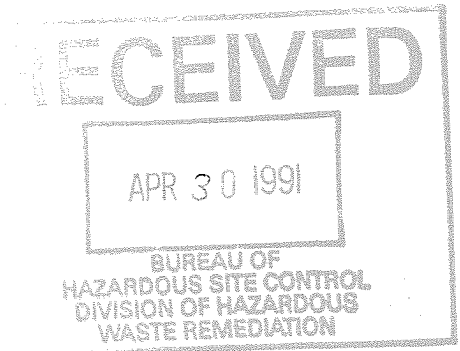


ENGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES

PRELIMINARY SITE ASSESSMENT

SKW Alloys, Inc.
City of Niagara Falls

Site No. 932001
Niagara County



Prepared for:
New York State
Department of
Environmental Conservation

50 Wolf Road, Albany, New York 12233
Thomas C. Jorling, *Commissioner*

Division of Hazardous Waste Remediation
Michael J. O'Toole, Jr., *Director*

By:
E.C. JORDAN CO.
Portland, Maine

April 1991

NYSDEC CONTRACT NO. D002472

NYSDEC WORK ASSIGNMENT NO. D002472-6

E.C. JORDAN CO.

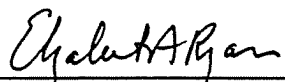
FINAL REPORT

TASK 1: DATA RECORDS SEARCH AND ASSESSMENT
PRELIMINARY SITE ASSESSMENT

SKW ALLOYS, INC.
SITE NO. 932001
NIAGARA COUNTY

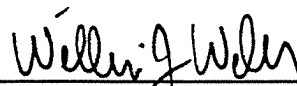
APRIL 1991

Submitted by:



Elizabeth A. Ryan
Project Manager
E.C. Jordan Co.

Approved by:



William J. Weber
NSSC Program Manager
E.C. Jordan Co.

NOTICE

This Preliminary Site Assessment report about the SKW Alloys, Inc. Site (Site No. 932001), located in the Town of Niagara, Niagara County, New York, was prepared expressly for the New York State Department of Environmental Conservation (NYSDEC) under the Superfund Standby Contract (No. D002472, Work Assignment No. D002472-6). The purpose of this report is to provide information necessary for NYSDEC to reclassify the site according to the Classes 2, 3, and Delist categories described in Section 2.0 of this report. The conclusions and recommendations in this report represent the E.C. Jordan Company's (Jordan's) professional judgment and opinion based on present, generally accepted engineering practices for conducting preliminary site characterizations and assessments. Conclusions in this report are based on records reviews, interviews, and a site walkover performed by Jordan personnel. The health-based regulatory standards discussed in this report may change in the future. Levels of environmental contamination that are "acceptable" by current standards may not be so in the future.

Information contained in this report may not be suitable for any other use without adaptation for the specific purpose intended. Any such reuse of or reliance on the information, assessments, or conclusions in this report without adaptation will be at the sole risk and liability of the party undertaking the reuse.

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1.0 EXECUTIVE SUMMARY

The SKW Alloys, Inc. (SKW) Site consists of a 25-acre parcel of land owned by Airco Properties, Inc. (Airco), a 37-acre parcel of land owned by SKW, and right-of-ways owned by the Niagara Mohawk Power Corporation (Niagara Mohawk). Since the actual limits of waste disposal have not been adequately defined, the property boundaries and associated acreage may not reflect the actual site boundary. The site is located on Witmer Road in the Town of Niagara, New York (Figure 1).

From 1920 to 1964 the site was owned by the U.S. Vanadium Corporation (Vanadium). In 1964, the Pittsburgh Metallurgical Company, which subsequently changed its name to Airco Properties, Inc., purchased 62 acres of the site from Vanadium. In 1979, SKW purchased the western 37 acres of this 62-acre parcel from the Airco Alloys division of Airco. Airco has retained ownership of the eastern 25-acres.

