

US EPA ARCHIVE DOCUMENT

United States Environmental Protection Agency – Region 5

Determination of No Further Action

**The Former Steel Abrasives, Inc.
2727 Symmes Road
Fairfield, OH 45014
OHD 091 831 313**

Introduction

This document for the former Steel Abrasives, Inc. (currently Night Hawk Inc.) located at 2727 Symmes Road, Fairfield, OH 45014, and hereinafter referred to as “SAI” or “Facility,” explains the basis for the United States Environmental Protection Agency’s (EPA’s) determination that no further action is required for this Facility. This document summarizes information that can be found in greater detail in the Site file for this Facility, including these specific files from the EPA Region 5 Records Center:

- A.1.3 Press Releases / Public Notices
- A.2 Part A/ Interim Status
- A.3.1 Correspondence
- A.3.2 Monitoring
- A.3.4 Sampling Visits
- A.4.1 - A.4.5 Correspondence / Financial
- A.4.2-A.4.3 Equivalency Demonstration
- B.1.2-B.1.11 Part B Permit Appl. / Post-Closure
- C.3 Enforcement Confidential
- D.2.7 Sampling Visits and Investigations
- F.1 Imagery / Special Studies

The EPA and the Ohio EPA (OEPA), which directed the closure of regulated units at the facility, encourage the public to review these documents in order to gain a more comprehensive understanding of the Facility and the Resource Conservation and Recovery Act (RCRA) regulated activities that have been conducted there.

Determination

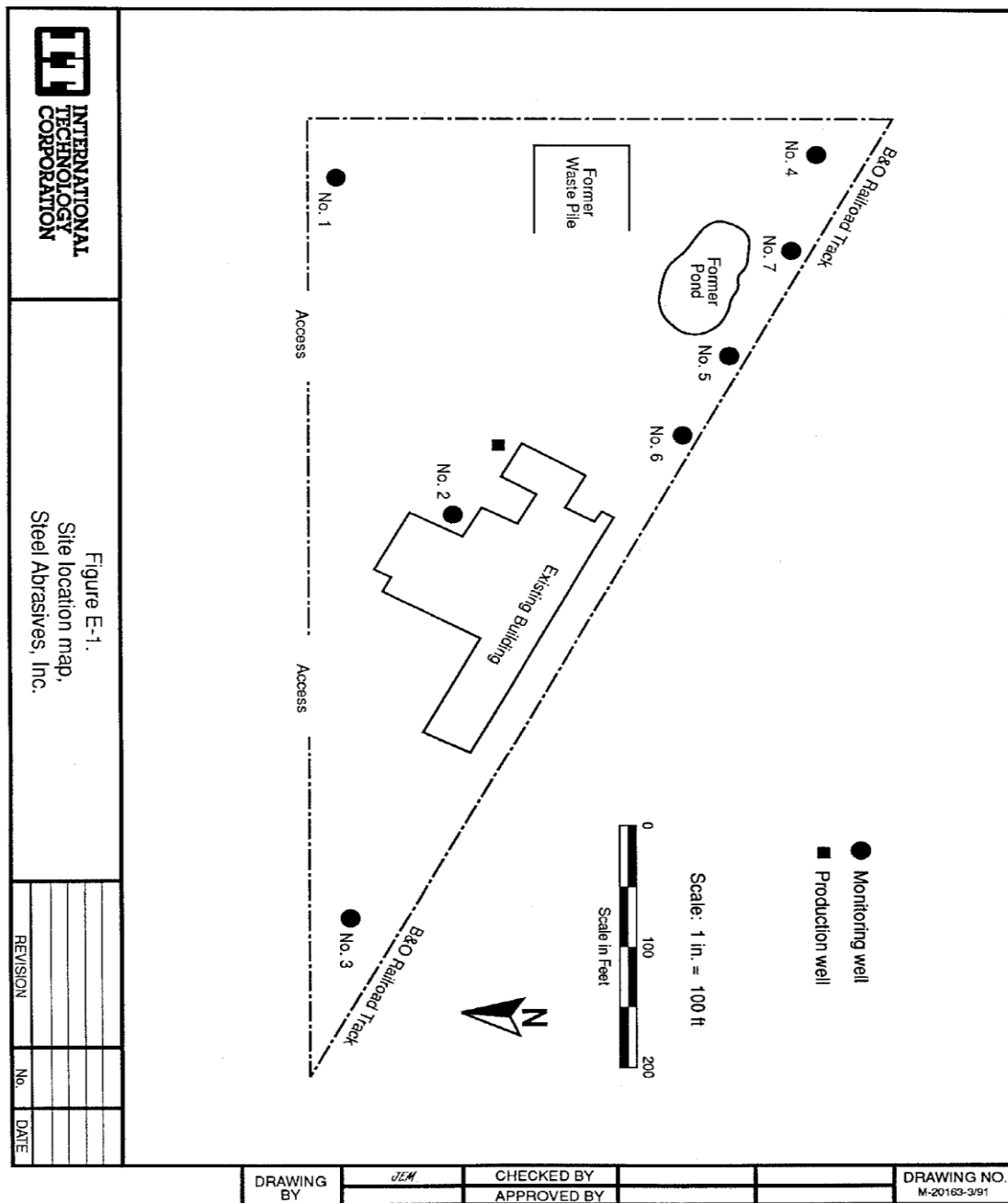
EPA has made a determination that no further action by the federal RCRA corrective action program is required at the former SAI facility at this time.

