



Golder Associates Inc.
2525 Tiller Lane, Suite 208
Columbus, Ohio 43231
Telephone: (614) 899-9288
Fax: (614) 899-9290

DRAFT

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

Submitted to:

Ohio Environmental Protection Agency
2195 Front St.
Logan, Ohio 43138

Submitted by:

Cyprius Amax Minerals Company
c/o Gallagher & Kennedy PA
2575 East Camelback Road
Phoenix, Arizona 85016

Prepared by:

Golder Associates Inc.
2525 Tiller Lane, Suite 208
Columbus, Ohio 43231

October 26, 2007

053-1695.130

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
	1.1 Background.....	1
	1.2 Purpose.....	1
2.0	FIELD INVESTIGATION.....	2
	2.1 Scope of Work.....	2
	2.1.1 Floor Observations.....	2
	2.1.2 Mill Building Samples.....	2
	2.1.3 Bin Samples.....	3
	2.1.4 Special Samples.....	3
	2.2 Sample Handling.....	3
	2.3 Quality Assurance.....	3
	2.4 Data Validation.....	3
3.0	SCREENING LEVEL CONCENTRATIONS AND ANALYTICAL METHODS.....	5
	3.1 Analytical Methods.....	5
	3.2 Soil Screening.....	5
4.0	RESULTS.....	6
	4.1 Bin Samples.....	6
	4.2 Floor Soil Samples.....	6
	4.2.1 South Mill Building.....	6
	4.2.2 North Mill Building.....	6
	4.2.3 Special Samples.....	7
5.0	SUMMARY.....	8

LIST OF TABLES

Table 1	Sample Distribution in the Mill Buildings
Table 2	South Mill Building Special Sample Descriptions
Table 3	North Mill Building Special Sample Descriptions
Table 4	Sample Analysis Summary
Table 5	Total Metals – Bin Samples
Table 6	Total Metals – South Mill Building Floor Soil Samples
Table 7	Total Metals – North Mill Building Floor Soil Samples
Table 8	Total Metals – North and South Mill Buildings – Special Samples
Table 9	PCBs Concentrations – North and South Mill Buildings – Special Samples
Table 10	Semi Volatile Organics – North and South Mill Buildings – Special Samples
Table 11	Total Petroleum Hydrocarbons – North and South Mill Buildings – Special Samples

LIST OF FIGURES

Figure 1	Site Plan – North and South Mill Buildings and Bins
Figure 2	Concentrations of Arsenic and Chromium – North Mill Building and Bins
Figure 3	Concentrations of Arsenic and Chromium – South Mill Building and Bins

LIST OF APPENDICES

Appendix A	Data Validation Summary
------------	-------------------------

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 and consolidation of baghouse dust and certain other contaminated materials for temporary storage until the appropriate final remedial actions for the Site are determined. These other materials consisted of visually distinct (non-soil) 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.

This investigation was conducted in conjunction with a hazardous materials survey performed by Lawhon & Associates, Inc. (Lawhon) of Columbus, Ohio (*Regulated Materials Survey: Specified Buildings, Former Satralloy Site, Steubenville, Ohio* dated May 18, 2007).

1.2 Purpose

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

2.0 FIELD INVESTIGATION

This investigation was designed to:

- Determine concentrations of selected metals in the soils on the floors within the Mill Buildings and in the materials within the concrete bins behind the Mill Buildings
- Determine the extent 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 apparent spills within the Mill Buildings
- Determine concentrations of metals and other potential contaminants in residual materials in the concrete bins behind 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 7-9, 2006 and were consistent with generally accepted procedures. Field personnel from Lawhon & Associates, assisted by Golder personnel, collected a total of 63 floor soil samples, 15 "special" samples, and 13 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 ft long by 260 ft wide. The southeast portion of the building floor, denoted by sampling cells 1 through 12 on Figure 2, is concrete; the remainder is soil. The South Mill Building is approximately 275 ft long by 260 ft wide. An area of approximately 120 ft x 215 ft has a concrete floor. This area is denoted as cells 1 through 8 on 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 (see 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, numbered, and their contents described. 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 13 of the 34 bins were collected for analysis. Some of the bins were not sampled because they 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 areas within each Mill Building appeared to be stained or otherwise impacted with unidentified materials. 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 between sample locations.