Airco owns and operates a New York State Department of Environmental Conservation (NYSDEC) permitted landfill on the eastern 25-acres of the site. This landfill was used to dispose of brick, coke, concrete, carbon fines, and graphite plant waste. The landfill is not covered, except for the south slope extending approximately six feet along the top of the landfill. The landfill currently is not receiving any wastes. The remaining portion of the Airco property contains exposed waste piles.

SKW operates two landfill cells in accordance with a NYSDEC Solid Waste permit on their 37-acre parcel of land (Figure 2). Both of these cells are scheduled to be closed by mid-1991. Waste currently disposed in the SKW landfill include ferrosilicon and silicon metal baghouse dust. Ferrochrome silicon dusts were disposed in Cell No. 1.

Much of the surface of the site contains 0 to 7 feet of fill material consisting of ash, dust, slag, and cinder materials reportedly disposed by Vanadium. The Niagara Mohawk and the northern portion of the Airco property contain exposed waste piles also reportedly disposed by Vanadium. These waste piles reportedly contain ferromanganese slag, calcium hydroxide, and ferrochrome silicon dusts.

Between 1979 to 1987, SLC Consultants/Constructors, was hired by Airco and SKW to sample groundwater in accordance with 6 NYCRR 360 Solid Waste regulations. The analytical results indicate that groundwater in the perched water table (i.e., shallow groundwater) and the till aquifer contains levels of chromium, manganese, barium, and iron in excess of New York State Ambient Groundwater and Drinking Water Standards. In addition, pH measurements of both the shallow and till aquifer were in excess of the New York State Ambient Groundwater and Drinking Water Standards.

In 1984, the Radian Corporation conducted Extraction Procedure (EP) toxicity tests on waste material generated from SKW's plant. The ferrosilicon dust wastes failed EP toxicity for selenium and the ferrochrome silicon dust failed EP toxicity for chromium.

Hexavalent chromium was not detected in either of the EP toxicity samples (see Appendix D). NYSDEC regulation, 6 NYCRR 371.1(e)-(2)(ix)(a), states that wastes which fail EP toxicity for chromium are not hazardous if "the chromium in the waste is exclusively or nearly exclusively trivalent chromium," and "the waste is typically and frequently managed in non-oxidizing environments" (e.g., a landfill). Because the EP toxicity analyses did not detect hexavalent chromium and the landfilled ferrochrome silicon dust is in a non-oxidizing environment this sample is not considered a hazardous waste (6 NYCRR 371.1(e)(ix)(b)). However, the non-landfilled ferrochrome silicon dust deposits, reportedly present in the fill materials and exposed waste piles, may be in an oxidizing environment; potentially allowing trivalent chromium to oxidize to hexavalent chromium. Should trivalent chromium be present, the ferrochrome silicon dust may be considered a hazardous waste according to 6 NYCRR 371.1(e)(ix)(b). The ferrosilicon dust sample that failed EP toxicity for selenium is considered a hazardous waste under 6 NYCRR 371.1(e).

