54	<0.54	<2.6	***<0.54***	<0.54	<0.54	0.03 J	<0.54	0.032 J	<0.54	<0.54
S-Special #9	<6.9	<6.9	<1.4	<1.4	<6.9	***<1.4***	<1.4	***<1.4***	0.92 J	<1.4	0.79 J	<1.4	<1.4

Notes:

1. "NC" - No RSL.
2. "NA" - Not Analyzed.
3. "J" - Value estimated by the laboratory.
4. "U" - Value has been raised to the reporting limit and is considered not detected due to associated blank contamination.
5. ***Bold Italics*** - indicates value above the RSL.
6. "R" - Data is rejected at the quantitation limit due to a laboratory quality control deficiency.

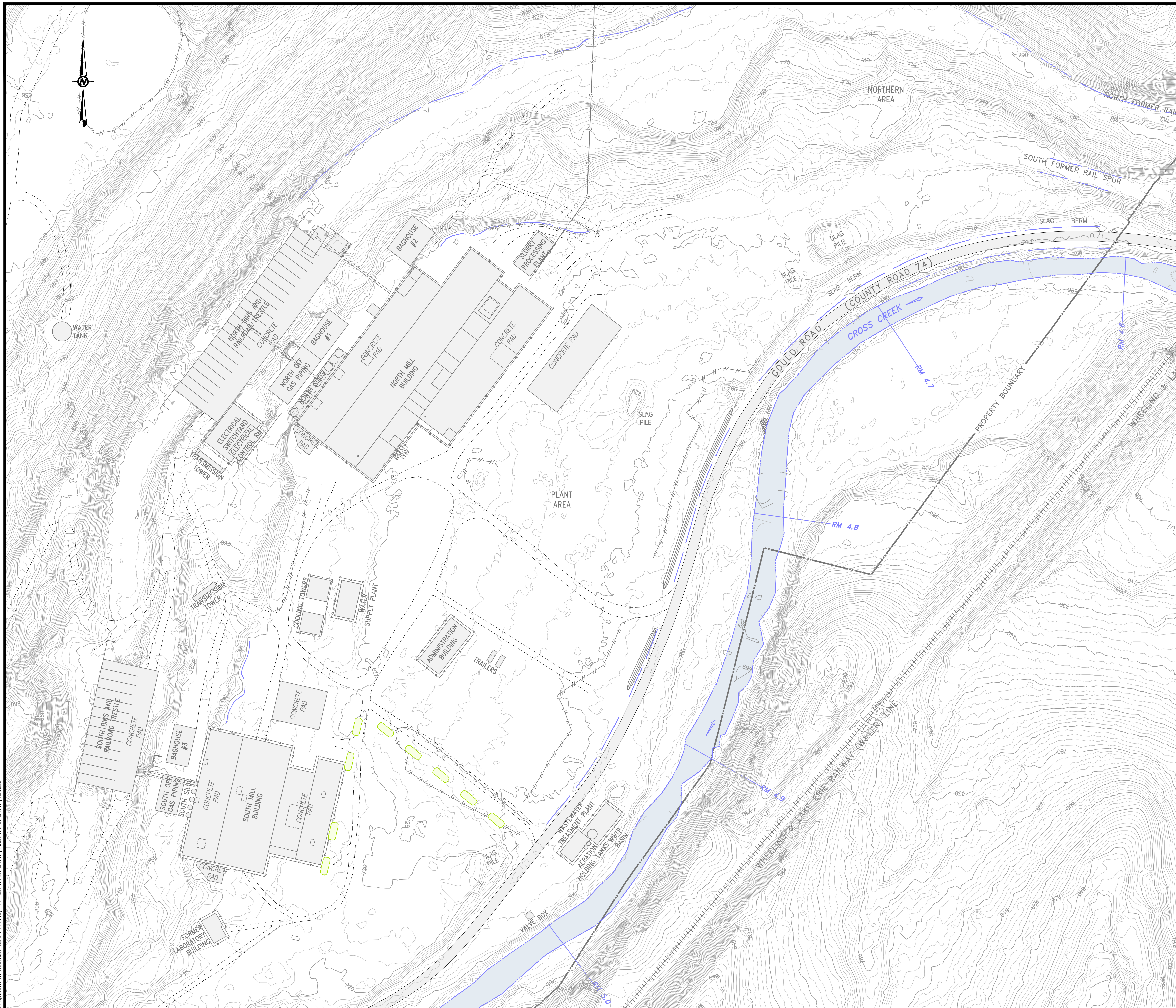
Golder Associates

TABLE 11
TOTAL PETROLEUM HYDROCARBONS
NORTH AND SOUTH MILL BUILDINGS - SPECIAL SAMPLES
Former Satralloy Site
(values mg/kg)

Parameter	C_{20}-C_{34}	C_{10}-C_{20}
USEPA RSL Residential Direct Contact Soil	**NC**	**NC**
N-Special #1	NA	NA
N-Special #2	NA	NA
N-Special #3	NA	NA
N-Special #4	NA	NA
N-Special #5	NA	NA
N-Special #6	NA	NA
S-Special #1	NA	NA
S-Special #2	NA	NA
S-Special #3	130	43.0
S-Special #4	69.0	3.6 J
S-Special #5	300	<18
S-Special #6	32,000	2,100 J
S-Special #7	130	8.0 J
S-Special #8	NA	NA
S-Special #9	980	79.0

Notes:
1. "NC" - No RSL.
2. "NA" - Not Analyzed.
3. "J" -Value estimated by the laboratory.

FIGURES



LEGEND