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 for this project was validated by Mr. Tom Stapp, a senior chemist in Golder's Redmond, Washington, office. Data was flagged in the data tables (Tables 5 – 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 Appendix 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 data 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 default industrial/commercial cleanup levels from the Ohio Environmental Protection Agency (OEPA) Voluntary Action Program (VAP). If a VAP value was not available for a particular parameter, the U.S. Environmental Protection Agency (USEPA) Region 9 Preliminary Remediation Goal (PRG) for industrial direct contact was used. The USEPA Region 9 PRGs are generally lower than the VAP values. 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, and Figures 2 and 3 illustrate the distribution of sample results that exceed each of the individual screening criteria. Sample analytical results from bin, floor soil, and special samples that are greater than their respective regulatory criteria are described in detail below.

4.1 Bin Samples

Total metals analyses for the bin samples are presented in Table 5. Only chromium was detected above the Ohio VAP screening criteria. Total chromium was detected at concentrations greater than the Ohio VAP Direct Contact Standard in 10 of the 14 samples. Chromium concentrations are presented on 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. Twenty (20) floor samples were collected in the South Mill Building. At all of these locations, a sample was collected from the 0- to 6-inch sampling interval, and at two locations (S-12 and S-19), samples were also collected from the 6- to 12-inch interval.

Arsenic was detected above the VAP Direct Contact Standard in only 1 out 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 80.4 mg/kg. The sample with the highest arsenic concentration was collected from the 0- to 6-inch depth interval within grid cell S-6, in the eastern part of the building.

The Ohio VAP does not have a Direct Contact Standard for chromium, so the Region 9 screening criteria was used. Total chromium was detected at concentrations greater than the Region 9 Direct Contact PRG in 21 out of 22 samples in the South Building. Only sample S-15 (collected from the 0-6-inch interval) had a concentration below the PRG Direct Contact value. Values 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 between 0 and 6 inches in grid cell S-4, which was located in the southeast corner of the building.

Lead was detected at concentrations greater than the Ohio VAP Direct Contact Standard in only 1 of the 13 samples. Sample S-6 was collected in the center of the building and had a lead concentration of 2,020 mg/kg.

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. Thirty-four (34) floor samples were collected in the North Mill Building. At all of these locations, a sample was collected from the 0- to 6-inch sampling interval, and at seven locations samples were also collected from the 6- to 12-inch interval.

The Ohio VAP does not have a Direct Contact Standard for chromium, so the Region 9 screening criteria was used. Total chromium was detected at concentrations greater than the Region 9 Direct Contact PRG value in 37 out of 41 samples in the North Building, ranging from 595 mg/kg at N-21 to 70,600 mg/kg at N-3.

The distribution of samples where chromium exceeds the PRG criteria covers virtually the entire floor of the building. Total chromium concentrations are shown on 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 are presented in Table 8.

The concentration of chromium was greater than the Region 9 Direct Contact PRG in 14 out of 15 special samples.

4.2.3.2 Polychlorinated Biphenyls (PCBs)

PCBs were detected in sample N-Special-5, but none of the results were above the Ohio VAP Direct Contact Standard. 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 (SVOCs)

Nine (9) of the 15 special samples were analyzed for SVOCs. None of the samples had concentrations greater than the Ohio VAP Direct Contact Standards or the USEPA Region 9 PRGs. The analytical results for SVOCs are presented in Table 10.

4.2.3.4 Total Petroleum Hydrocarbons (TPH)

The 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. TPH concentrations were above the Ohio VAP Direct Contact Standard in special sample S-Special-6 for both C10-20 and C20-34. S-Special-6 was collected from the eastern portion of the South Mill Building. 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 OEPA VAP cleanup standards or (where not available) USEPA Region 9 PRGs. In addition, the floors of the Mill Buildings were visually inspected to evaluate their materials of construction. Results of the investigation are summarized below:

- Chromium concentrations were above the Region 9 Direct Contact PRG in 10 of the 14 bin samples.
- Chromium concentrations were above the Region 9 Direct Contact PRG throughout the North and South Mill Buildings.
- Lead and arsenic were each detected above the Ohio VAP Standard in one sample in the South Mill Building.
- TPH concentrations were above the Ohio VAP Standard in one Special Sample from the South Mill Building.
- PCBs were not detected in concentrations above the Ohio VAP Standard.
- Semi-volatile organic compounds were not identified above in concentrations above the Ohio VAP Direct Contact Standard or the Region 9 Direct Contact PRG in any of the 15 special samples. Most constituents were below detection limits.
- Approximately 25,800 square feet of concrete floor is present in the South Mill Building.
- Approximately 42,300 square feet of concrete floor is present in the North Mill Building.

