

553SERBSF10,632

553SERBSF10,632

Site Name (Subject): TORPEDO WIRE & STRIP, INC.

Site ID (Document ID): NCD072028251

Document Name (DocType): Contractor Report (CONTR)

Report Segment:

Description: FIT Final Screening Site Inspection Report, Phase II

Date of Document: 9/4/1990

Date Received: 11/8/1990

Box: *Enter SF and # with no spaces* SF10,632

Access Level: PUBLIC

Division: WASTE MANAGEMENT

Section: SUPERFUND

Program (Document Group): SERB (SERB)

Document Category: FACILITY

Print Report for Record

Go to New Blank Record

Go to New Record - (default to last record values)

Delete Record

RECEIVED
NOV 08 1990
SUPERFUND SECTION

FINAL

SCREENING SITE INSPECTION REPORT, PHASE II
TORPEDO WIRE AND STRIP, INC.
ROCKY MOUNT, NASH COUNTY, NORTH CAROLINA
EPA ID #NCD072028251

10/31/90
L31E
BPM

Prepared Under
TDD No. F4-9002-62
CONTRACT NO. 68-01-7346

Revision 0

FOR THE

WASTE MANAGEMENT DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

SEPTEMBER 4, 1990

NUS CORPORATION
SUPERFUND DIVISION

CERCLA

Prepared By

Sherry Durren
Sherry Durren
Project Manager

Reviewed By

Bob Donaghue
Bob Donaghue
Assistant Regional
Project Manager

Approved By

Phil Blackwell
Phil Blackwell
Regional Project Manager

NOTICE

The information in this document has been funded wholly by the United States Environmental Protection Agency (EPA) under Contract Number 68-01-7346 and is considered proprietary to the EPA.

This information is not to be released to third parties without the expressed or written consent of the EPA.

TABLE OF CONTENTS

<u>Section</u>	<u>Page No.</u>
EXECUTIVE SUMMARY	ES-1
1.0 INTRODUCTION	1
1.1 Objectives	1
1.2 Scope of Work	1
2.0 SITE CHARACTERIZATION	3
2.1 Site Background and History	3
2.2 Site Description	4
2.2.1 Site Features	4
2.2.2 Waste Characteristics	4
3.0 REGIONAL POPULATIONS AND ENVIRONMENTS	7
3.1 Population and Land Use	7
3.1.1 Demography	7
3.1.2 Land Use	7
3.2 Surface Water	7
3.2.1 Climatology	7
3.2.2 Overland Drainage	8
3.2.3 Potentially Affected Water Bodies	8
3.3 Groundwater	8
3.3.1 Hydrogeology	8
3.3.2 Aquifer Use	9
3.4 Summary of Potentially Affected Populations and Environments	9
4.0 FIELD INVESTIGATION	11
4.1 Sample Collection	11
4.1.1 Sample Collection Methodology	11
4.1.2 Duplicate Samples	11
4.1.3 Description of Samples and Sample Locations	11
4.1.4 Field Measurements	11
4.2 Sample Analysis	14
4.2.1 Analytical Support and Methodology	14
4.2.2 Analytical Data Quality	14
4.2.3 Presentation of Analytical Results	15
5.0 SUMMARY	18
REFERENCES	19
APPENDIX A	Site Inspection Report Form
APPENDIX B	Topographic Map
APPENDIX C	Analytical Results

TABLES

<u>Number</u>		<u>Page No.</u>
Table 1	Sample Codes, Descriptions, and Field Measurements	12
Table 2	Summary of Inorganic Analytical Results - Soils	16
Table 3	Summary of Inorganic Analytical Results - Groundwater	17

FIGURES

<u>Number</u>		<u>Page No.</u>
Figure 1	Site Location Map	5
Figure 2	Site Layout Map	6
Figure 3	Sample Location Map	13

EXECUTIVE SUMMARY

Torpedo Wire and Strip, Inc. is located in Nash County, North Carolina, in a rural setting north of Rocky Mount. The company has been in the business of manufacturing and electroplating wires since 1974. Until 1982, a sand filter bed was used for disposal of metal-contaminated sludges. This practice was stopped upon state recommendation. With guidance from the state, the filter bed was closed in 1984. Sample results from the filter bed area at the time of closure were below RCRA maximum contaminant levels. Waste is now treated indoors with a sludge filter bag system. Torpedo Wire and Strip is listed as a RCRA generator; waste is removed by an approved waste hauler. There have been minor incidents of noncompliance such as violation of hazardous waste holding time.

There are three unconfined aquifers, the Sunderland Formation, the Yorktown Formation, and the underlying granite, beneath Torpedo Wire and Strip. Because of its relatively high productivity, the majority of domestic wells occur in the granite layer. Much of the area is served by a public water supply which uses unthreatened surface water. As many as 445 households within 4 miles of the facility use groundwater for drinking purposes.

Surface water from Torpedo Wire and Strip drains into Compass Creek. There is fishing from the bank as well as some use of the creek water for irrigation. Compass Creek empties into the Tar River which is used commercially and recreationally. It is also a home for a federally endangered species. Torpedo Wire and Strip does not lie in a flood plain, but there are signs of intermittent streams and surface washes from the southwest corner of the property.

A field investigation conducted by the Environmental Services Division of the U.S. Environmental Protection Agency in December 1988, provided only limited analytical information on the waste at Torpedo Wire and Strip. Further investigation is needed to adequately characterize the facility. Therefore, FIT 4 recommends that the facility be considered for reevaluation at a later date.

1.0 INTRODUCTION

The NUS Corporation Region 4 Field Investigation Team (FIT) was tasked by the United States Environmental Protection Agency (EPA), Waste Management Division to prepare a Screening Site Inspection (SSI) report of the Torpedo Wire and Strip, Inc. facility in Nash County, Rocky Mount, North Carolina. The report was prepared under the authority of the Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA). Tasks will be performed to satisfy the requirements stated in Phase II of Technical Directive Document (TDD) number F4-9002-62. The field investigation was conducted by the Environmental Services Division (ESD) of the U.S. Environmental Protection Agency on December 1, 1988.

1.1 OBJECTIVES

The objectives of this inspection were to determine the nature of contaminants present at the site and to determine if a release of these substances has occurred or may occur. Further, this inspection sought to determine the possible pathways by which contamination could migrate from the site and the populations and environments it would potentially affect. Through these objectives, a recommendation was made regarding future activities at the site.