Facility Background

The SAI facility is located in eastern Fairfield, Butler County, Ohio, at 2727 Symmes Road. The property is triangular shaped and bordered on the north by Symmes Road, on the south by the Baltimore and Ohio Railroad, and on the east by vacant wooded property and occupies approximately four acres. It is about 0.75 miles east of Ohio Route 4. The site is generally level, with a minor slope and poor drainage to the southeast. **The SAI facility is depicted in Figure 1**

below:

Figure 1. - The Former Steel Abrasives Facility



The manufacturing facilities were centrally located with the former buildings oriented parallel with the railroad tracks. SAI's principal business was the manufacture of steel shot. The plant melted steel scrap and coke in a cupola to produce 2.7 % carbon molten iron for the production of steel shot.

Steel shot blasting is the most widely used process for cleaning, stripping and improving a metal surface. The grade or size of steel shot will determine the ultimate finish achieved on the surface of the metal. The round ball shape of the steel shot produces a clean, smooth and polished surface through a peening action created by the acceleration of the shot. In a peening application, steel shot is also used to impart compressive strength to torque or load bearing metal parts such as crankshafts, engine turbine blades and heavy-duty springs. Steel shot is also often used as grinding material for slag from steelmaking as well as limestone and other hard materials for abrasive products.

The facility used scrap metals as a raw material and stockpiled it to the northeast of the former manufacturing building. The plant itself contained a furnace for melting scrap metal, and a scrubbed exhaust system which trapped dust and debris (by-products) from this furnace. Molten steel from the furnace was produced in a cupola and poured into a shot tower for making steel shot. In the shot tower, the molten steel was dropped through a copper sieve high in the tower. The liquid steel formed steel spheres (referred to as "shot") by surface tension, then solidified as they fell. The partially cooled steel shot were caught at the base of the tower in a water-filled basin and quenched, and any remaining impurities from the steel were trapped here. After cooling, the steel shot were checked for roundness and sorted by size; those that were "out of round" were re-melted. The cooling waters in the basin as well as the scrubbed exhaust system by-products were discharged to a surface impoundment area (sludge pond) in the southeast area of the property, which had a depth of about 4-5 feet below ground surface. (See Site Layout, Figure 1.) SAI periodically removed the sediments in the surface impoundment and placed the sediments in the sludge pile area located northeast of the surface impoundment.

Management and Waste Generation History

Management

SAI was owned and operated by Park-Ohio Industries, Inc. SAI operated this facility for the process described in the preceding section since the mid-1970s until 1988. EPA has located no information on how the area was used before this time. The facility shut down in 1988 and was decommissioned in 1990, when SAI declared bankruptcy. Park-Ohio Industries sold the remaining assets of the former SAI (land and building) to Night Hawk Inc., an over the road trucking terminal. Night Hawk Inc., according to their present safety manager, generates a minimum amount of waste from a small parts cleaning machine, which is recycled by a licensed waste hauler (Safety Kleen) who picks up the waste on a monthly basis.

Waste Generation History

The SAI Inc. Part A Permit (Notification of Waste Activity) dated June 8, 1981 listed SAI as a Large Quantity Generator (LQG), generating waste code D008 (lead) and D006 (cadmium). Prior to 1984, SAI handled and stored process wastewater and sludge from the shot making process in a surface impoundment (sludge pond) and an onsite storage pile. The sludge from the shot making process contained significant amounts of D008 and D006 wastes, which are listed wastes defined by 40 CFR §261.24 to be characteristically hazardous for the elements lead and cadmium.

SAI operated two (2) solid waste management units (SWMUs), and one area of concern (AOC). These were: (See the Figure 1).

SWMU 1 – The former Storage Pile (Metal Scrap used for melting and making of steel shot)

SWMU 2 – The former Sludge Pond (an unlined surface impoundment where SAI placed sludge from the cooling water used to quench the lead shot at the bottom of the shot tower along with by-products of the scrubbed exhaust system. SAI moved any non-steel metals and slag/sludge which were generated onsite to the sludge pond.)

AOC 1 – Soils of the entire SAI site, possibly contaminated by site waste generation activities.

In 1984, SAI contacted OEPA to initiate closure of the sludge pond, storage pile, and the surrounding soils on the site. In late 1984, SAI received instruction from OEPA on how to proceed to closure. In late 1984, SAI wrote and implemented the closure plan which was approved by OEPA. On May 21, 1985, OEPA certified that SAI completed a clean closure in accordance with the plan approved by OEPA.

Hydrogeological Setting

The SAI facility is located in southwest Ohio in the Mill Creek Valley (Deep Stage Licking River), approximately 2 miles east of the confluence with the Deep Stage Hamilton River. Bedrock in the area is at or greater than 200 feet below ground surface. The bedrock is overlain by a mantle of sand and gravel deposited by glacial melt waters. The sand and gravel is overlain by low permeability tills (unsorted, unstratified deposits of sand, silt and clay) deposited during glaciations of the area.

Water in the immediate area is obtained from wells extending into the sand and gravel layer, and production rates of the wells vary from approximately 500 to 1500 gallons per minute. Potentiometric water levels approximately ½ mile east of the site vary from 40 to 65 feet below existing elevations for this deep aquifer system.