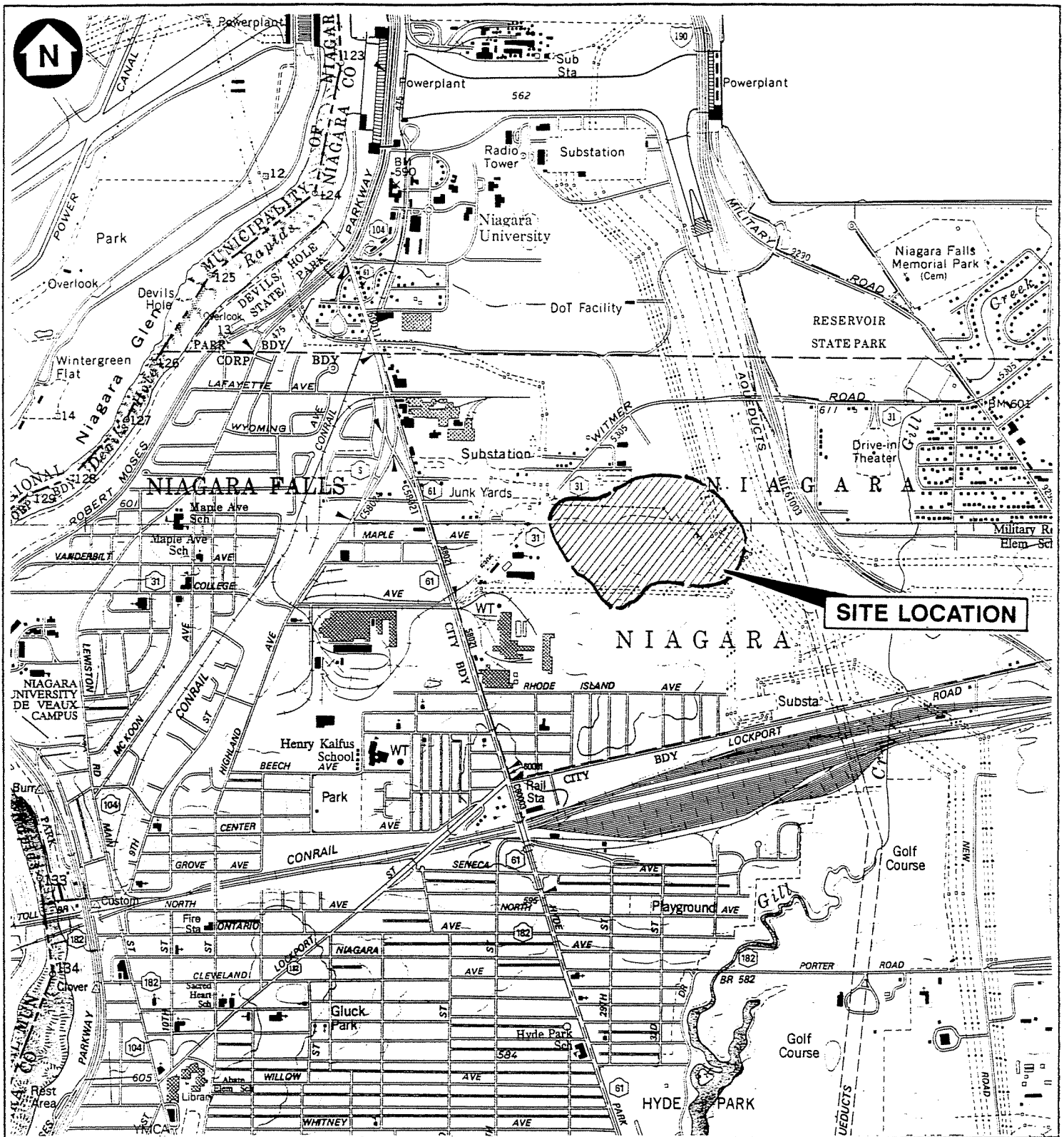
In November 1987, Advanced Environmental Services, Inc. (AES) conducted an EP toxicity analysis on dry dust from silicon metal and ferrosilicon operations at the SKW plant. The results of this analysis were negative for both metals. Concentrations of EP toxic metals and organic compounds were below quantifiable limits or Resource Conservation and Recovery Act (RCRA) Maximum Concentrations of Contaminants (MCCs). Selenium was detected in the extract at 0.374 milligrams per liter (mg/L) in the silicon metal dust sample and at 0.060 mg/L in the ferrosilicon dust sample (MCC for selenium is 1 mg/L). These levels are significantly lower than the 2 mg/L detected in the 1984 EP toxicity test of ferrosilicon dust (see Appendix D).

Between 1985 and 1990, pH measurements of the shallow groundwater and surface water run-off were recorded in excess of 12.5 (see Appendix D). These pH measurements are a characteristic of corrosivity as defined in 6 NYCRR 371.3(c).

The exposed waste piles and fill materials on the 62-acre site and on the abutting right-of-ways owned by the Niagara Mohawk reportedly contain calcium hydroxide, iron alloy slag, cinders, fly ash, ferromanganese slag, and ferrochrome silicon dusts. It is not known if other materials were mixed with these wastes. There is no information or analytical data that characterizes the fill materials or exposed waste pile to indicate whether or not these wastes are hazardous.