1.2 SCOPE OF WORK

The objectives were achieved through the completion of a number of specific tasks. These activities were to:

- Obtain and review relevant background materials.
- Obtain information on local water systems.
- Evaluate target populations within a 4-mile radius of the site with regard to groundwater use and air pathways.
- Evaluate target population and sensitive environments along the 15-mile surface water pathway.

- Evaluate population within a 1-mile travel distance of the site with regard to the onsite exposure pathway.
- Conduct a survey of private wells.
- Determine location and distance to nearest potable well.
- Conduct an offsite reconnaissance;.
- Complete a Site Inspection Report, provided as Appendix A in this report.
- Evaluate existing analytical data.

2.0 SITE CHARACTERIZATION

2.1 SITE BACKGROUND AND HISTORY

Torpedo Wire and Strip, Inc. (Torpedo) is located in a rural area approximately 4 miles north of Rocky Mount, Nash County, North Carolina. Geographically, the site is located at 35° 00' 03" N latitude and 77° 47' 03" W longitude (Appendix B).

The facility in North Carolina is owned by Torpedo Wire and Strip, Inc. of Pittsfield, Pennsylvania. Torpedo Wire and Strip has been operational since December 15, 1974. The nature of the business is drawing of wire and electroplating of solder, tin, and nickel on metal wires. The metal wires are made of copper, steel, nickel, copper-clad steel, copper clad nickel-iron alloy, and copper alloys (Refs. 1, 2). Following fabrication, the wire is cleaned with alcohol and rinsed with a caustic solution of hydrogen fluoroborate (HBF₄) (Ref. 3). The generated waste, wastewater and sludge from electroplating, was treated in a polypropylene-lined sand filter bed from 1974 to 1982. Since 1982, the waste has been treated by filtration through sludge bags. The waste remaining after filtration is drummed and disposed of offsite by GSX/SCA in Pinewood, South Carolina (Ref. 4).

Torpedo filed a RCRA Notification of Hazardous Waste Activity in July 1980, then filed a Part A application for a hazardous waste permit in November 1980. The listed waste was electroplating sludge (F006) (Refs. 1, 5). In 1981 Torpedo withdrew and revised its Part A application on the grounds that the original application incorrectly identified the sand filter bed as a surface impoundment rather than a treatment tank (Ref. 6). The facility's RCRA status was changed in 1982 when Torpedo was deleted as a treater/storer/disposer (Ref. 7). Torpedo has, however, retained generator status. Upon recommendation of the North Carolina Environmental Health Section, Torpedo decided to remove the sand filter bed in 1983. Closure consisted of immediate reduction in use of the filter bed and replacement with a filter bag system, a plan for drying existing sludge, removal and disposal of tank sludge by an approved hazardous waste handler, and submittal of soil samples obtained from below the filter bed for analysis (Ref. 8). The state requested that after removing the sand, liner and any contaminated soil, the remaining hole was to be filled to natural grade and covered with vegetation (Ref. 9). Samples obtained at this time did not exceed the RCRA maximum concentration level for the characteristic of toxicity. Based on these test results, the facility was exempted from installation of wells and monitoring of groundwater (Ref. 4).

A 1984 RCRA inspection of the facility found Torpedo to be in full compliance with generator standards (Ref. 10). Currently the facility is listed as a generator (Ref. 11). The Part A Application was withdrawn and interim status was terminated in March 1982 (Ref. 12). File material contains two requests for extensions of holding time for accumulated wastes (Refs. 13, 14). In 1989, Torpedo was found to be in non-compliance for not providing treatment standards documentation to hazardous waste shippers (Ref. 15). A 1985 Preliminary Assessment noted that groundwater testing had not been performed. The facility was recommended for low-priority follow-up work (Ref. 4). ESD performed a Screening Site Inspection in 1988 (Ref. 16).