Borings at the site penetrated between 11 and 14.5 feet of sandy silty clay underlain by silty sand and sandy silt, 2-4 feet in thickness. The sand and silt is underlain by sandy silty clay extending

to the depths explored. The sand and silt layer comprises the upper-most aquifer at the site. However, the quantity of water produced from this layer is insufficient for supply. Producing wells for drinking water purposes are in the bedrock 150-250 ft. below ground surface.

Ecological Setting

The SAI facility exists within a mixed-use industrial/commercial area in Fairfield, Ohio. The facility layout is provided in Figure 1, earlier in this document.

Vegetation in and around the SAI facility consists of primarily coarse native grasses that cover most of the undeveloped land.

No endangered species are known or observed to inhabit the local area. The Licking and Hamilton Rivers and its tributaries are home to many species of fish including Crappie, Bluegill and Carp.

Investigations

EPA conducted a remedial facility assessment (RFA) of SAI in 1988, to address the more stringent clean-closure of facilities standards instituted by EPA in 40 CFR Part 265. These standards necessitated re-evaluation of sites subject to clean closure standards in place prior to that time. The RFA at SAI was a three-step process, 1) a preliminary review of background materials 2) followed by a Visual Site Inspection (VSI) with photographs to update and supplement data gathered at the initial review, and finally, 3) (if it appears that a chemical release occurred), a sampling visit to determine if any releases occurred which may be found harmful to human health or the environment. The EPA conducted this sampling as a part of that RFA which showed general site soils (outside the storage pile and sludge pond areas) to exceed the allowable concentrations for clean closure of the entire facility.

SAI's hydrogeology contractor, Soil and Material Engineers, Inc. (SMEI) studied local geology and performed core borings to study soil lithology and to determine groundwater flow direction and speed. Five (5) monitoring wells were advanced at the site, one background well and four downgradient wells. Groundwater was sampled by SMEI and analyzed by International Technology Laboratory (IT Lab). Site contaminants (principally lead and cadmium) were found to be either non-detects, or concentrations below drinking water standards of that time. The results of the groundwater testing are shown in Table 1, and soil results are found in Appendix A, Table 2.

Scope of Corrective Action

The intention of corrective measures is to eliminate the threat of exposures by meeting the following objectives:

- Remediating contamination which presents a risk to human health or the environment, or eliminating the pathways of exposure to such contaminants;

- Appropriately managing any residual wastes disposed on-site such that they do not present a risk to human health or the environment, and
- Protecting sensitive ecosystems.

Performance Standards for Corrective Measures

Remedial alternatives must meet three performance standards, which are the main objectives of a corrective action program under the RCRA.

1. Protect human health and the environment;
2. Achieve media cleanup objectives, and
3. Remediate the sources of releases.

OEPA's closure standards and EPA's rejection of SAI's Equivalency Petition dated September 18, 1990, required SAI to set up a groundwater monitoring system and sample it. The rejection of this petition exists in the Site file, in *Section D 2.7; "Sampling Visit Reports/Investigations '88-'91"*). The RFA soil sampling results (*contained in the Section D 2.7; "Sampling Visit Reports/Investigations '88-'91"* which is in the Site file) showed concentrations of lead and cadmium to be greater than two (2) standard deviations from the mean above the farm soil background numbers used in OEPA guidance.

In response to EPA's RFA, and in an effort to complete the cleanup, SAI employed IT Corporation, and Soil Measurement Engineers, Inc. (SMEI), who then prepared a workplan for removal of any and all contamination at the facility and re-sampling of the area for lead and cadmium metals. EPA received this workplan on September 6, 1990. The workplan called for removal of one additional foot of soil from the surface of the entire uncovered area of the SAI facility. SAI undertook this removal work after EPA approval of the workplan on February 19, 1991. This activity was concluded in early 1991 under supervision by EPA. The results of the post cleanup soil analysis are shown in Appendix A.

With the prior groundwater analysis that was performed by Pedco, Inc., (PEI) in 1983, shown in Table 1, and the post excavation soil sample results shown in Appendix A, Table 2, indicating no known areas of soil contamination remaining at the facility, SAI formally requested withdrawal of their EPA Part B Permit. In a July 23, 1991, letter, EPA informed SAI that the sampling met the requirements of EPA, and approved the request for withdrawal of their Part B permit and of their OEPA Hazardous Waste Generator number. This approval was based on the results of the workplans completed to that date and the fact that SAI was no longer operating at the facility and had abandoned the site. Only one small vacant building was left on the property.

At the present time, Night Hawk Inc. owns the property, having purchased it at auction from the proceeds of the SAI bankruptcy. Night Hawk Inc., had its contractor, Environmental Assessment Services (EAS), Inc., perform an environmental assessment prior to Night Hawk Inc.'s acquisition of the property.

CONCLUSION

Based upon the information presented in this document and in the Site file regarding releases and remedial actions performed at the Facility to address those releases, EPA has determined that no further action by the federal RCRA corrective action program is necessary at SAI at this time. The site conditions were assessed against the objectives for eliminating threats from the facility named above and EPA believes that the management of the site has met those objectives. After review of the efforts undertaken at the site by SAI and confirmed by the sampling conducted by SMEI and PEI, EPA believes that the cleanup of the site was effective and met the three performance standards listed above.