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 chromium in concentrations above the screening level.

TABLES

**Sample Distribution in the Mill Buildings
Former Satralloy Site
August 7-9, 2006**

TABLE 1

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

South Mill Building Special Sample Descriptions
Former Satalloy Site
 August 7-9, 2006

TABLE 2

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) 20 ft. x 8 ft. (surficial*)	White to Gray pile of "gravel."
S-Special #2	S-7	68 ft. x 35 ft. x 12 ft. (surficial*)	Dark-colored stained soil.
S-Special #3	S-9	20 cubic yards (estimate)	Black stained soil pile.
S-Special #4	S-8	10 cubic yards (estimate)	Gray soil / material with dark staining piled in bin. Bin dimensions are 21 ft. x 18 ft. x 5 ft. (LxWxH) Material fills about 1/3 of bin.
S-Special #5	S-1	24 ft. x 15 ft. (surficial)	Powder-like substance in conveyor room.
S-Special #6	S-7	2 cubic yards (estimate)	Very similar in appearance to S-Special #2 and from the same Grid Cell.
S-Special #7	S-6	Interrittent throughout center of building. Largest patch is 129 ft. x 20 ft. (surficial*)	Stained soil pile in corner of building.
S-Special #8	S-11 and surrounding cells.	Interrittent 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.	Interrittent 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.

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

North Mill Building Special Sample Descriptions
Former Sattralloy Site
 August 7-9, 2006

TABLE 3

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. Appears to be same material as N-Special #1
N-Special #2	N-23	Same as N-Special #1	Black sandy material (looks like and is packaged like Activated Carbon)
N-Special #3	N-20	approximately 1 cubic yard in each sack. 51 ft. x 24 ft. (surficial*)	Gray Powder / soil
N-Special #4	N-15	60 ft. x 60 ft. (surficial*)	Stained soil. Looks more like moisture than an "oily stain" (Lawhon description was "oily stain")
N-Special #5	N-26, 15 & 16	Unknown	According to Lawhon "Flue Dust" was present in this grid cell. Golder did not observe any material resembling dust here.
N-Special #6	N-9		

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

**Sample Analysis Summary
Former Sattralloy Site
August 7-9, 2006**

TABLE 4

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)

Total Metals
Bin Samples
Former Sattralloy Site
Steubenville, Ohio
August 7-9, 2006
(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
Ohio VAP Generic Direct Contact Standard.	1,000,000	1,200	80	200,000	5,700	NC	770	450*	40,000	41,000*	100,000*	1,800	NC	19,000*	300	57,000	NC	15,000	15,000	NC	240	27,000	900,000
Industrial / Commercial																							
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	0.60 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	0.70	16,200	0.41 B	25.4	9.6	24.1	27,300	23.4	9,550	759 J	0.025 B	30.4	1,130	0.89	<1.2	<58.4	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	<58.6	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	<55.3	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	<52.2	0.86 B	17.8	52.4
NB-21	11,800	1.3 B	6.7	76.0	0.28 B	35,500	0.55	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	<52.8	1.4	12.5	75.9
NB-2	2,240	2.6 B	6.1	26.4 B	<0.69	34,000	0.059 B	2,920	2.1	16.0	9,030	7.3	12,800	895 J	<0.14	368	139 B	<0.69	<1.4	<68.7	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	<71.7	<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	0.70 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	0.20 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	<69.3	1.2 B	31.2	74.6
E	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	<69.0	<1.4	34.6	101 J

Notes:

1. NC - Criterion Data not Included in Ohio VAP or Region 9 PRG Lists
2. NA = Not Analyzed
3. "J" - Indicates a result that is 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. "29" Bold Italics - indicates value is above the establish criterion.
6. "7,8" Italics * - indicates the criterion is a Region 9 PRG Industrial - Direct Contact value
7. B - Estimated result. Result less than reporting limit.