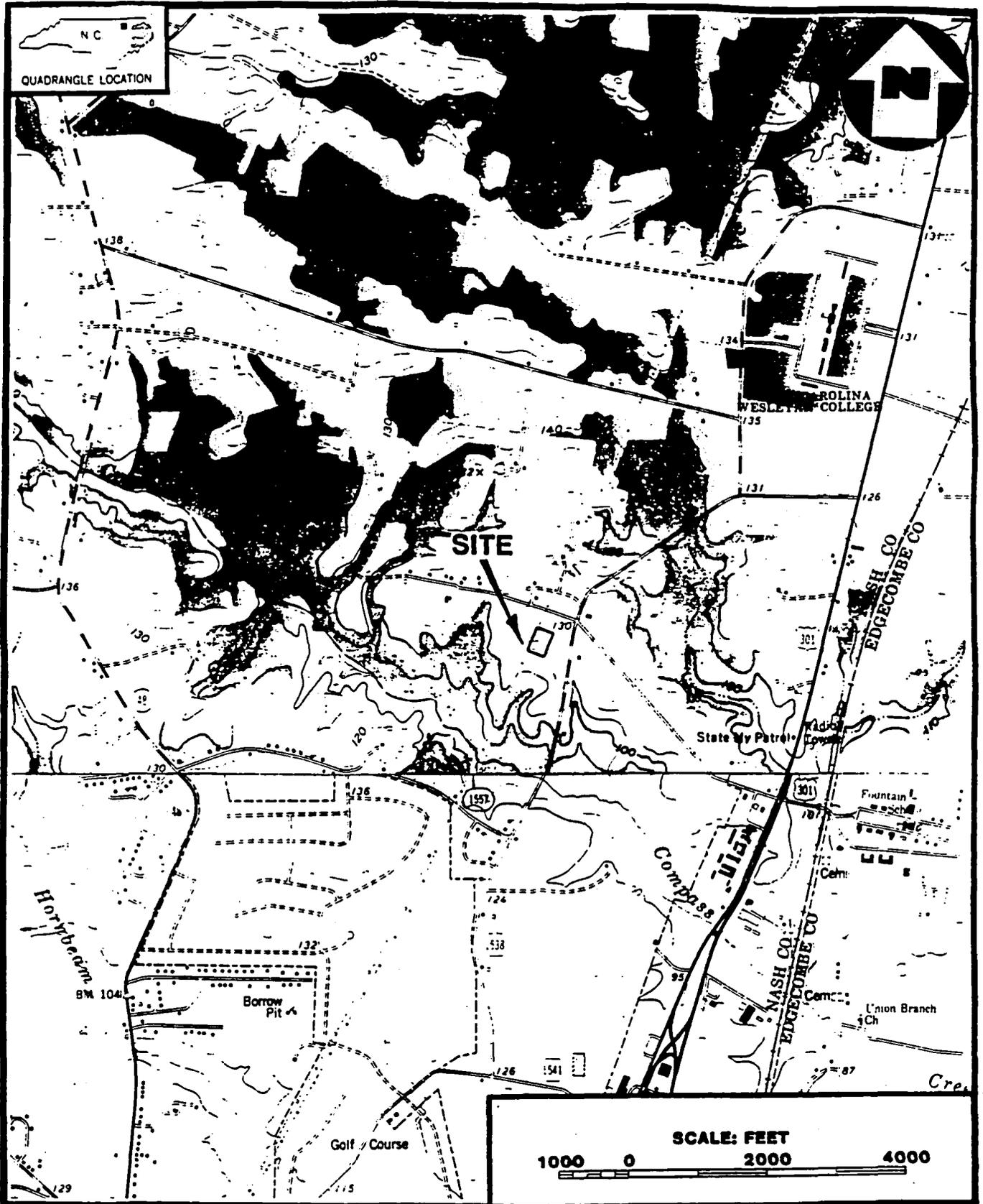
2.2 SITE DESCRIPTION

2.2.1 Site Features

Torpedo Wire and Strip is located on Instrument Drive off Highway 301, 4 miles north of Rocky Mount, North Carolina (Figure 1). There are two interconnected buildings at the facility, a wire shop and a plating shop (Figure 2). The facility is only partially fenced. Access is available from two driveways, one on the east side and one on the west side of the building. There are also two parking lots. During an offsite reconnaissance, no waste disposal areas were identified. Drums were observed on the west side of the facility. Smaller plastic drums and containers were observed on the east side (Ref. 17). The former filter bed area can no longer be seen as indicated in Figure 2. The entire area is grass covered (Ref. 18). The treatment area was filled and graded in 1983 (Ref. 19).

2.2.2 Waste Characteristics

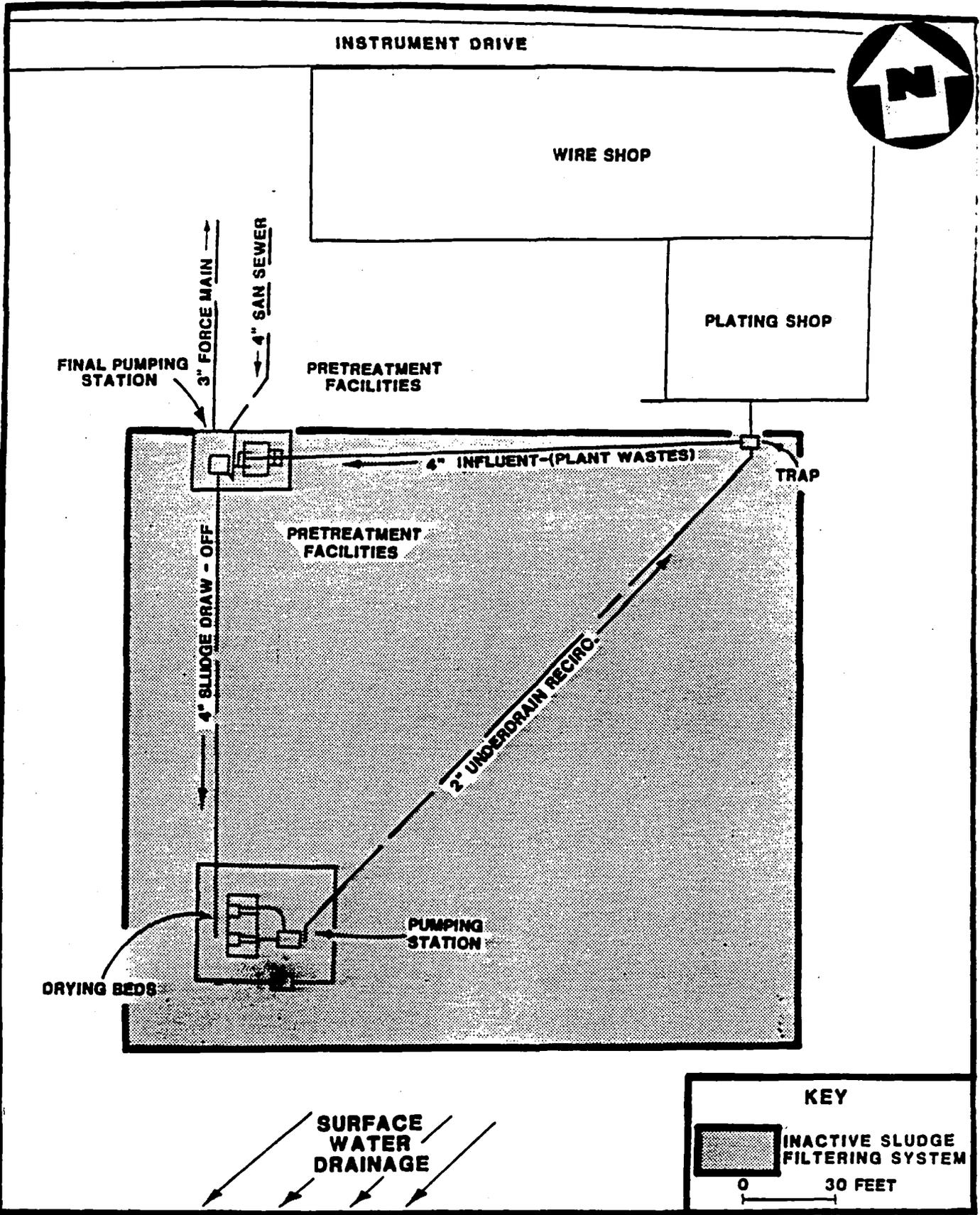
Torpedo used a sand bed filter system for eight years to treat wastewater and sludge generated from electroplating. Waste quantity was estimated at 90 tons per year (Ref. 1). During this time, cleaning of the filter bed required periodic shipment of sand and sludge to SCA/GSX in Pinewood, South Carolina. Since 1982, the waste has been treated by filtration through sludge bags. Two filter bag units containing 24 and 36 filter bags, respectively, are suspended on steel racks over a drain tank (Ref. 19). All waste treatment occurs indoors. According to Torpedo, the company produces about twenty 55-gallon drums per week of wastewater sludge. Much of their waste is directed to SCA in Pinewood, South Carolina for disposal (Refs. 4, 10). Total waste was 40,272 pounds for 1988 and 71,092 pounds for 1989 (Refs. 20, 21). Two soil samples from the filter bed were analyzed in 1983. Sample No. 1 contained 0.6 mg/l of leachable nickel and <0.5 mg/l of leachable lead. Sample No. 2 contained <0.2 mg/l of leachable nickel and <0.5 mg/l of leachable lead (Ref. 22).