Since post cleanup sampling data on the soils and groundwater were below regulatory limits for known contaminants linked to the operations of SAI, and since the site is now used by a trucking company which does not generate, store, treat or dispose of hazardous wastes, EPA recommends no further action at the SAI facility.

All former SWMUs and AOCs do not present concern for human health and the environment under the current conditions. Thus, EPA believes the site has achieved a CA070NO (no further investigation needed), CA400 (remedy decision), CA550-NR (remedy construction complete-no remedy) CA 900 NC (No Controls are Necessary).

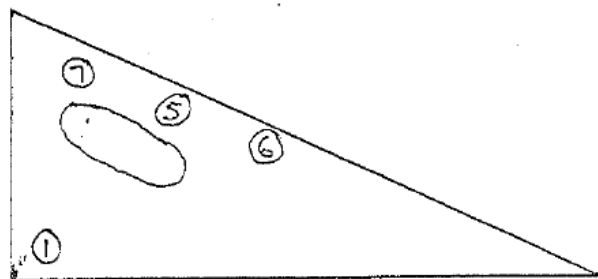
EPA reserves the right to change, modify or otherwise rescind this determination based on new information or information not available to EPA at the time of this determination.

Table 1 - Groundwater Monitoring Results

(Results reported non-filtered, as sampled.) Turbid waters are likely to contain metals, but turbid water is not usually consumed in water systems.

PEDCO ENVIRONMENTAL, INC.

11499 CHESTER ROAD
CINCINNATI, OHIO 45246
(513) 782-4700
TELECOPIER (513) 782-4807



FIELD DATA

STEEL ABRASIVES COMPANY

PN 8080-H

Well No.	B1	B5	B6	B7
Date collected	9/27/83	9/27/83	9/27/83	9/27/83
PEDCo lab No.	DD 079	DD 080	DD 081	DD 082
DTW before sampling, ft ^a	625.24 7.2	620.11 7.1	622.33 6.0	619.94 8.7
Volume of water removed, gal	4	4	3.5	5
Was well pumped dry	Yes	No	No	Yes
Field analyses				
pH	7.45	7.42	7.64	11.71
Temperature, °C	24.5	25.6	24.5	24.8
Spec. conductance, µmhos	800	1210	920	1490
Physical appearance	Slightly turbid	Slightly turbid	Cloudy	Cloudy with white floc

^a Measured to top of PVC casing

Table 1 – Continued

PEDCO ENVIRONMENTAL, INC.
11499 CHESTER ROAD
CINCINNATI, OHIO 45246
(513) 782-4700

LABORATORY ANALYSIS REPORT

SAMPLE TYPE: WELL WATERS

CLIENT: STEEL ABRASIVES CO.
2727 SYMMES ROAD
FAIRFIELD, OH 45014

PROJECT NO: 8080-H
REQUISITION: 4819
RECEIVED: 9/27/83
SAMPLED BY: PEDCO
REPORTED: 11/7/83

ATTN: MR. HOWARD GREEN

DRINKING WATER SUITABILITY PARAMETERS

WELL NUMBER:	B-1	B-5	B-6	B-7	
PEDCO LAB NUMBER:	DD079	DD080	DD081	DD082	
PARAMETER	UNITS				
ARSENIC	UG/L	<7	8	<7	13
BARIUM	UG/L	124	152	122	173
CADMIUM	UG/L	5.7	<0.2	0.4	0.3
CHROMIUM	UG/L	4.5	7.0	6.2	1.8
LEAD	UG/L	20	2.9	18	3.9
MERCURY	UG/L	<0.4	<0.4	<0.4	<0.4
SELENIUM	UG/L	<6	<6	<6	<6
SILVER	UG/L	2.4	21.5	1.0	1.4
FLUORIDE	MG/L	0.36	0.57	0.53	0.29
NITRATE	MG/L N	0.38	0.11	0.10	0.07
ENDRIN	UG/L	<0.02	<0.02	<0.02	<0.02
METHOXYCHLOR	UG/L	<10	<10	<10	<10
LINDANE	UG/L	<0.01	<0.01	<0.01	<0.01
TOXAPHENE	UG/L	<0.5	<0.5	<0.5	<0.5
2,4-D	UG/L	<5	<5	<5	<5
2,4,5-TP	UG/L	<0.5	<0.5	<0.5	<0.5
TOTAL RADIUM	PCI/L	<3	<3	<3	<3
GROSS ALPHA	PCI/L	<5	<5	<5	7
GROSS BETA	PCI/L	<3	<3	8	17
TOT. COLIFORM	#/100ML	<1	*	*	<1

* "CONFLUENT"; COLONIES GREW INTO EACH OTHER AND COULD NOT BE COUNTED

SUBMITTED BY:



Table 1 – Continued

PEDCO ENVIRONMENTAL, INC.
11499 CHESTER ROAD
CINCINNATI, OHIO 45246
(513) 782-4700

LABORATORY ANALYSIS REPORT

SAMPLE TYPE: WELL WATERS

CLIENT: STEEL ABRASIVES CO.
2727 SYMMES ROAD
FAIRFIELD, OH 45014

PROJECT NO: 8080-H
REQUISITION: 4819
RECEIVED: 9/27/83
SAMPLED BY: PEDCO
REPORTED: 11/7/83

ATTN: MR. HOWARD GREEN

PARAMETERS ESTABLISHING GROUNDWATER QUALITY

WELL NUMBER:		B-1	B-5	B-6	B-7
PEDCO LAB NUMBER:		DD079	DD080	DD081	DD082
PARAMETER	UNITS				
CHLORIDE	MG/L	32.2	78.8	51.2	29.8
PHENOLS	MG/L	<0.02	<0.02	<0.02	<0.02
SULFATE	MG/L	28.4	131	41.0	24.8
IRON	MG/L	12.6	10.3	10.9	1.27
MANGANESE	UG/L	273	471	534	54.6
SODIUM	MG/L	7.47	34.4	12.3	18.0

Table 1 - Continued

FIELD DATA					
STEEL ABRASIVES COMPANY					
PN 8080-I					
	Top of PVC liner	632.44	627.21	628.33	627.94
Well No.		B1	B5	B6	B7
Date collected		12/20/83	12/20/83	12/20/83	12/20/83
PEDCo Lab No.		DH 650	DH651	DH652	DH653
DTW before sampling, ft ^a		622.4' 10	619.9' 7.3	619.3 9.0	619.7 8.2
Volume of water removed, gal		5	4	5	4
Was well pumped dry		Yes	No	No	Yes
Field analyses					
pH		6.32	6.47	6.50	8.54
Temperature, °C		12.2	16.4	15.5	15.0
Spec. conductance, µmhos		675	1150	850	495
Physical appearance		Slightly turbid	Cloudy	Cloudy grey/black	Clear

^a Measured to top of PVC casing.

Table 1 - Continued

PEDCO ENVIRONMENTAL, INC.
11499 CHESTER ROAD
CINCINNATI, OHIO 45246
(513) 782-4700

LABORATORY ANALYSIS REPORT

SAMPLE TYPE: WELL WATERS

CLIENT: STEEL ABRASIVES CO.
2727 SYMMES ROAD
FAIRFIELD, OH 45014

PROJECT NO: 8080-I
REQUISITION: 5097
RECEIVED: 12/20/83
SAMPLED BY: PEDCO
REPORTED: 2/6/84

ATTN: MR. HOWARD GREEN

DRINKING WATER SUITABILITY PARAMETERS

WELL NUMBER:	B-1	B-5	B-6	B-7	Append	
PEDCO LAB NUMBER:	DH650	DH651	DH652	DH653	III	
PARAMETER	UNITS					
ARSENIC	UG/L	1.3	2.3	<0.6	<0.6	50
BARIUM	UG/L	92.1	175	118	71.3	1000
CADMIUM	UG/L	<0.2	<0.2	<0.2	<0.2	10
CHROMIUM	UG/L	4.8	8.9	8.5	6.9	50
LEAD	UG/L	<5	<5	8	5	50
MERCURY	UG/L	<0.2	<0.2	<0.2	<0.2	2
SELENIUM	UG/L	<2	3	2	<2	10
SILVER	UG/L	<0.4	0.5	<0.4	<0.4	50
FLUORIDE	MG/L	0.28	0.42	0.40	0.31	1.4-2.4
NITRATE	MG/L N	0.18	0.16	0.12	0.02	10
ENDRIN	UG/L	<1	<1	<1	<1	2
METHOXYCHLOR	UG/L	<1	<1	<1	<1	100
LINDANE	UG/L	<1	<1	<1	<1	4
TOXAPHENE	UG/L	<1	<1	<1	<1	5
2,4-D	UG/L	<1	<1	<1	<1	100
2,4,5-TP	UG/L	<0.2	<0.2	<0.2	<0.2	10
TOTAL RADIUM	PCI/L	<3	<3	<3	<3	5
GROSS ALPHA	PCI/L	<5	<5	<5	<5	15
GROSS BETA	PCI/L	<10	<10	<10	<10	4 mcp/yr
TOTAL COLIFORM #/100 ML		<1	*	*	<1	1

* "CONFLUENT"; COLONIES GREW INTO EACH OTHER AND COULD NOT BE COUNTED

SUBMITTED BY:

Craig H. Brownell

Table 1 – Continued

PEDCO ENVIRONMENTAL, INC.
 11499 CHESTER ROAD
 CINCINNATI, OHIO 45246
 (513) 782-4700

LABORATORY ANALYSIS REPORT

SAMPLE TYPE: WELL WATERS

CLIENT: STEEL ABRASIVES CO.
 2727 SYMMES ROAD
 FAIRFIELD, OH 45014

PROJECT NO: 8080-I
 REQUISITION: 5097
 RECEIVED: 12/20/83
 SAMPLED BY: PEDCO
 REPORTED: 1/6/84

ATTN: MR. HOWARD GREEN

PARAMETERS ESTABLISHING GROUNDWATER QUALITY

WELL NUMBER:		B-1	B-5	B-6	B-7
PEDCO LAB NUMBER:		DH650	DH651	DH652	DH653
PARAMETER	UNITS				
CHLORIDE	MG/L	4.30	8.84	3.79	35.1
PHENOLS	MG/L	<0.02	<0.02	<0.02	<0.02
SULFATE	MG/L	43.9	131	49.4	83.3
IRON	MG/L	5.22	8.60	6.84	0.36
MANGANESE	UG/L	203	400	356	47.5
SODIUM	MG/L	7.91	27.4	13.5	14.6