TABLE 6

053-1695.130

Total Metals
South Mill Building Floor Soil Samples
Former Satrially Site
Steubenville, Ohio
August 7-9, 2006
(values in mg/kg)

Parameter	Ohio VAP Generic Direct Contact Standard, Industrial / Commercial							
Arsenic	80	200,000	770	450*	1,800	300	15,000	15,000
Barium	0-6"	50.5	0.26 B	1,840	9.0	0.061 B	<2.8	<5.5
	0-6"	32.8	145	5.9	2,170	0.057 B	3.5	<6.1
S-2	0-6"	10.3	70.8	0.95	1,810	0.022 B	<0.61	<1.2
S-3	0-6"	22.8	89.1	6.4	4,910	0.029 B	1.0	<1.3
S-4	0-6"	4.8	47.5	0.29 B	1,520	<0.15	0.77	<1.5
S-5	0-6"	80.4	177	1.9	2,040	0.062 B	<10.3	<20.6
S-6	0-6"	35.2	145	1.7	1,510 J	0.064 B	<5.1	<10.2
A (S-6 DUP)	0-6"	7.4	55.0	0.65	988	<0.1	0.65	<1.0
S-7	0-6"	60.9	155	17.6	1,600	0.070 B	3.2 B,G	<7.2
S-8	0-6"	5.6	68.9	0.56	1,750	<0.11	0.42 B	<1.1
S-9	0-6"	15.3	80.6	1.9	1,870	0.031 B	0.42 B	<1.1
S-10	0-6"	12.3	96.1	1.6	1,200	0.038 B	0.44 B	<1.3
S-11	0-6"	6.1	60.8	0.61	1,670 J	0.023 B	<0.57	<1.1
S-12	0-6"	9.3	70.7	2.9	1,820	0.023 B	<0.59	<1.2
S-12	6-12"	4.7	50.8	0.34 UR	1,220	0.015 B	<0.56	<1.1
S-13	0-6"	27.2	106	4.6	930	0.052 B	3.6 B,G	<8.0
S-14	0-6"	40.0	88.8	0.93	621	0.056 B	2.5 B,G	<6.4
S-15	0-6"	5.5	98.9	0.28 UR	215	0.042 B	0.57 B	<1.6
S-16	0-6"	14.3	50.4	5.2	1,510	0.15	2.9	0.92 B
S-17	0-6"	18.4	95.9	1.0 UR	497	0.029 B	3.3 B,G	<1.5
S-18	0-6"	10.3	42.6	1.3	845	0.043 B	<0.62	0.38 B
S-19	0-6"	6.6	85.4	0.38 UR	590	0.026 B	<0.62	<1.2
S-19	6-12"	6.0	85.3	0.38 UR	721	0.022 B	<0.75	<1.5
S-20	0-6"	12.4	91.6	1.1	793	0.034 B	0.48 B	<1.4

Notes:

1. NC - Criterion Data not included in Ohio VAP or Region 9 PRG Lists

2. NA = Not Analyzed.

3. "T" - Indicates a result that is 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. "29" Bold Italics - indicates the value is above the establish criterion.

6. "7.8**" Italics * - indicates the criterion is a Region 9 PRG Industrial - Direct Contact value.

7. B - Estimated result. Result less than reporting limit.

8. UR - Data is rejected at the quantitation limit due to a laboratory quality control deficiency.

9. G - indicates an elevated detection limit due to matrix interferences.

TABLE 7

053-1695.130

Total Metals
North Mill Building Floor Soil Samples
Former Satalloy Site
Steuensville, Ohio
August 7-9, 2006