- EXISTING PROPERTY BOUNDARY
- EXISTING ON-SITE ACCESS ROAD
- EXISTING COUNTY ROAD (PAVED)
- EXISTING RAILROAD
- EXISTING SILT FENCE (REPAIR / MAINTENANCE NEEDED)
- EXISTING FENCE
- EXISTING SHEET PILE WALL
- FORMER UST
- EXISTING SLURRY PIPELINE
- CROSS CREEK
- EXISTING DRAINAGE DITCH
- FORMER JIG / SETTLING POND
- EXISTING FACILITY (TO BE DEMOLISHED)

NOTES

1. BASE TOPOGRAPHY DATED 2003 PROVIDED BY JEFFERSON COUNTY, OHIO, ENGINEER'S OFFICE.
   HORIZONTAL DATUM: OHIO NORTH ZONE NAD 83 - STATE PLANE U.S. SURVEY FEET
   VERTICAL DATUM: NAVD 88 (EST. 1991)
   CONTOUR INTERVAL: 2 FT
   ADDITIONAL TOPOGRAPHY BASED ON FIELD OBSERVATIONS AND MEASUREMENTS. ADDITIONAL SITE FEATURES APPROXIMATED, BASED ON HISTORIC DRAWINGS FOUND IN FILES AT THE SITE.
2. BUILDINGS, ROADS AND RAILROADS ARE APPROXIMATE AND WERE DIGITIZED FROM AERIAL PHOTOGRAPHS, DATED 2003, PROVIDED BY JEFFERSON COUNTY ENGINEERS OFFICE.
3. PROPERTY BOUNDARY BY BONAR SURVEYING, BERGHOLZ, OHIO, DATED OCTOBER 17, 2006. MODIFIED TO REMOVE FORMER RAIL SPUR CORRIDORS.
4. WETLANDS DELINEATION PROVIDED BY WESTLAND RESOURCES, INC., ON DRAWING DATED MAY 30, 2007.
5. THE RIVER MILE MARKERS SHOWN FOR CROSS CREEK HEREON WERE VIA A GEODATABASE AVAILABLE ON THE OHIO STATE DNR WEBSITE, JUNE 2012.