Table 1 - Continued

PEDCO ENVIRONMENTAL, INC.
11499 CHESTER ROAD
CINCINNATI, OHIO 45246
(513) 782-4700

LABORATORY ANALYSIS REPORT

SAMPLE TYPE: WELL WATERS

CLIENT: STEEL ABRASIVES CO.
2727 SYMMES ROAD
FAIRFIELD, OH 45014

PROJECT NO: 8080-I
REQUISITION: 5097
RECEIVED: 12/20/83
SAMPLED BY: PEDCO
REPORTED: 1/6/84

ATTN: MR. HOWARD GREEN

PARAMETERS USED AS INDICATORS OF GROUNDWATER CONTAMINATION

WELL NUMBER:		B-1	B-5	B-6	B-7
PEDCO LAB NUMBER:		DH650	DH651	DH652	DH653
PARAMETER	UNITS				
PH	SU	7.12 7.18 7.20 7.19	6.90	9.80	7.31
CONDUCTIVITY	UMHOS	757 762 768 762	1202	879	456
TOTAL ORGANIC CARBON	MG/L	25.6 26.1 26.1 25.8	27.7	29.7	4.0
TOTAL ORGANIC HALOGEN	UG/L	<10 <10 <10 <10	21	<10	24

SUBMITTED BY:

Craig H. Ballou

Table 1 – Continued

PEDCO ENVIRONMENTAL, INC.
11479 CHESTER ROAD
CINCINNATI, OHIO 45246
(513) 782-4700

LABORATORY ANALYSIS REPORT

SAMPLE TYPE: WELL WATERS

CLIENT: STEEL ABRASIVES CO.
2727 SYMMES ROAD
FAIRFIELD, OH 45014

PROJECT NO: 9080-1
REQUISITION: 5385
RECEIVED: 3/22/84
SAMPLED BY: PEDCO
REPORTED: 5/10/84

ATTN: MR. HOWARD GREEN

DRINKING WATER SUITABILITY PARAMETERS

WELL NUMBER:	B-1	B-5	B-6	B-7	
PEDCO LAB NUMBER:	DLO36	DLO37	DLO38	DLO39	
PARAMETER	UNITS				
ARSENIC	UG/L	<2.5	5.5	5.0	<2.5
BARIUM	UG/L	129	217	149	92.5
CADMIUM	UG/L	<0.5	<0.5	<0.5	<0.5
CHROMIUM	UG/L	4.0	1.2	1.3	<0.8
LEAD	UG/L	7	39	14	<5
MERCURY	UG/L	<0.3	<0.3	<0.3	<0.3
SELENIUM	UG/L	<2	<2	<2	<2
SILVER	UG/L	<0.3	0.8	<0.3	<0.3
FLUORIDE	MG/L	0.35	0.55	0.46	0.34
NITRATE	MG/L N	0.15	0.06	0.06	0.02
ENDRIN	UG/L	<0.02	<0.02	<0.02	<0.02
METHOXYCHLOR	UG/L	<10	<10	<10	<10
LINDANE	UG/L	<0.01	<0.01	<0.01	<0.01
TOXAPHENE	UG/L	<0.5	<0.5	<0.5	<0.5
2,4-D	UG/L	<5	<5	<5	<5
2,4,5-TP	UG/L	<0.5	<0.5	<0.5	<0.5
TOTAL RADIUM	PCI/L	<3	<3	<3	<3
GROSS ALPHA	PCI/L	15	10	13	<3
GROSS BETA	PCI/L	19	<10	<10	<10
TOTAL COLIFORM #/100 ML		*	<1	*	<1

* COULD NOT DISTINGUISH BETWEEN COLONIES AND THICK SEDIMENT LAYER.

SUBMITTED BY:

Craig H Caldwell

Table 1 - Continued

PEDCO ENVIRONMENTAL, INC.
 11499 CHESTER ROAD
 CINCINNATI, OHIO 45246
 (513) 782-4700

LABORATORY ANALYSIS REPORT

SAMPLE TYPE: WELL WATERS

CLIENT: STEEL ABRASIVES CO.
 2727 SYMMES ROAD
 FAIRFIELD, OH 45014

PROJECT NO: 8080-1
 REQUISITION: 5385
 RECEIVED: 3/22/84
 SAMPLED BY: PEDCO
 REPORTED: 5/10/84

ATTN: MR. HOWARD GREEN

PARAMETERS ESTABLISHING GROUNDWATER QUALITY

WELL NUMBER:		B-1	B-5	B-6	B-7
PEDCO LAB NUMBER:		DL036	DL037	DL038	DL039
PARAMETER	UNITS				
CHLORIDE	MG/L	25.5	90.7	49.4	32.6
PHENOLS	MG/L	0.04	<0.03	<0.03	0.03
SULFATE	MG/L	38.1	155	77.0	116
IRON	MG/L	8.27	6.49	6.85	0.75
MANGANESE	MG/L	0.28	0.50	0.51	0.14
SODIUM	MG/L	9.16	26.1	15.2	19.6

Appendix A (Containing Table 2 Soils Data, post Excavation) EPA Approved 1990 Workplan, for 1991 work - SMEI and IT Analytical Lab)

On May 6, 1991, IT located sampling points I-6 and J-12 and established the areas requiring further removal actions. At I-6, an area measuring 24 ft by 23 ft (552 ft²) was identified for removal. At J-12, an area 27 ft by 19 ft (512 ft²) was established. The area excavated at J-12 is the full width of the area between the property line and the building. Rectangular areas slightly larger than the elliptical areas indicated on Figures 2-2 and 2-3 were excavated due to easier control for the track hoe.