Information reviewed by E.C. Jordan (Jordan) indicates the disposal

of hazardous wastes at this site. One sample of ferrosilicon dust failed EP toxicity for selenium, and pH measurements in the shallow groundwater and surface water run-off were detected in excess of 12.5. Numerous exposed waste piles were also identified on-site. Due to the uncontrolled nature of the disposal activities, the surface water run-off generated on-site is considered a characteristic hazardous waste. The sampling and analytical data also indicates a contravention of New York State Ambient Groundwater, Drinking Water and Surface Water Standards. Concentrations of chromium, manganese, barium, and iron were detected in the groundwater in excess of their respective standard concentrations and pH measurements in both the shallow and till aquifer were reported in excess of the standard range of 6.5 to 8.5. Chromium and selenium were also detected in the surface water run-off in excess of the New York State Surface Water Standards and pH measurements in this stream were reported in excess of the standard range of 6.5 to 8.5. Based on the available information, Jordan recommends reclassifying the SKW Alloys Site to Class 2. Hazardous waste disposal and significant threat have both been documented at this site.

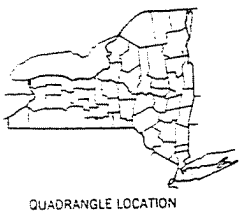


SOURCE: N.Y.S. DEPARTMENT OF TRANSPORTATION, NIAGARA FALLS AND LEWISTON QUADRANGLE DATED 1989 AND 1976, RESPECTIVELY, 7.5 MINUTE SERIES

SITE NO: 932001
 LOCATION: CITY OF NIAGARA FALLS
 NIAGARA COUNTY

FIGURE 1
SITE LOCATION MAP
SKW ALLOYS, INC. SITE
PRELIMINARY SITE ASSESSMENT
NEW YORK STATE DEC

EC.JORDAN CO.