Parameter	Ohio VAP Generic Direct Contact Standard, Industrial / Commercial	80	200,000	770	450*	1,800	300	15,000	15,000
Silver	N-1	0.6"	45.6	0.39 UR	3,010	45.5	0.018 B	0.48 B	<1.1
	N-2	0.6"	11.6	67.5	2,920	286	1.1	0.69	0.54 B
Arsenic	N-3	0.6"	<20.2	39.1 B, G	70,600	344	0.061 B	<10.1	<20.2
	N-4	0.6"	7.6	51.2	1,560	384	0.069 B	<0.6	5.5
Barium	N-5	0.6"	21.8	415	2,690	300	0.037 B	<2.9	<1.2
	N-6	0.6"	3.9	38.4	1,550	30.5	<0.12	0.55 B	<1.2
Cadmium	N-7	0.6"	16.8	49.9	1,790	41.0	0.016 B	0.51 B	<1.1
	N-8	0.6"	9.8	130	1,340	225	0.49	2.4 B, G	<1.3
Chromium	N-9	0.6"	4.3	58.6	1,730	65.3	0.038 B	0.46 B	<1.2
	N-10	0.6"	10.8	69.0	2,910	507	0.050 B	0.70	0.68 B
Lead	N-11	0.6"	8.4	94.4	2,930	133	0.15 B	1.4	<1.9
	N-12	0.6"	<1.1	41.4	1,730	27.3	<0.11	0.62	<1.1
Mercury	N-13	0.6"	4.2	48.7	1,010	35.2	0.11 B	<0.7	<1.4
	N-14	0.6"	8.0	89.3	1,560	127	0.067 B	0.57	<1.0
Selenium	N-15	0.6"	6.4	85.8	310	21.9	<0.12	<0.6	<1.2
	N-16	0.6"	3.1	47.7	2,080	303	0.058 B	0.62 B	<1.3
Copper	N-17	0.6"	6.9	92.4	2,100	88.6	<0.11	0.45 B	<1.1
	N-18	0.6"	7.0	90.3	878	36.2	0.029 B	0.55 B	<1.2
Zinc	N-19	0.6"	6.7	77.3	2,230	122	<0.13	0.65	<1.3
	N-20	0.6"	18.1	81.2	1,750	406	0.052 B	<0.59	<1.2
Manganese	N-21	0.6"	0.87 B	8.0 B	595	80.8	0.016 B	<0.52	<1.0
	N-22	0.6"	1.9	41.6	3,130	28.7	<0.12	0.81	<1.2
Nickel	N-23	0.6"	3.7	43.2	5,030	142	0.023 B	<0.63	<1.3
	N-24	0.6"	3.1	29.5	1,660	49.9	0.024 B	0.48 B	<1.3
Vanadium	N-25	0.6"	29.0	165	2,240	285	0.06 B	0.78	<1.4
	N-26	0.6"	16.7	15.3 B, G	<6.5	142	0.29	8.1	6.2 B, G
Cobalt	N-27	0.6"	5.9	73.6	841	217	0.074 B	1.3	<1.3
	N-28	0.6"	12.9	83.9	814	231	0.29	<0.55	<1.1
Molybdenum	N-29	0.6"	7.6	29.8	1,140	41.2	0.28	<0.55	<1.1
	N-29	6-12"	4.8	99.3	428	130	0.058 B	0.81	<1.1
Antimony	N-30	0.6"	6.7	106	925	125	0.14	1.1	<1.1
	N-31	0.6"	14.3	96.8	1,240	339	0.36	1.6	<1.2
Bismuth	N-32	0.6"	11.3	45.3	1,130	41.0	0.11	2.1 B, G	<1.1
	N-33	0.6"	19.6	49 B, G	7.1	32.0	0.56	11.2	6.7 B, G
Thallium	N-34	0.6"	17.0	133	1,540	213	1.7	0.92	1.7
	C (N-15 DUP)	0.6"	7.3	75.7	1580 J	182	0.082 B	<0.57	<1.1
Platinum	D (N-32 DUP)	0.6"	46.7	83.1	657 J	920	0.97	8.1	0.50 B

Notes:

1. NC - Criterion Data not Included in Ohio VAP or Region 9 PRG Lists

2. NA = Not Analyzed

3. "J" - Indicates a result that is 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. "29" Bold Italic - Indicates value is above the establish criterion.

6. "7.8" Italic * - Indicates the criterion is a Region 9 PRG Industrial - Direct Contact value.

7. B - Estimated result. Result less than reporting limit.

8. UR - Data is rejected at the quantitation limit due to a laboratory quality control deficiency.

9. G - Indicates an elevated detection limit due to matrix interferences.

Client Draft
 Attorney-Client Privileged Material - Prepared at Direction of Legal Counsel
 Golder Associates

TABLE 8

053-1695.130

Total Metals
North and South Mill Buildings - Special Samples
Former Satalloy Site
Steubenville, Ohio
August 7-9, 2006
(values in mg/kg)

Parameter	Ohio VAP Generic Direct Contact Standard. Industrial / Commercial					
Arsenic	80	200,000	770	450*	1,800	300
Barium	38.3	0.21 B	2,170	78.2	<0.12	0.57B
Cadmium	1.6	<12.2	14.9 B, G	<6.1	11.1	<6.1
Chromium	1.8	2.8B	0.057 B	404	9.4	<0.10
Lead	9.3	53.0	1.8	1,650 J	145	0.075B
Mercury	11.1 B, G	88.6 B, G	1.8 B, G	931	97.3	0.08B
Selenium	1.3	24.6	0.16 B	1,540 J	4.1	<0.10
Silver	9.0	72.6	0.77	2,420 J	17.8	0.019B
	9.5	82.0	1.8	1,930 J	92.5	<0.11
	12.5	35.2	2.2	1,760 J	303	0.077B
	32.4	155	1.3	1,550 J	1,130	<0.12
	13.3	92.0	1.5	3,060 J	49.8	<0.18
	7.0	60.9	1.2	1,680 J	70.4	<0.10
	6.1	60.6	0.62	1,850 J	65.1	0.015B
	5.1	88.7	0.46 B	451 J	15.3	0.042B
	60.7	44.4	1.3	2,500 J	555	0.049B