The track hoe was used to excavate all slag from the two areas. This slag was stockpiled beside the excavations and was replaced following excavation of native clay soil. The track hoe was then used to excavate a minimum of one foot of native clay soil from each excavation.

Soil excavated from the two areas was placed in lined roll-off boxes and covered for storage pending results of analysis of a composite sample of the soil.

Following excavation, each area was quartered and a soil sample was collected from the bottom of the excavation in each of the four areas. As indicated in Section 2.0, sampling was accomplished using a decontaminated stainless steel trowel. The eight samples plus a duplicate sample (J-12-1 through J-12-4, I-6-1 through I-6-4, and J-12-40) were placed in new 8-oz glass jars with Teflon lined lids. The samples were stored on ice and were delivered to ITAS for analysis of total lead and cadmium.

A sample of excavated soil was prepared for waste-characterization analysis by randomly selecting small quantities of material from the roll-off boxes and compositing into an analytical sample. The sample (K-1) was submitted to ITAS for analysis of TCLP metals.

Appendix A (Containing Table 2 Soils Data, post Excavation) EPA Approved 1990 Workplan, for 1991 work - SMEI and IT Analytical Lab)

The EPA-approved workplan requires the completion of several activities to assure excavation and removal of native clay soil exceeding stipulated criteria at Steel Abrasives' Hamilton plant. These include:

- Establish sampling grid over area of former sluiceway, lagoon and waste pile. Each grid shall be 50 ft square.
- Collect a soil sample from the upper one foot of native clay soil from each of the four quadrants of the grids.
- Analyze collected samples for total lead and cadmium.
- Compare analytical results to EPA criteria.
- Using a computer contouring package determine the area(s) exceeding the criteria, if any.
- Excavate one foot of native clay soil in the areas identified to exceed the EPA criteria.
- Collect a minimum of four soil samples from the upper one foot of native clay in each excavated area.
- Analyze collected samples for total lead and cadmium.
- Compare analytical results to EPA criteria.
- Continue excavation and sampling, if necessary.

As indicated in Sections 2.0 and 3.0 all actions required by the approved workplan have been successfully undertaken. The actions resulted in the removal of in excess of 1065 ft³ (about 40 yd³) of native clay soil for disposal.

Table 2 – Soil Sampling Results, Post Soil Excavation



ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

ITEP Corporation

Date: March 28, 1991

Attn: Mr. Bill Thompson

Job Number 21342

P.O. Number 322036

This is the Certificate of Analysis for the following samples:

Client Project ID: Steel Abrasive
Date Received: March 5, 1991
Work Order: X1-03-041 & X1-03-42
Number of Samples: 74
Sample Type: Soil

I. Introduction

Seventy-four soil samples arrived at ITAS Cincinnati on March 5, 1991. The samples were sent for analytical work in support of monitoring work on the Steel Abrasives Project. The samples were collected on March 4 & 5, 1991 and were labeled as follows:

Soil # A-1	Soil # C-4	Soil # E-600	Soil # H-2	Soil # J-3
Soil # A-2	Soil # C-5	Soil # F-1	Soil # H-3	Soil # J-4
Soil # A-3	Soil # C-6	Soil # F-2	Soil # H-4	Soil # J-5
Soil # A-4	Soil # D-1	Soil # F-3	Soil # H-5	Soil # J-7
Soil # A-5	Soil # D-2	Soil # F-4	Soil # H-6	Soil # J-8
Soil # A-6	Soil # D-3	Soil # F-5	Soil # H-100	Soil # J-9
Soil # B-1	Soil # D-4	Soil # F-6	Soil # H-500	Soil # J-10
Soil # B-2	Soil # D-5	Soil # G-1	Soil # I-1	Soil # J-11
Soil # B-3	Soil # D-6	Soil # G-2	Soil # I-2	Soil # J-12
Soil # B-4	Soil # E-1	Soil # G-3	Soil # I-3	Soil # J-13
Soil # B-5	Soil # E-2	Soil # G-4	Soil # I-4	Soil # J-14
Soil # B-6	Soil # E-3	Soil # G-5	Soil # I-5	Soil # J-100
Soil # C-1	Soil # E-4	Soil # G-6	Soil # I-6	Soil # J-800
Soil # C-2	Soil # E-5	Soil # G-600	Soil # J-1	Soil # J-1400
Soil # C-3	Soil # E-6	Soil # H-1	Soil # J-2	

Reviewed and Approved by:

Wendy Coates
Wendy Coates
Project Manager
103041

American Council of Independent Laboratories
International Association of Environmental Testing Laboratories
American Association for Laboratory Accreditation

IT Analytical Services • 11499 Chester Road • Cincinnati, OH 45246 • 513-782-4600