SCALE 100 0 100 200 FEET

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW

PROJECT

FORMER SATRALLOY SITE
MILL BUILDING FLOOR AND BIN INVESTIGATION
JEFFERSON COUNTY, OHIO

TITLE

SITE PLAN NORTH AND SOUTH MILL BUILDINGS AND BINS

Golder Associates
Redmond USA

PROJECT No. 053-1695.210			FILE No.
DESIGN	RV	05/29/08	SCALE AS SHOWN REV.
CADD	ACF	11/18/10	FIGURE 1
CHECK	LH	11/18/10	
REVIEW			

LEGEND

- EXISTING PROPERTY BOUNDARY
- EXISTING ON-SITE ACCESS ROAD
- EXISTING COUNTY ROAD (PAVED)
- EXISTING RAILROAD
- EXISTING SILT FENCE (REPAIR / MAINTENANCE NEEDED)
- EXISTING FENCE
- EXISTING SHEET PILE WALL
- FORMER UST
- EXISTING SLURRY PIPELINE
- CROSS CREEK
- EXISTING DRAINAGE DITCH
- FORMER JIG / SETTLING POND
- EXISTING FACILITY (TO BE DEMOLISHED)
- ●SB-2 BIN SAMPLE LOCATION
- ●S-1, SS-1 MILL BUILDING SAMPLE LOCATION
- *(2910)* CHROMIUM CONCENTRATION (Mg/Kg)

NOTES

1. BASE TOPOGRAPHY DATED 2003 PROVIDED BY JEFFERSON COUNTY, OHIO, ENGINEER'S OFFICE.
   HORIZONTAL DATUM: OHIO NORTH ZONE NAD 83 - STATE PLANE U.S. SURVEY FEET
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5. THE RIVER MILE MARKERS SHOWN FOR CROSS CREEK HEREON WERE VIA A GEODATABASE AVAILABLE ON THE OHIO STATE DNR WEBSITE, JUNE 2012.
6. SAMPLE LOCATIONS ARE APPROXIMATE.

50 0 50 100
SCALE FEET

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW

PROJECT
FORMER SATRALLOY SITE
MILL BUILDING FLOOR AND BIN INVESTIGATION
JEFFERSON COUNTY, OHIO

TITLE
CONCENTRATIONS OF TOTAL CHROMIUM NORTH MILL BUILDINGS AND BINS

Golder Associates Redmond USA

PROJECT No. 053–1695.210			FILE No.	
DESIGN	RV	05/29/08	SCALE AS SHOWN	REV.
CADD	ACF	11/18/10	FIGURE 2	
CHECK	LH	11/18/10		
REVIEW				