QUADRANGLE LOCATION

SCALE IN FEET

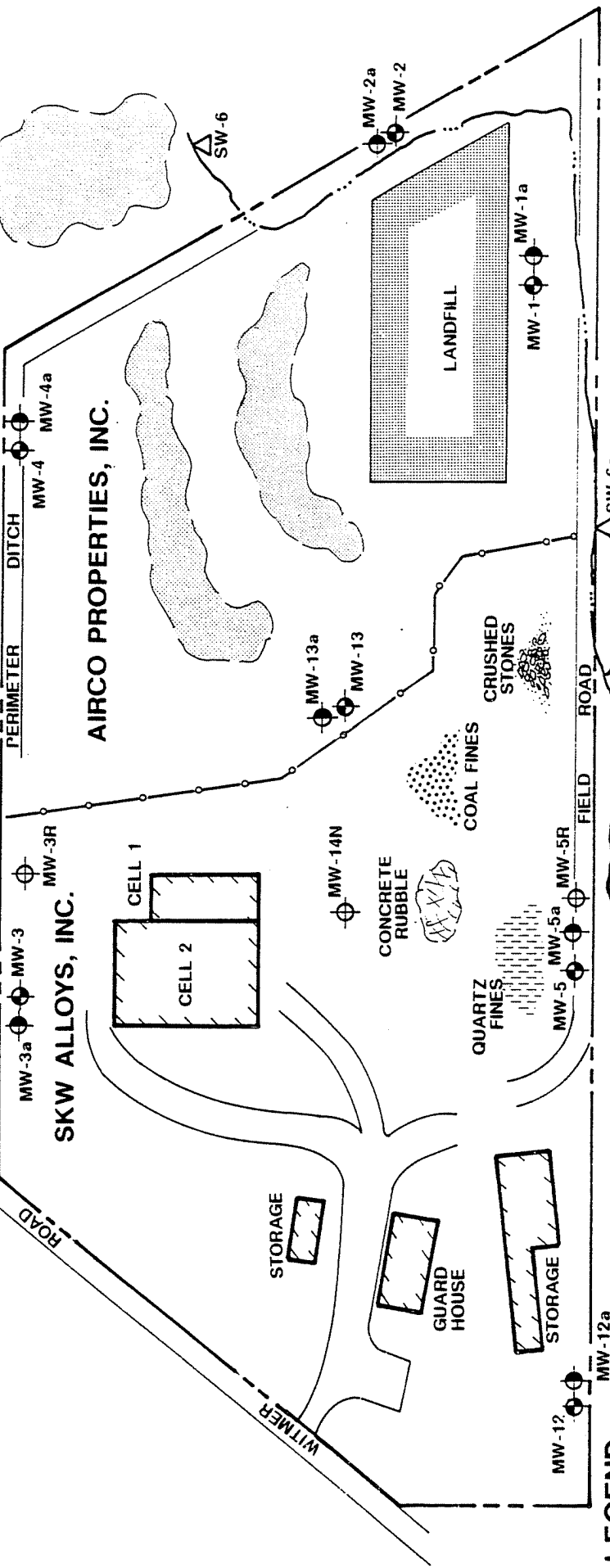


© MATIASZ

© BURTWELL © EWING

1,200 FEET NORTH

NIAGARA MOHAWK POWER CORPORATION PROPERTY



LEGEND

- EXPOSED WASTE PILES
- CHAIN-LINK FENCE (PROPERTY LINE)
- DEEP MONITORING WELL LOCATION
- SHALLOW MONITORING WELL LOCATION
- DEEP MONITORING WELL LOCATION
- SURFACE WATER SAMPLING SITE
- RESIDENTIAL WELLS 1,200 FEET NORTH

NOT TO SCALE

FIGURE 2
SITE SKETCH MAP
SKW ALLOYS, INC. SITE
PRELIMINARY SITE ASSESSMENT
NEW YORK STATE DEC

**ADDITIONS/CHANGES TO REGISTRY
OF INACTIVE HAZARDOUS WASTE DISPOSAL SITES**

1. SITE NAME SKW Alloys, Inc.	2. SITE NO. 932001	3. TOWN Town of Niagara	4. COUNTY Niagara
----------------------------------	-----------------------	----------------------------	----------------------

5. REGION 9	6. CLASSIFICATION Current <u>3</u> / Proposed <u>2</u>	7. ACTIVITY <input type="checkbox"/> Add <input checked="" type="checkbox"/> Reclassify <input type="checkbox"/> Delist <input type="checkbox"/> Modify _____
----------------	---	--

8a. DESCRIBE LOCATION OF SITE (Attach U.S.G.S. Topographic Map showing site location).

The site is located on Witmer Road in the Town of Niagara, New York

b. Quadrangle Niagara Falls Lewiston c. Site Latitude 43°07'22" Longitude 79°02'56" d. Tax Map Number _____

9a BRIEFLY DESCRIBE THE SITE (Attach site plan showing disposal/sampling locations)

The site consists of a 25-acre parcel of land owned by Airco Properties, Inc., a 37-acre parcel of land owned by SKW Alloys, Inc., and right-of-ways owned by the Niagara Mohawk Power Corporation. There is a closed landfill on the Airco property and two landfill cells located on the SKW Alloy, Inc. property. There are numerous waste piles located on the northern portion of the Airco and Niagara Mohawk properties.

b. Area 62+ acres c. EPA ID Number D096311527 d. PA/SI Yes No
e. Completed: Phase I Phase II PSA Sampling

10. BRIEFLY LIST THE TYPE AND QUANTITY OF THE HAZARDOUS WASTE AND THE DATES THAT IT WAS DISPOSED OF AT THIS SITE

Ferrosilicon dust failed EP toxicity for selenium (D010 waste). Ferrochrome silicon dust failed EP toxicity for chromium (D007 waste). pH have exceeded 12.5 in surface water and shallow groundwater samples. This is a characteristic of corrosivity as defined in NYSDEC part 371.3 (c). The quantity of ferrosilicon dust and ferrochrome silicon dust and slag are 70,000 tons and 25,000 tons, respectively.