BASE MAP IS PORTION OF THE U.S.G.S. 7.5 MINUTE QUADRANGLE ROCKY MOUNT, 1977, DRAKE, 1963, NORTH CAROLINA

**SITE LOCATION MAP
TORPEDO WIRE AND STRIP, INC.
ROGKY MOUNT, NASH COUNTY, NORTH CAROLINA**

FIGURE 1



**SITE LAYOUT MAP
 TORPEDO WIRE AND STRIP, INC.
 ROCKY MOUNT, NASH COUNTY, NORTH CAROLINA**

FIGURE 2



3.0 REGIONAL POPULATIONS AND ENVIRONMENTS

3.1 POPULATION AND LAND USE

3.1.1 Demography

Torpedo Wire and Strip is located in an industrial park in a rural setting in Nash County, North Carolina. The 4-mile radius surrounding the facility includes portions of both Rocky Mount (population: 41,283) and Battleboro (population: 632), with a total population of 20,911 people (Refs. 23, 24). The population distribution is 491 people between 0 and 1 mile; 3,700 people between 1 and 2 miles; 1,734 people between 2 and 3 miles; and 14,986 people between 3 and 4 miles. Population figures for the four radii were obtained from the U.S. Census Bureau data base. North Carolina Wesleyan College with a student population of 1,500 lies 0.9 mile to the northeast (Refs. 24, 25).

3.1.2 Land Use

Torpedo, which is located in an industrial park, is surrounded by several businesses including a trucking center. Cross Creek Mobile Home Park, which houses 154 people, lies adjacent to the west side of the facility. No day-care centers were identified within 1 mile of Torpedo. Additionally, there are a trailer park and one school in the 1- to 2-mile radius, four schools in the 2- to 3-mile radius, and one school and one trailer park in the 3- to 4-mile radius. There are no identified parks or boat ramps within 4 miles (Refs. 17, 25). One federally endangered species, the red-cockaded woodpecker (Picooides borealis), makes its home in the woods of Nash County. The pinebarrens sandreed (Calamovilfa brevipilis), a state-designated threatened species, occurs in Nash County (Ref. 26).

3.2 SURFACE WATER

3.2.1 Climatology

Nash County is located in northeastern North Carolina. The climate is temperate with a net annual precipitation of 7.5 inches (Ref. 27). One-year, 24-hour rainfall is approximately 3.5 inches (Ref. 28). Total annual precipitation is 47.5 inches (Ref. 27).

3.2.2 Overland Drainage

Surface water drains across the Torpedo property toward Compass Creek, which lies approximately 2000 feet to the southwest at a slope of 2.0 to 2.5 percent. There is evidence of surface washes and intermittent streams at the southwest corner of the property (Ref. 18). Compass Creek flows southeast for 4.2 miles before entering the Tar River, where the extended surface water pathway is completed (Ref. 25). The facility does not lie in a floodplain (Ref. 29).

3.2.3 Potentially Affected Water Bodies

There is recreational fishing off the banks of Compass Creek. The creek is also a minor source of irrigation water (Ref. 30). Intakes for the Rocky Mount Water Department are located on the Tar River at Sunset Avenue in Rocky Mount and at the Tar River Reservoir, 3 and 5 miles, respectively, upgradient from the Compass Creek point of entry into the Tar River (Refs. 25, 31). Rocky Mount Water Company serves all of Rocky Mount, as well as portions of Nash County. Battleboro and Dortches both purchase water from Rocky Mount. Rocky Mount has recently added water lines extending north and east of Torpedo Wire and Strip. Use of these lines is optional at the present time (Refs. 31, 32, Appendix B). There are no surface water intakes along the extended surface water pathway. Land along the pathway is rural. The main crops are tobacco, sweet potatoes, cucumbers and peanuts. The Tar River is used extensively for irrigation and recreational fishing. This section of the Tar River is an important habitat for the Tar River spiny mussel (Elliptio steinstansana), an endangered species. The Atlantic pigtoe (Fusconaia masoni), a state-designated threatened species, occurs in Nash County (Refs. 26, 30).

3.3 GROUNDWATER

3.3.1 Hydrogeology

Torpedo Wire and Strip is located in the Coastal Plain Physiographic Province of central North Carolina. This province is characterized by thick, sloping layers of sedimentary rock over crystalline bedrock (Ref. 33, p. 270). The eastern portion of Nash County is characterized by flat to gently rolling topography with steeper slopes along the drainage ways (Ref. 34, p. 3). Topographical relief near the site ranges from 100 feet to 140 feet above mean sea level (Ref. 25).

The aquifers in the area are the Sunderland Formation and the Yorktown Formation. Water is also found in the upper, weathered portion of the underlying granite. All of these aquifers are

unconfined (Ref. 34, pp. 4, 5). The Sunderland Formation is a part of the Pleistocene terrace deposits that form a series of parallel, northeast-trending belts across the Coastal Plain. It consists of cross-bedded sand with clay and gravel and ranges in thickness from 0 to 40 feet (Ref. 34, pp. 5, 7). The depth to water at the site is about 20 feet (Refs. 25; 34, p. 52). The hydraulic conductivity of this unit is 1×10^{-3} cm/sec (Ref. 35, p. 29). The Yorktown Formation consists of blue, fossiliferous marl, with clay and a small amount of sand. It ranges in thickness from 40 to 70 feet. Underlying the Yorktown Formation is granite. The granite ranges from pink, orthoclase granite to quartz monzonite and diorite (Ref. 34, pp. 5, 6).