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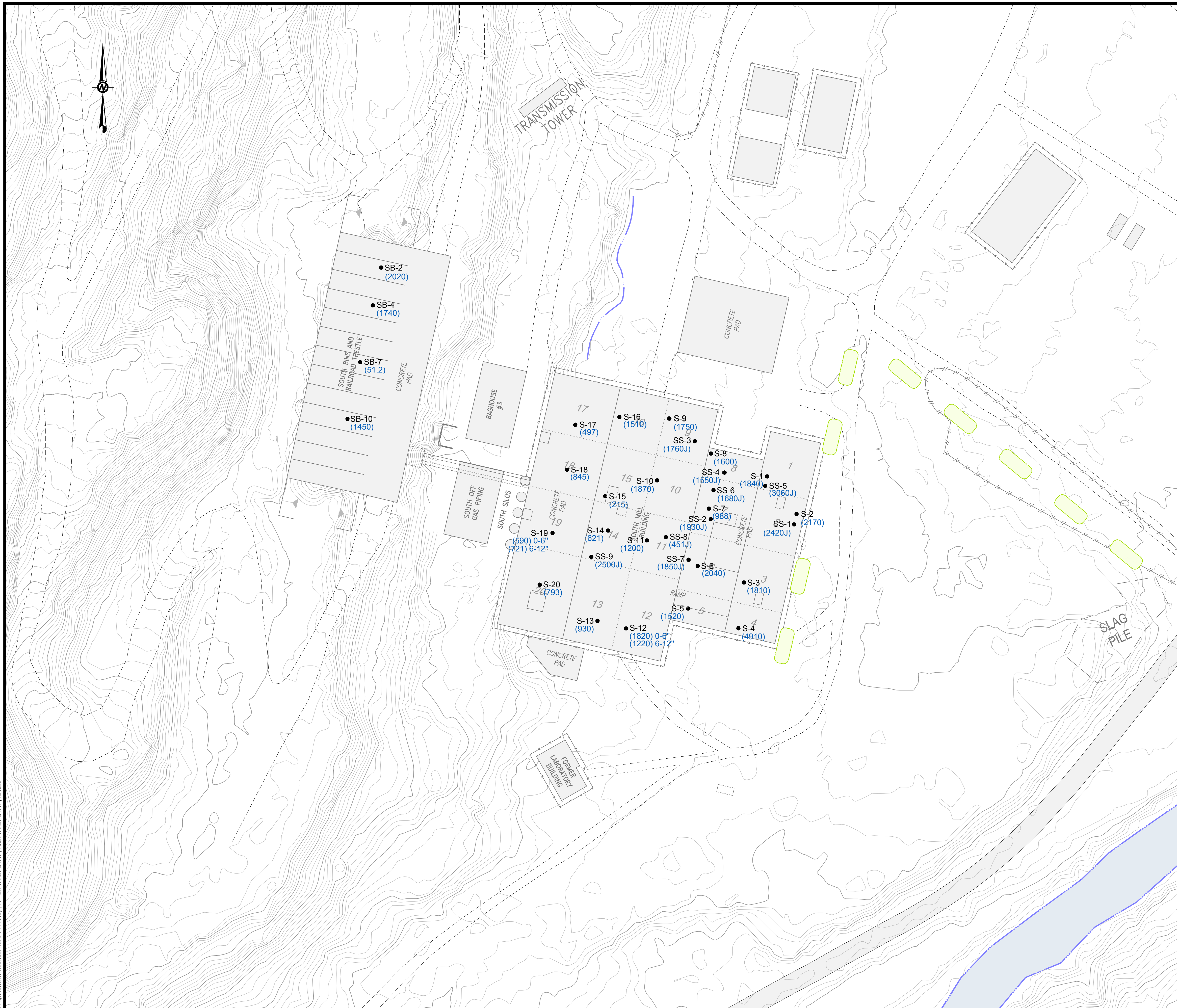

LEGEND

- EXISTING PROPERTY BOUNDARY
- EXISTING ON-SITE ACCESS ROAD
- EXISTING COUNTY ROAD (PAVED)
- EXISTING RAILROAD
- EXISTING SILT FENCE (REPAIR / MAINTENANCE NEEDED)
- EXISTING FENCE
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- FORMER UST
- EXISTING SLURRY PIPELINE
- CROSS CREEK
- EXISTING DRAINAGE DITCH
- FORMER JIG / SETTLING POND
- EXISTING FACILITY (TO BE DEMOLISHED)
- ●SB-2 BIN SAMPLE LOCATION
- ●S-1, SS-1 MILL BUILDING SAMPLE LOCATION
- (2910) CHROMIUM CONCENTRATION (Mg/Kg)

NOTES

1. BASE TOPOGRAPHY DATED 2003 PROVIDED BY JEFFERSON COUNTY, OHIO, ENGINEER'S OFFICE.
   HORIZONTAL DATUM: OHIO NORTH ZONE NAD 83 - STATE PLANE U.S. SURVEY FEET
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6. SAMPLE LOCATIONS ARE APPROXIMATE.