Notes:

1. NC - Criterion Data not included in Ohio VAP or Region 9 PRG Lists
2. NA = Not Analyzed.
3. "J" - Indicates a result that is 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. "29" Bold Italics - indicates value is above the establish criterion.
6. "7.8" Italics * - indicates the criterion is a Region 9 PRG Industrial - Direct Contact value.
7. B - Estimated result. Result less than reporting limit.

TABLE 9

053-16953.130

PCBs Concentrations -
North and South Mill Buildings - Special Samples
Former Satalloy Site
Steubenville, Ohio
August 7-9, 2006
(values in mg/kg)

Parameter	Ohio VAP Generic Direct Contact Standard. Industrial / Commercial						
Aroclor 1016	NA	NA	NA	NA	NA	16,000	16,000
Aroclor 1221	NA	NA	NA	NA	NA	16,000	16,000
Aroclor 1232	NA	NA	NA	NA	NA	16,000	16,000
Aroclor 1242	NA	NA	NA	NA	NA	16,000	16,000
Aroclor 1248	NA	NA	NA	NA	NA	16,000	16,000
Aroclor 1254	NA	NA	NA	NA	NA	16,000	16,000
Aroclor 1260	NA	NA	NA	NA	NA	16,000	16,000
N-Special #1	NA	NA	NA	NA	NA	NA	NA
N-Special #2	NA	NA	NA	NA	NA	NA	NA
N-Special #3	<.038	<.038	<.038	<.038	<.038	<.038	<.038
N-Special #4	NA	NA	NA	NA	NA	NA	NA
N-Special #5	<0.041	<0.041	<0.041	<0.041	<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	<0.038
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	<0.059
S-Special #6	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
S-Special #7	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
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	<0.036

Notes:

1. 29 - Bold Italic - Indicates result is greater than the Ohio VAP Direct Contact Standard

2. NA = Not Analyzed

3. Applicable VAP Standard for Unknown Soil Type

4. "J" - Indicates a result that is estimated by the laboratory

TABLE 10-A

Semi Volatile Organics
North and South Mill Buildings - Special Samples
Former Saratoga Site
Steubenville, Ohio
August 7-9, 2006
(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
Ohio VAP Generic Direct Contact Standard, Industrial / Commercial	180,000.00	NC	290,000.00	880,000.00	7.8*	62,000*	63.00	63.00	630.00	NC	6.30	21,000*	NC	0.58*	230.00	NC	220.00	100,000*
N-Special #1	NA	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	NA
N-Special #3	NA	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	NA
N-Special #5	<10	<10	<2	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
N-Special #6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Special #7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Special #8	<350	<350	<71	<350	ND (<350)	<350	ND (<350)	ND (<350)	ND (<350)	<350	ND (<350)	<350	<350	<350	ND (<350)	<350	ND (<350)	<350
S-Special #1	<1.5	<1.5	<3	800 J	<1.5	<1.5	1,600	1,600	570 J	450 J	890 J	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
S-Special #2	<38	<38	<077	<38	<38	<38	026 J	063 J	022 J	053 J	043 J	<38	<38	<38	066 J	<38	<38	<38
S-Special #3	<1.5	<1.5	<3	047 J	<1.5	<1.5	200 J	350 J	140 J	220 J	270 J	<1.5	<1.5	<1.5	190 J	<1.5	<1.5	<1.5
S-Special #4	<250	<250	<51	<250	ND (<250)	<250	ND (<250)	ND (<250)	ND (<250)	<250	ND (<250)	<250	<250	<250	ND (<250)	<250	ND (<250)	<250
S-Special #5	<350	<350	<071	<350	<350	<350	033 J	063 J	035 J	058 J	047 J	<350	<350	<350	35 U	<350	ND (<350)	<350
S-Special #6	<540	<540	<110	<540	<540	<540	023 J	067 J	017 J	027 J	024 J	<540	<540	<540	140 J	<540	ND (<540)	<540
S-Special #7	120 J	<1.4	<290	250 J	<1.4	<1.4	520 J	780 J	280 J	380 J	420 J	<1.4	<1.4	<1.4	14 U	<1.4	<1.4	<1.4