Water is found in the pore spaces of the unconsolidated sediments of the Sunderland and Yorktown Formations and in the joints and fractures of the granite (Ref. 34, p. 48). The direction of groundwater flow is to the southeast (Ref. 34, p. 3). Wells drilled in the Sunderland Formation yield small to medium supplies. More water is obtained from wells that penetrate areas of gravel (Ref. 34, p. 5). Wells drilled in the Yorktown Formation yield small supplies ranging from 0.5 to 12 gallons per minute (gpm) (Ref. 34, pp. 5, 52). This aquifer is rarely used because of the poor quality of the water (Ref. 34, p. 48). Most of the wells in the area are drilled in the granite. Yields range from 0 to 21 gpm, depending on the degree of weathering and the amount of joints and fractures (Ref. 34, pp. 48, 52). There are several springs in the area. They are formed by the intersection of a confining layer, such as clay or massive granite, with the land surface. Yields of these springs are variable (Ref. 34, p. 48).

3.3.2 Aquifer Use

Private wells supply potable water to the residents within a 4-mile radius who are not served by the Rocky Mount Water Company. These wells have an average depth of 150 feet, but range from shallower than 150 feet down to 300 feet (Ref. 36). Households using private wells number approximately 25 in the 0-1 mile radius; 75 in the 1-2 mile radius; 215 in the 2-3 mile radius; and 130 in the 3-4 mile radius. Numbers of private well users are based on house counts obtained from topographic maps dated 1961, 1963, 1977, and 1981 (Appendix B). The nearest private well is located 1,000 feet northwest of the facility (Ref. 17).

3.4 SUMMARY OF POTENTIALLY AFFECTED POPULATIONS AND ENVIRONMENTS

There are two pathways of concern at this facility: groundwater and surface water pathways. The air pathway is not of concern at this time except as a possible source of metal-contaminated particulates. The red-cockaded woodpecker (Picoides borealis), a federally endangered species, inhabits Nash

County. Because of the insufficient file material on the nature of the soil, it is not clear whether fugitive dusts carrying metallic contaminants could be a concern.

Surface water washes from the property and drains into Compass Creek. Compass Creek flows into the Tar River. Both the creek and the river are used for fishing and irrigation. One endangered species, the Tar River spiny mussel (Elliptio steinstansana), inhabits the surface water pathway. Groundwater supplies drinking water for up to 445 residences in a 4-mile radius. Because the three aquifers beneath the Torpedo facility are unconfined, groundwater users face a potential threat of drinking contaminated water.

4.0 FIELD INVESTIGATION

4.1 SAMPLE COLLECTION

4.1.1 Sample Collection Methodology

All sample collection, sample preservation, and chain-of-custody procedures used during this investigation were in accordance with standard operating procedures as specified in Sections 3 and 4 of the Engineering Support Branch Standard Operating Procedures and Quality Assurance Manual: United States Environmental Protection Agency, Region IV, Environmental Services Division (ESD), April 1, 1986.

4.1.2 Duplicate Samples

Duplicates of groundwater samples were accepted by Loren Ota of Torpedo Wire and Strip, Inc. Receipt for sample forms are on file at FIT 4.

4.1.3 Description of Samples and Sample Locations

A total of 11 environmental samples were collected for this investigation. A subsurface soil, surface soil, and groundwater sample were collected from the center of the property. Two surface soil, three subsurface soil, and two groundwater samples were collected from the southwest and southeast corners of the former filter bed area. One sediment sample was collected from the southwest corner in a surface wash area. All sample locations are shown in Figure 3. Sample codes, descriptions, and field measurements are presented in Table 1.

4.1.4 Field Measurements

Field measurements were recorded for the groundwater samples (Table 1). Parameters measured included temperature, pH, and conductivity of the sample at time of collection. No field measurements were performed on the soil samples during this investigation.