50 0 50 100
SCALE FEET

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW

PROJECT
FORMER SATRALLOY SITE
MILL BUILDING FLOOR AND BIN INVESTIGATION
JEFFERSON COUNTY, OHIO

TITLE
CONCENTRATIONS OF TOTAL CHROMIUM SOUTH MILL BUILDINGS AND BINS

Golder Associates
Redmond USA

PROJECT No. 053-1695.210			FILE No.
DESIGN	RV	05/29/08	SCALE AS SHOWN REV.
CADD	ACF	11/18/10	FIGURE 3
CHECK	LH	11/18/10	
REVIEW			

ATTACHMENT A
DATA VALIDATION SUMMARY

MEMORANDUM

Date:	October 25, 2007	**Project No.:**	053-1695.130
To:	Lee Holder	**Company:**	Golder Associates, Inc.
From:	Tom Stapp		
cc:		**Email:**	

RE: DATA VALIDATION SUMMARY OF SATRALLOY MILL SAMPLES

Samples associated with the Mill floor sampling conducted on August 7 and 8, 2006 were included in two sample delivery groups (SDGs) identified by Severn Trent Laboratory of Canton, Ohio as #A6H100270 and A6H150101. According to the Data Validation Checklists (DVCs), samples were tested for:

- Metals and mercury (EPA Method 6010B/7471A)
- Semi-volatile organics (EPA Method 8270C)
- PCB (EPA Method 8081)
- Total Petroleum Hydrocarbons (EPA Method 8015B)
- Percent moisture.

The DVCs record the results of the data validation task based upon the sample results and laboratory QC. The following is a summary of conditions found:

Metals: The metal results were acceptable with the exception of elevated reporting limits for arsenic in two (2) samples due to dilutions and matrix affects. This resulted in non-detect sample results (12.2 U and 20.2 U mg/kg) reported above the PRG (Industrial 1.59 mg/kg). This is a typical occurrence with some analytes in some matrices. All other analyte responses met their respective PRGs.

Matrix spike samples were selected for multiple samples from the SDG and out of limit recoveries resulted in qualification (J/UJ, an estimated qualifier) of associated sample results. This occurred for Pb in 72 samples, Cd in 33 samples, and Sb and Cu in 13 samples. Cd results were rejected (UR qualifier) in seven (7) samples due to an exceedingly low % recovery in the matrix spike and the post-digestion spike. These MS recovery deficiencies are not out of the ordinary for some matrices and the bulk of data in the metal results are not qualified. All laboratory control samples (blank spikes) met the recovery criteria, which is expected of laboratory QC.

Ca and K are qualified as non-detect at the typical reporting limit for two (2) samples due to contamination in a lab prepared method blank. This is sometimes unavoidable for these analytes.

The “G” qualifier is applied to samples where an elevated detection limit was established due to matrix interferences. This assessment is made by the laboratory based upon multiple runs at varied levels of dilution.

Organics: Organic results were acceptable with the exception of one sample (SWD-1) that missed the 14 day holding period for SVOA and PCB analyses. Associated results are qualified as estimated (J/UJ).

The laboratory also missed a chain of custody request for TPH analysis on two samples (N-Special#2, and N-Special#5).

The laboratory had some issues with matrix interferences in two samples for the SVOA and PCB analyses, requiring high levels of dilution. This resulted in low recovery of surrogates for PCBs (associated results for N-Special#2, and N-Special#5 qualified J/UJ). Selected phenols in sample
N-Special#5 were rejected (UR). These matrix effects are expected in some matrices.

At Golder Associates we strive to be the most respected global group of companies specializing in ground engineering and environmental services. Employee owned since our formation in 1960, we have created a unique culture with pride in ownership, resulting in long-term organizational stability. Golder professionals take the time to build an understanding of client needs and of the specific environments in which they operate. We continue to expand our technical capabilities and have experienced steady growth with employees now operating from offices located throughout Africa, Asia, Australasia, Europe, North America and South America.

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