Notes:

1. NC - Criterion Data not Included in Ohio VAP or Region 9 PRG Lists
2. NA - Not Analyzed
3. "T" - Indicates result that is 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. "29" Bold Italic - Indicates value is above the establish criterion
6. "7.8" Bold Italic - Indicates the criterion is a Region 9 PRG Industrial - Direct Contact value
7. ND - standard lab detection limit is above the comparison concentration

TABLE 10-B

Semi Volatile Organics
North and South Mill Buildings - Special Samples
Former Satalloy Site
Steubenville, Ohio
August 7-9, 2006
(values in 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
Ohio VAP Generic Direct Contact Standard, Industrial / Commercial	10,000.00	2,500 *	NC	NC	240 *	NC	NC	6,700.00	6.70	1,600 *	450.00	1,800 *	640.00	59,000.00	100,000 *	100.00	25,000 *
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	<10	<10	<10	<10	<10	<10	1,000 J	<10	<10	<49	<10	<10	<10	<10	<10	<10
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	ND (<350)	ND (<350)	<350	<1,700	<350	<350	<350	<350	ND (<350)	<350
S-Special #3	490 J	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	1,900	130 J	330 J	<7.3	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
S-Special #4	<380	<380	<380	<380	<380	<380	<380	035 J	0090 J	<380	<1,900	<380	<380	<380	<380	029 J	<380
S-Special #5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	230 J	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	ND (<250)	ND (<250)	<250	<1,200	<250	<250	<250	<250	ND (<250)	<250
S-Special #7	<350	<350	<350	<350	<350	<350	<350	043 J	013 J	<350	<1.7	<350	<350	<350	<350	<350	<350
S-Special #8	<540	<540	<540	<540	<540	<540	<540	038 J	<540	<540	<6	<540	<540	<540	<540	<540	<540
S-Special #9	150 J	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	710 J	099 J	<1.4	<6.9	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4

Notes:

1. NC - Criterion Data not included in Ohio VAP or Region 9 PRG Lists
2. NA = Not Analyzed
3. "J" - Indicates a result that is 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. "2x" **Bold Italic** - Indicates value is above the establish criterion.
6. "7.8" **Italic** * - Indicates the criterion is a Region 9 PRG Industrial - Direct Contact value
7. ND - standard lab detection limit is above the comparison concentration.

TABLE 10-C

Semi Volatile Organics
North and South Mill Buildings - Special Samples
Former Saratoy Site
Steubenville, Ohio
August 7-9, 2006
(values in 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
Ohio VAP Generic Direct Contact Standard: Industrial / Commercial	NC	NC	\$,800.00	2,900.00	33,000.00	120,000.00	120.00	22*	3,700*	2,900.00	67.00	4,600.00	NC	31,000*	3,100*	\$50.00	1,800*
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	<49	<10	<10	460 J	<10	<10	<10	<49	<10	<10	<10	<10	<10	<10	<10	<49
N-Special #6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Special #7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Special #8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-Special #1	<1,700	<1,700	<350	<350	<350	<350	ND (<350)	ND (<350)	<1,700	<350	ND (<350)	<350	<350	<350	<350	<350	<1,700
S-Special #2	<7.3	<7.3	<1.5	<1.5	4,700 J	400 J	<1.5	<1.5	<7.3	<1.5	.390 J	<1.5	<1.5	<1.5	<1.5	280 J	<7.3
S-Special #3	<1,900	<1,900	<380	<380	.056 J	<380	<380	<380	<1,900	<380	.055 J	<380	<380	<380	<380	<380	<1,900
S-Special #4	<7.2	<7.2	<1.5	<1.5	370 J	<1.5	<1.5	<1.5	<7.2	<1.5	190 J	<1.5	<1.5	<1.5	<1.5	<1.5	<7.2
S-Special #5	<1,200	<1,200	<250	<250	<250	<250	ND (<250)	ND (<250)	<1,200	<250	ND (<250)	<250	<250	<250	<250	<250	<1,200
S-Special #6	<1.7	<1.7	<350	<350	.049 J	<350	<350	<350	<1.7	<350	.044 J	<350	<350	<350	<350	<350	<1.7
S-Special #7	<2.6	<2.6	<540	<540	043 J	<540	<540	<540	<2.6	<540	.020 J	<540	<540	<540	<540	<540	<2.6
S-Special #8	<6.9	<6.9	<1.4	<1.4	1,100 J	110 J	<1.4	<1.4	<6.9	<1.4	310 J	<1.4	<1.4	<1.4	<1.4	.058 J	<6.9

Notes:

1. NC - Criterion Data not Included in Ohio VAP or Region 9 PRG Lists
2. NA = Not Analyzed
3. "J" - Indicates a result that is 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. "29" **Bold Italic** - Indicates value is above the establish criterion
6. "7.8" **Italic** - Indicates the criterion is a Region 9 PRG Industrial - Direct Contact value
7. ND - standard lab detection limit is above the comparison concentration.