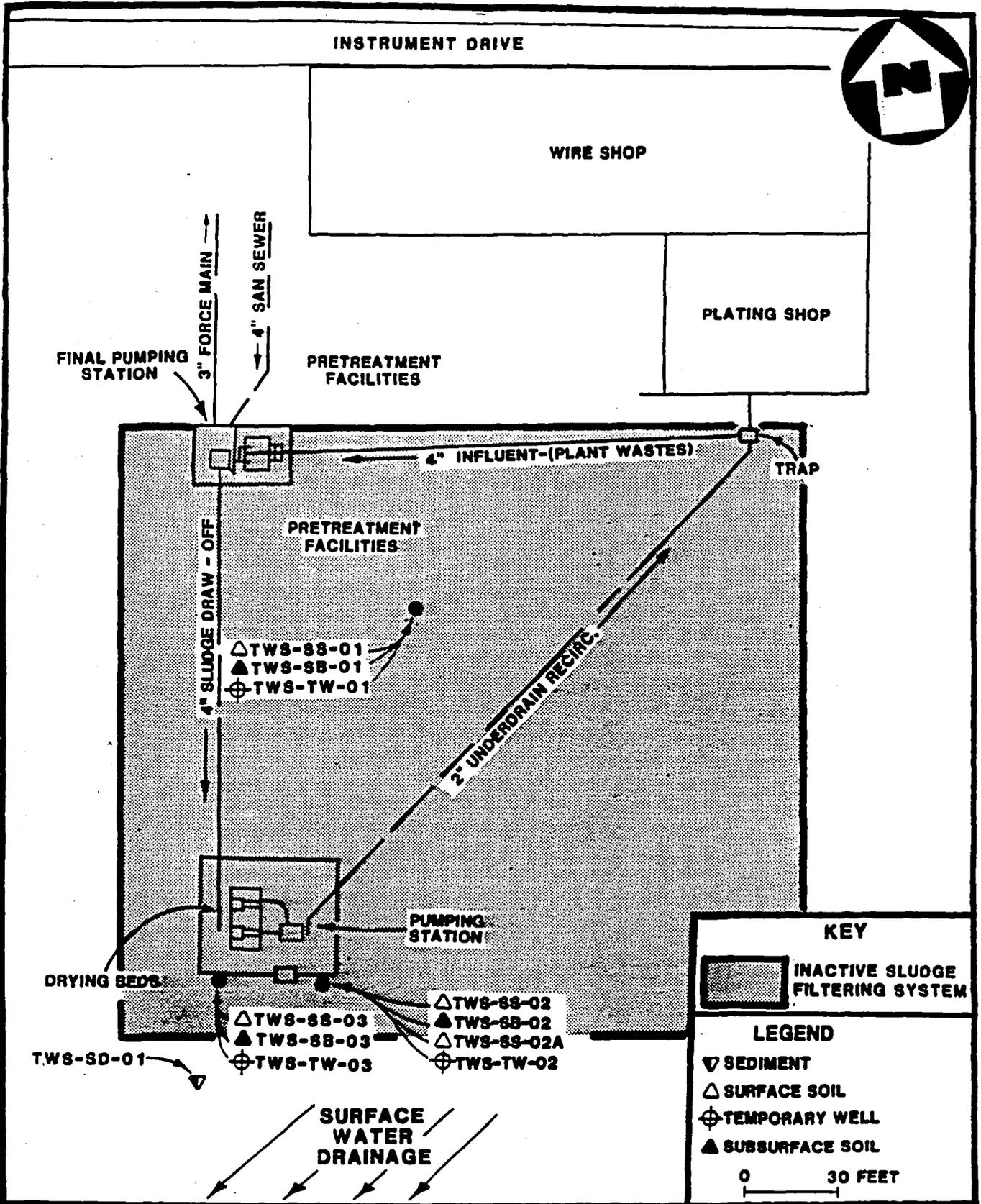
TABLE 1

**SAMPLE CODES, DESCRIPTIONS AND FIELD MEASUREMENTS
TORPEDO WIRE AND STRIP, INC.
ROCKY MOUNT, NASH COUNTY, NORTH CAROLINA**

Sample Code	Location/Description	Date (1988)	Time	Depth (ft bls)	pH	Temp (°C)	Conductivity (umhos/cm ²)
TWS-SS-01	A designated control surface soil sample collected from the center of the property, upgradient of the filter bed.	12/1	0940	NA	NA	NA	NA
TWS-SS-02	Surface soil sample collected from the southeast corner of the former filter bed.	12/1	1350	NA	NA	NA	NA
TWS-SS-03	Surface soil sample collected from the southwest corner of the former filter bed.	12/1	1215	NA	NA	NA	NA
TWS-SB-01	A designated control subsurface sample collected from the center of the property, upgradient of the filter bed.	12/1	1040	12.5	NA	NA	NA
TWS-SB-02	Subsurface soil sample collected from the southeast corner of the former filter bed.	12/1	1420	10	NA	NA	NA
TWS-SS-02A	Subsurface soil sample collected from the southeast corner of the former filter bed. This sample was designated as a surface soil sample by ESD.	12/1	1355	2	NA	NA	NA
TWS-SB-03	Subsurface soil sample collected from the southwest corner of the former filter bed.	12/1	1420	10	NA	NA	NA
TWS-TW-01	A designated control groundwater sample collected from the center of the property, upgradient of the filter bed.	12/1	1130	13.75	4.3	18.5	75
TWS-TW-02	Groundwater sample collected from the southeast corner of the former filter bed.	12/1	1455	11.85	4.7	16	100
TWS-TW-03	Groundwater sample collected from the southwest corner of the former filter bed.	12/1	1500	12.35	4.6	16	140
TWS-SD-01	Sediment sample collected from the southwest corner in a surface wash area.	12/1	1130	NA	NA	NA	NA

NA - Not Applicable
TWS - Torpedo Wire and Strip
SB - Subsurface Soil

SS - Surface Soil
SD - Sediment
TW - Temporary Well



**SAMPLE LOCATION MAP
 TORPEDO WIRE AND STRIP, INC.
 ROCKY MOUNT, NASH COUNTY, NORTH CAROLINA**

FIGURE 3



4.2 SAMPLE ANALYSIS

4.2.1 Analytical Support and Methodology

All samples collected were analyzed under the Contract Laboratory Program (CLP) and analyzed for all inorganic parameters listed in the Target Compound List (TCL). Analysis of soil and water was performed by the Analytical Support Branch, Environmental Protection Agency, Environmental Services Division, Athens, Georgia. No organic analysis of samples was performed.

All laboratory analyses and laboratory quality assurance procedures used during this investigation were in accordance with standard procedures and protocols as specified in the Analytical Support Branch Operations and Quality Assurance Manual, United States Environmental Protection Agency, Region IV, Environmental Services Division, revised June 1, 1985; or as specified by the existing United States Environmental Protection Agency standard procedures and protocols for the contract analytical laboratory program.

4.2.2 Analytical Data Quality

All analytical data were subjected to a quality assurance review as described in the EPA Environmental Services Division laboratory data evaluation guidelines. Some of the data were found to be invalid according to QA/QC procedures. Invalid data were not used in this report, since resampling and analysis would be necessary to confirm the results of all invalid data. Flanders Filters, Inc., in Washington, North Carolina was sampled on November 30, 1988. At the end of the work day, sampling equipment was decontaminated in preparation for sampling at Torpedo Wire and Strip. A rinsate blank sample was obtained. This blank contained chromium (18 ug/l), nickel (24 ug/l), zinc (150 ug/l), aluminum (260 ug/l), calcium (1.5 ug/l), magnesium (0.19 ug/l), and iron (0.19 ug/l). Field cleaning consisted of a soapy water wash, tap water rinse, and deionized water rinse. The equipment was not completely dry when wrapped with aluminum foil. Sand points and screens were cleaned on site at Torpedo Wire and Strip with the same procedure and used as needed (Ref. 21). The complete analytical data sheets are provided in Appendix C.

4.2.3 Presentation of Analytical Results

This section presents a discussion of the analytical results from the environmental samples collected during the investigation at Torpedo Wire and Strip. Results of groundwater, sediment, surface soil, and subsurface soil samples are presented in Tables 2 and 3. Interpretation of data follows.

Table 2 presents inorganic analytical results for surface soil, subsurface soil, and sediment samples. Surface sample TWS-SS-01, and subsurface sample TWS-SB-01 were designated by ESD as control samples. Without a clean, offsite background sample for comparison, it is difficult to determine the value of these samples as adequate control samples. All comparisons are tentative based on available information. The two subsurface soil samples (TWS-SB-02 and TWS-SB-03) and one sediment sample (TWS-SD-01) contained no significant metals (i.e., at least three times) above quantities detected in the control samples. Surface soil sample TWS-SS-02, collected from the southeast corner of the filter bed, contained copper (4.9 times control), lead (50 times control), nickel (56 times control), and tin (144 times control). Solder used at Torpedo Wire and Strip is an alloy of tin and lead. The lead to tin ratios most commonly used are 60:40 and 70:30. Elevated levels of lead and tin as contaminants are representative of the plating process at this facility (Refs. 2, 38). A sample collected 2 feet below TWS-SS-02, and designated as TWS-SS-02A, contained no metals above background. Sample TWS-SS-03 collected from the southwest corner of the filter bed contained a significant amount of nickel.