11a. SUMMARIZED SAMPLING DATA ATTACHED

Air Groundwater Surface Water Soil Waste EP Tox TCLP.

b. List contravened parameters and values

PARAMETER	GROUNDWATER		SURFACE WATER		EP TOXICITY	
	measured	standard	measured	standard	measured	standard
pH	12.97	6.5 - 8.5	12.65	6.5 - 8.5	NA	
Cr (VI) [mg/l]	0.084	0.05	0.88	0.16	Cr(total)	14.0 5.0
Se [mg/l]		NA	0.04	0.001	2.0	1.0

12. SITE IMPACT DATA

a. Nearest surface water: Distance 1.5 mi Direction West Classification Niagara River
 b. Nearest groundwater: Depth 10-15 ft. Flow Direction: West Sole Source Primary Principal
 c. Nearest water supply: Distance 1,200 ft. Direction North Active Yes No
 d. Nearest building: Distance 200 ft. Direction West Use Storage
 e. Crops or livestock on site? Yes No
 f. Exposed hazardous waste? Yes No
 g. Controlled site access? Yes No partially
 h. Documented fish or wildlife mortality? Yes No
 i. Impact on special status fish or wildlife resource? Yes No
 j. Within a State Economic Development Zone? Yes No
 k. For Class 2a: Code 2 Health Model Score _____
 l. For Class 2: Priority Category _____
 m. HRS Score _____
 n. Significant Threat Yes No Unknown

13. SITE OWNER'S NAME SKW Alloys; Niagara Mohawk; Airco Properties	14. ADDRESS 3801 Highland Ave. Arlington Falls, NY 14305	15. TELEPHONE NUMBER (716)278-8893
--	--	---------------------------------------

16. PREPARER
 Roger Bondeson Environmental Scientist E.C. Jordan Co.
 Name, Title and Organization
 March 20, 1991 Date *Roger Bondeson* Signature

17. APPROVED
 _____ Name, Title and Organization
 _____ Date _____ Signature

2.0 PURPOSE

The purpose of a PSA is to provide the information necessary for NYSDEC to reclassify the site according to the following classifications:

- Class 2 - Hazardous waste sites presenting a significant threat to the public health or the environment.
- Class 3 - Hazardous waste sites not presenting a significant threat to the public health or the environment.
- Delist - Sites where hazardous waste disposal is not documented.

PSA Task 1, Data Records Search and Assessment, was conducted at the SKW Site, Site No. 932001, in the Town of Niagara, by Jordan under the NYSDEC Superfund Standby Contract (Contract No. D002472, Work Assignment No. D002472-6).

The SKW Site is listed on the New York State Registry of Inactive Hazardous Waste Disposal Sites as a Class 3 site. This site is currently classified as Class 3 because a waste sample failed EP Toxicity for selenium and pH levels have exceeded 12.5 in surface water and groundwater samples. Insufficient information is available to determine the significance of risk to public health or the environment posed by this site. PSA activities are being conducted to assist NYSDEC in determining these risks.

3.0 SCOPE OF WORK

PSA Task 1 consists of two data gathering activities: a file review/records search and a site walkover. Specific activities performed for the SKW Site under this task are described in the following sections.

3.1 File Reviews

The Jordan project team began collecting information on the SKW Site at the NYSDEC Central office in Albany, New York during the week of June 25, 1990. In addition, Jordan personnel reviewed files at the New York State Department of Health (NYSDOH), the U.S. Geological Survey, the U.S. Fish and Wildlife Service, the New York State Department of Transportation, and contacted the New York State Geological Survey.

On July 16, 1990 the Jordan team reviewed files at NYSDEC's Region 9 Office in Buffalo, New York. Files on the SKW Site were provided by Yavuz Erk of NYSDEC Region 9. On July 17, 1990, Jordan personnel reviewed files at the Buffalo Offices of NYSDOH. On July 20, 1990, the Jordan team reviewed files at the Niagara County Health Department (NCHD) and conducted an interview with Paul Dicky, Public Health Engineer, NCHD. Jordan personnel visited the Niagara County Soil and Water Conservation District on July 24, 1990 to review aerial photographs. On July 25, 1990 the Jordan team visited the NYSDEC Region 9 Bureau of Fish and Wildlife to identify wetlands and critical habitat areas.