Semi Volatile Organics
North and South Mill Buildings - Special Samples
Former Satalloy Site
Steubenville, Ohio
August 7-9, 2006
(values in 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
Ohio VAP Generic Direct Contact Standard.	82*	82*	370.00	NC	NC	0.25*	41,000.00	240.00	NC	1,000,000.00	25,000.00	290,000.00	18,000.00
Industrial / Commercial													
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	<49	<10	<10	<49 R	<10	<10	<10 R	.780 J	<10	2,200 J	<10	<10
N-Special #6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Special #1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-Special #2	ND (<1,700)	ND (<1,700)	<350	<350	<1,700	ND (<350)	<350	ND (<350)	ND (<350)	<350	<350	<350	<350
S-Special #3	<7.3	<7.3	<1.5	<1.5	<7.3	<1.5	<1.5	<1.5	3,700	<1.5	3,700	<1.5	<1.5
S-Special #4	ND (<1,900)	ND (<1,900)	<380	<380	<1,900	ND (<380)	<380	<380	.015 J	<380	.032 J	<380	<380
S-Special #5	<7.2	<7.2	<1.5	<1.5	<7.2	<1.5	<1.5	<1.5	.180 J	<1.5	.300 J	<1.5	<1.5
S-Special #6	ND (<1,200)	ND (<1,200)	<250	<250	<1,200	ND (<250)	<250	ND (<250)	ND (<250)	<250	<250	<250	<250
S-Special #7	<1.7	<1.7	<350	<350	<1.7	<350	<350	<350	.023 J	<350	.038 J	<350	<350
S-Special #8	<2.6	<2.6	<340	<340	<2.6	<340	<340	<340	.030 J	<340	.032 J	<340	<340
S-Special #9	<6.9	<6.9	<1.4	<1.4	<6.9	<1.4	<1.4	<1.4	.920 J	<1.4	.790 J	<1.4	<1.4

Notes

1. NC - Criterion Data not Included in Ohio VAP or Region 9 PRG Lists
2. NA = Not Analyzed.
3. "r" - Indicates a result that is 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. "29" **Bold Italics** - indicates value is above the establish criterion.
6. "7.8" **Bold Italics** * - indicates the criterion is a Region 9 PRG Industrial - Direct Contact value
7. R - Data is rejected at the quantitation limit due to a laboratory quality control deficiency.
8. ND - standard lab detection limit is above the comparison concentration.

Total Petroleum Hydrocarbons
North and Sour Mill Buildings - Special Samples
Former Sattalloy Site
Steubenville, Ohio
August 7-9, 2006
(values in mg/kg)

TABLE 11

Parameter	Ohio VAP Generic Direct Contact Standard.	
	5000 *	2000 *
C ₂₀ -C ₃₄	N-Special #1	
	N-Special #2	
C ₁₀ -C ₂₀	N-Special #3	
	N-Special #4	
	N-Special #5	
	N-Special #6	
	S-Special #1	
	S-Special #2	
	S-Special #3	
	S-Special #4	
	S-Special #5	
	S-Special #6	
	S-Special #7	
	S-Special #8	
	S-Special #9	

- Notes:
1. NC - Criterion Data not Included in Ohio VAP or Region 9 PRG Lists
 2. NA = Not Analyzed.
 3. * Applicable VAP Standard for Unknown Soil Type
 4. "f" - Indicates a result that is estimated by the laboratory
 5. "29" **Bold Italics** - indicates value is above the establish criterion.
 6. "7.8*" **Italics** * - indicates the criterion is a Region 9 PRG Industrial - Direct Contact value.

FIGURES

APPENDIX A

MEMORANDUM

TO: Lee Holder	DATE: August 24, 2007
FR: Tom Stapp	OUR 053-1695.340
RE: Data Validation Summary of Satalloy Mill samples	REF:

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 Checklist (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.