Table 3 presents inorganic analytical results for groundwater samples. Due to unavailability of an adequate control sample, there appear to be no significant contaminants in TWS-TW-02 and TWS-TW-03 compared to TWS-TW-01. Sample TWS-TW-02 contains smaller quantities of most metals than TWS-TW-01. Without a "clean" background sample, it is not possible to attribute contaminants to processes at the Torpedo facility. Only one element, chromium, exceeds the groundwater standard as determined by the State of North Carolina by 2 ug/l (Ref. 37).

TABLE 2

SUMMARY OF INORGANIC ANALYTICAL RESULTS
 SURFACE SOIL, SEDIMENT, AND SUBSURFACE SOIL SAMPLES
 TORPEDO WIRE AND STRIP, INC.
 ROCKY MOUNT, NASH COUNTY, NORTH CAROLINA

PARAMETERS (mg/kg)	Control	Filter Bed			Control	Filter Bed		Drainage
	TWS-SS-01	SE Corner TWS-SS-02	SE Corner TWS-SS-02A	SW Corner TWS-SS-03	TWS-SB-01	SE Corner TWS-SB-02	SW Corner TWS-SB-03	TWS-SD-01
ALUMINIUM	14,000	13,000	9200	14,000	31,000	29,000	28,000	3100
ARSENIC	-	-	-	-	15	-	-	-
BARIUM	14	16	17	16	48	36	39	79
CALCIUM	300	340	95	160	-	-	-	110
CHROMIUM	14	15	90	12	41	50	44	27
COPPER	15	73	28	87	84	-	-	3.4
IRON	9500	8600	5900	8300	24,000	60,000	36,000	2000
LEAD	87	440	11	13	20	-	16	85
MAGNESIUM	320	350	260	340	1300	740	850	110
MANGANESE	27	38	28	32	23	21	17	23
MERCURY	-	-	-	-	-	0.08	-	-
NICKEL	87	490	87	54	-	-	-	22
POTASSIUM	-	-	-	-	2800	1700	2000	-
TIN	48	690	10	4.2	-	-	-	29
VANADIUM	24	21	15	22	72	72	82	52
ZINC	14	17	53	25	23	10	15	10
STRONTIUM	25	22	17	22	24	15	16	10
TITANIUM	180	160	200	260	180	140	120	160
YTRIUM	-	27	14	32	23	90	13	14

Material analyzed for but not detected above minimum quantitation limit

TABLE 3

SUMMARY OF INORGANIC ANALYTICAL RESULTS
 TEMPORARY WELL SAMPLES
 TORPEDO WIRE AND STRIP, INC.
 ROCKY MOUNT, NASH COUNTY, NORTH CAROLINA

PARAMETERS (ug/l)	Control	Filter Bed	
	TWS-TW-01	SE Corner TWS-TW-02	SW Corner TWS-TW-03
ALUMINIUM	30,000	13,000	32,000
ARSENIC	20	-	-
BARIUM	100	63	100
CALCIUM	1.0	1.3	1.5
CHROMIUM	41	23	52
COPPER	26	-	24
IRON	41	18	32
MAGNESIUM	18	1.2	1.9
MANGANESE	37	14	35
NICKEL	23	28	61
POTASSIUM	3.1	-	3.6
SODIUM	7.3	10	18
VANADIUM	58	22	62
ZINC	84	34	86
STRONTIUM	34	19	27
TITANIUM	300	140	330
YTTORIUM	12	-	11

- Material analyzed for but not detected above minimum quantitation limit

5.0 SUMMARY

Torpedo Wire and Strip has been in the business of fabricating electroplated wires since 1974. For approximately 9 years, an outdoor sand filter bed was used for disposal of metallic sludges. When this practice stopped in 1983, all processing including waste treatment was moved indoors. The site of the old filter bed was considered to be a possible environmental threat and a site inspection was initiated.

The surface water pathway and groundwater pathway are potentially at risk due to wastes deposited at Torpedo. The surface water pathway comprised of Compass Creek and the Tar River are used for fishing and irrigation. The aquifer of concern provides drinking water for as many as 445 homes. Metallic contaminants found in surface soil samples are characteristic of the electroplating wastes found near the old filter bed area. Due to the lack of an adequate background or control sample, limited sampling and evidence of a contaminated rinsate sample, the results of this inspection are inconclusive. Based on this information, FIT 4 recommends that Torpedo Wire and Strip be considered for reevaluation at a later date. Sampling of a nearby private well is highly recommended.

REFERENCES

1. EPA Hazardous Waste Permit Application (EPA Form 3510-1) for Torpedo Wire and Strip, Inc., Rocky Mount, North Carolina. Filed by James Lybarger, Plant Manager, November 18, 1980.
2. Joan Howard, Torpedo Wire and Strip, Pittsfield, Pennsylvania, telephone conversation with Sherry Durren, NUS Corporation, April 17, 1990. Subject: Rocky Mount facility.
3. Environmental Services Division, USEPA, Field Logbook for Torpedo Wire and Strip, Inc., ESD Project #89-162. Documentation of Screening Site Inspection, December 1, 1988.
4. Potential Hazardous Waste Site Preliminary Assessment (EPA Form 2070-12) and attachments for Torpedo Wire and Strip, Inc. Filed by D. Mark Durway, Environmental Health Section, North Carolina Department of Human Resources, December 6, 1985.
5. EPA Notification of Hazardous Waste Activity (EPA Form 8700-12) for Torpedo Wire and Strip, Inc., Rocky Mount, North Carolina. Filed by Loren Ota, Vice President, July 21, 1980.
6. Loren D. Ota, Vice President of Manufacturing, Torpedo Wire and Strip, Pittsfield, Pennsylvania, letter to Gary Babb, Geologist, North Carolina Division of Health Services, November 10, 1981. Subject: Use of sand filter at Torpedo Wire and Strip.
7. O.W. Strickland, Head, Solid and Hazardous Waste Management Branch, Environmental Health Section, North Carolina Division of Health Services, Raleigh, North Carolina, letter to Jim Lybarger, Torpedo Wire and Strip, March 3, 1982. Subject: Change in RCRA status.
8. Loren Ota, Vice President of Manufacturing, Torpedo Wire and Strip, Rocky Mount, North Carolina, letter to Gary Babb, North Carolina Division of Health Services, April 8, 1983. Subject: Removal of sand filter bed from Torpedo Wire and Strip.
9. Gary Babb, Geologist, North Carolina Division of Health Services, Raleigh, North Carolina, letter to Loren Ota, Vice President of Manufacturing, Torpedo Wire and Strip, Pittsfield, Pennsylvania, April 20, 1983. Subject: Approval of closure plan for sand filter bed.