Table 2 – Soil Sampling Results, Post Soil Excavation

Client: Steel Abrasives
 Work Order: X1-03-041 & X1-03-042
 10304102

IT ANALYTICAL SER
 CINCINNATI, OH

Analytical Results, ug/g			
Client Sample ID	Lab No.	Cadmium	Lead
Soil # A-1	041-01	1.4	6.9
Soil # A-2	041-02	1.4	10
Soil # A-3	041-03	1.6	7.0
Soil # A-4	041-04	1.0	ND
Soil # A-5	041-05	1.6	9.6
Soil # A-6	041-06	1.3	12
Soil # B-1	041-07	1.1	8.0
Soil # B-2	041-08	1.0	7.8
Soil # B-3	041-09	1.1	9.8
Soil # B-4	041-10	1.1	ND
Soil # B-5	041-11	1.8	15
Soil # B-6	041-12	1.6	11
Soil # C-1	041-13	1.5	30
Soil # C-2	041-14	1.8	14
Soil # C-3	041-15	1.6	12
Soil # C-4	041-16	1.3	8.3
Soil # C-5	041-17	1.6	13
Soil # C-6	041-18	2.3	13
Soil # D-1	041-19	1.9	10
Soil # D-2	041-20	1.9	11
Soil # D-3	041-21	2.0	14
Soil # D-4	041-22	1.7	13
Soil # D-5	041-23	1.7	8.3
Soil # D-6	041-24	1.2	ND
Soil # E-1	041-25	1.6	7.7
Soil # E-2	041-26	1.9	13
Soil # E-3	041-27	2.5	17
Detection limits		0.2	6
ND = Not detected above the report detection limit			

Table 2. Continued

Client: Steel Abrasives
 Work Order: X1-03-041 & X1-03-042
 10304103

IT ANALYTICAL SERVICES
 CINCINNATI, OH

Analytical Results, ug/g			
Client Sample ID	Lab No.	Cadmium	Lead
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Soil # E-4	041-28	1.7	8.1
Soil # E-5	041-28	1.0	43
Soil # E-6	041-30	1.2	39
Soil # E-600	041-31	0.67	33
Soil # F-1	041-32	1.0	33
Soil # F-2	041-33	1.0	29
Soil # F-3	041-34	1.0	40
Soil # F-4	041-35	1.4	22
Soil # F-5	041-36	1.0	34
Soil # F-6	041-37	1.2	40
Soil # G-1	041-38	1.4	31
Soil # G-2	041-39	1.1	36
Soil # G-3	041-40	0.58	39
Soil # G-4	041-41	1.2	17
Soil # G-5	041-42	1.1	27
Soil # G-6	042-01	1.7	7.0
Soil # G-600	042-02	1.3	ND
Soil # H-1	042-03	2.2	10
Soil # H-2	042-04	1.1	ND
Soil # H-3	042-05	1.3	6.7
Soil # H-4	042-06	1.2	ND
Soil # H-5	042-07	1.8	8.8
Soil # H-6	042-08	1.1	ND
Soil # H-100	042-09	2.2	11
Soil # H-500	042-10	2.1	10
Soil # I-1	042-11	1.9	7.1
Soil # I-2	042-12	1.2	ND
Detection Limits		0.2	6
ND = Not detected above the reported detection limit			

Table 2. Continued

Client: Steel Abrasives
 Work Order: X1-03-041 & X1-03-042
 10304105

**IT ANALYTICAL SERVICES
 CINCINNATI, OH**

Analytical Results, ug/g			
Client Sample ID	Lab No.	Cadmium	Lead
Soil # I-3	042-13	1.1	ND
Soil # I-4	042-14	1.4	6.0
Soil # I-5	042-15	1.4	9.6
Soil # I-6	042-16	5.0	78
Soil # J-1	042-17	1.1	ND
Soil # J-2	042-18	1.6	ND
Soil # J-3	042-19	0.89	ND
Soil # J-4	042-20	1.0	ND
Soil # J-5	042-21	1.4	6.4
Soil # J-7	042-22	1.5	12
Soil # J-8	042-23	2.0	35
Soil # J-9	042-24	1.4	ND
Soil # J-10	042-25	1.3	ND
Soil # J-11	042-26	1.4	6.1
Soil # J-12	042-27	4.2	110
Soil # J-13	042-28	1.1	10
Soil # J-14	042-29	1.7	6.8
Soil # J-100	042-30	1.2	ND
Soil # J-800	042-31	2.6	43
Soil # J-1400	042-32	1.7	ND
Detection Limits		0.2	6
ND = Not detected above the reported detection limit			

Table 2. Continued

Client: Steel Abrasives
Work Order: X1-03-041 & X1-03-042
10304104

IT ANALYTICAL SERVICES
CINCINNATI, OH

Quality Assurance Data

Quality Control
Standard Reference Solutions

Analyte -----	Theoretical Value, mg/L -----	Percent Recovery -----
Cadmium	1	101, 100, 89.4, 89.0
Lead	2	98.1, 96.8, 96.4, 94.2

Name	Title	Signature	Date
Brian P. Freeman	Project Manager	/Brian P. Freeman/	8/4/14
Padmavati Bending	Regional Counsel		
Don Heller	Supervisor (Acting)		
Jose Cisneros	Branch Chief		