10. Billy W. Morris, Eastern Regional Office, Solid and Hazardous Waste Management Branch, memorandum to O.W. Strickland, Head, Solid and Hazardous Waste Management Branch, March 30, 1984. Subject: RCRA annual inspection.
11. North Carolina Department of Human Resources, Solid and Hazardous Waste Management, Alphabetic List of Hazardous Waste Facilities, March 15, 1990, p. 236.
12. Jim Edwards, Hazardous Waste Section, Division of Solid Waste Management, Raleigh, North Carolina, telephone conversation with Sherry Durren, NUS Corporation, June 13, 1990. Subject: RCRA status of Torpedo Wire and Strip.
13. Fred Kibler, Manufacturing Engineer, Torpedo Wire and Strip, Rocky Mount, North Carolina, letter to Jerry Rhodes, North Carolina Division of Health Services, December 7, 1987. Subject: Compliance with shipment of sludge.
14. Jerry Rhodes, Head, Hazardous Waste Management Branch, North Carolina Department of Human Resources, Raleigh, North Carolina, letter to Fred Kibler, Manufacturing Engineer, Torpedo Wire and Strip, May 6, 1988. Subject: Extension of accumulation time.
15. Jerome Rhodes, Head, Hazardous Waste Management Branch, North Carolina Department of Human Resources, Raleigh, North Carolina, letter to Fred Kibler, Manufacturing Engineer, Torpedo Wire and Strip, July 6, 1989. Subject: Notice of violation.
16. Environmental Services Division, USEPA, "Screening Site Inspection Report, Torpedo Wire and Strip, Inc., Rocky Mount, North Carolina." Prepared under ESD Project No. 89-162 for the Waste Management Division of the EPA (July 7, 1989).
17. NUS Corporation Field Logbook No. F4-2071 for Torpedo Wire and Strip, Inc., TDD No. F4-9002-62. Documentation of facility reconnaissance, March 6, 1990.
18. Sherry Durren, NUS Corporation, memo to file for Torpedo Wire and Strip, Inc., April 20, 1990. Subject: Meeting with Roger Carlton, Environmental Services Division, USEPA, Athens, Georgia, concerning sampling at Torpedo.

19. Fred Kibler, Manufacturing Engineer, Torpedo Wire and Strip, Inc., Rocky Mount, North Carolina, letter to Billy Morris, North Carolina Division of Health Services, December 16, 1983. Subject: Closure history for Torpedo Wire and Strip.
20. North Carolina 1987 Hazardous Waste Generator Only (Part A) Report for Torpedo Wire and Strip. Filed by Fred Kibler, Hazardous Waste Management Branch, North Carolina Department of Human Resources, February 2, 1988.
21. North Carolina 1988 Hazardous Waste Generator That Does On-site Treatment, Storage, or Disposal - TSD Facility Report for Torpedo Wire and Strip. Filed by Fred Kibler, February 15, 1989.
22. James Thacker, Technical Director, Grainger Laboratories, Raleigh, North Carolina, memorandum to Fred Kibler, Torpedo Wire and Strip, October 12, 1983. Subject: Analyses of samples received October 10, 1983.
23. North Carolina Department of Transportation, Map of Enlarged Municipal and Suburban Areas, Nash County, North Carolina (Raleigh, North Carolina: North Carolina Department of Transportation, January 1988).
24. U.S. Environmental Protection Agency, Graphical Exposure Modeling System (GEMS) Data Base, compiled from U.S. Bureau of the Census data (1980).
25. U.S. Geological Survey, 7.5 minute series Topographic Quadrangle Maps of North Carolina: Hartsease 1981, Rocky Mount 1977, Whitakers 1961, Drake 1963, scale 1:24,000.
26. North Carolina Natural Heritage Program Element List, June 21 and June 30, 1989.
27. U.S. Department of Commerce, Climatic Atlas of the United States (Washington, D.C.: GPO, June 1968) Reprint: 1983, National Oceanic and Atmospheric Administration.
28. U.S. Department of Commerce, Rainfall Frequency Atlas of the United States: Technical Paper Number 40 (Washington, D.C.: GPO, 1961).

29. Federal Emergency Management Agency, Flood Insurance Rate Map: City of Rocky Mount, North Carolina, Edgecombe and Nash Counties, Community-Panel Number 370092 0003C, January 20, 1982.
30. Bill Collart, Fisheries Biologist, North Carolina Wildlife Resources, Rocky Mount, North Carolina, telephone conversation with Sherry Durren, NUS Corporation, May 3, 1990. Subject: Use of Compass Creek and Tar River.
31. Marsha Bissett, Engineer, Rocky Mount Water Company, Rocky Mount, North Carolina, telephone conversation with Sherry Durren, NUS Corporation, April 25, 1990. Subject: Water distribution lines of Rocky Mount Water Company.
32. Paul Blount, Director of Water Resources, City of Rocky Mount, North Carolina, telephone conversation with Sherry Durren, NUS Corporation, May 1, 1990. Subject: Dortches Water Company.
33. Linda Aller, et al., DRASTIC: A Standardized System for Evaluating Ground Water Pollution Potential Using Hydrogeologic Settings, EPA-600/2-87-035 (Ada, Oklahoma: EPA, April 1987).
34. M.J. Mundorff, Ground Water in the Halifax Area, North Carolina, North Carolina Department of Conservation and Development Bulletin No. 51 (Raleigh, North Carolina, 1946).
35. R. Allan Freeze and John A. Cherry, Groundwater (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1979).
36. NUS Corporation Field Logbook No. F4-1375 for Abbott Labs, TDD No. F4-8902-50. Documentation of facility reconnaissance, May 3, 1989.
37. North Carolina Administrative Code, Title 15, Department of Environment, Health and Natural Resources, Division of Environmental Management, Subchapter 2L, Classifications and Water Quality Standards Applicable to the groundwaters of North Carolina, Section .0100, .0200 and .0300. Current through December 1, 1989.
38. R. David Prengaman, "Lead Alloys," Kirk-Othmer Encyclopedia of Chemical Technology, 3rd ed., Vol. 14 (New York: John Wiley and Sons, 1983).