The following individuals were interviewed:

Paul Dicky
Public Health Engineer
Niagara County Health Department
10th and East Falls Street
Niagara Falls, New York
(716) 284-3128

Yavuz Erk
Environmental Engineer II
NYSDEC Region 9
600 Delaware Avenue
Buffalo, New York 14414
(716) 847-4585

3.2 Site Walkover

On July 19, 1990 a site walkover was conducted at the SKW Site. This walkover also included the Airco and Niagara Mohawk Properties. The following individuals attended the visit:

Name	Title	Affiliation
Roger Bondeson	Environmental Scientist	E.C. Jordan Co.
Cathy Lanois	Environmental Scientist	E.C. Jordan Co.
Sri Maddineni	Environmental Engineer II	NYSDEC
Yavuz Erk	Environmental Engineer II	NYSDEC Region 9
Ronald Stipp	Plant Engineer	SKW Alloys, Inc.
Ralph A. Casciani	Plant Engineer	SKW Alloys, Inc.
Richard Snyder	Consultant for SKW	Snyder Engineering
Suzette Kosikowski	Supervisor of Environmental Compliance	The Carbon/Graphite Group, Inc.

The site walkover began at 8:00 a.m. Before entering the site, the field team calibrated a photoionization detector to monitor ambient air quality during the inspection. The resulting data were used to confirm that worker health was protected.

The Jordan team entered the site from the guardhouse near Witmer Road, located on the western border of the SKW property (Figure 2). Most of the buildings on the site are used to store raw materials and equipment. The building attached to the guardhouse is leased by Stollberg, Inc. for the production of foundry casting powders. Stollberg does not dispose of wastes at the SKW Site. The building directly north of the guardhouse/Stollberg facility was used as a laboratory to test alloy mixtures and is currently used for storage.

The Jordan team proceeded north, parallel to the western slope of landfill cell No. 2. Jordan personnel observed wood chips near this cell. The Jordan team also observed residual material on the northwestern corner of the SKW property. These residual materials were reportedly remnants of several piles of raw material consisting of woodchips, quartz fines, scrap metal, and rubble (Snyder, 1990).

Jordan personnel continued north along the slope of landfill cells No. 1 and No. 2. East of cell No. 1, Jordan personnel noted standing water and small surface water erosion gullies on the slope of both landfill cells. No leachate outbreaks from either cell were observed. Sparse vegetation was growing on the landfill slopes and on the non-landfill areas.

South of the landfill area several piles of materials were observed. These piles reportedly contain coal fines, quartz fines, and recyclable concrete rubble (Snyder, 1990). Along the southern border of the SKW property, Jordan observed a swampy area containing a small pond. The water in this pond was milky and green in color.

The site walkover continued on the Airco property. This is a 25-acre parcel of land that contains a NYSDEC permitted landfill and exposed waste piles. The southern slope of the Airco landfill (operated by Carbon/Graphite Group, Inc.) was covered with clay and loam and heavily vegetated with grass. Other portions of the landfill are not covered. The landfill is currently not receiving wastes as the Carbon/Graphite Group, Inc. is waiting to receive a NYSDEC permit to use the site as a solid waste facility (Kosikowski, 1990). Wastes currently generated by the Carbon/Graphite Group, Inc. are being disposed of in the Modern Landfill located in Lewiston, New York. The Airco landfill does not have a leachate collection system.

Jordan personnel noted that an intermittent stream entered the Airco property on the eastern border (Figure 2). This stream flows south, then west along the southern border of the Airco property. Niagara Mohawk power lines were observed east and north of the Airco property. Several piles of exposed waste materials were observed along the Niagara Mohawk's right-of-way and along the northern portion of the Airco property. These waste piles reportedly consist of lime slag (calcium hydroxide) and ferrochrome silicon and ferromanganese slags and were disposed of by Vanadium (Ecology and Environment, 1989) (Kosikowski, 1990).

The site visit was completed at 12:00 p.m. and photographs were taken and included in the site file.

4.0 SITE ASSESSMENT

The following subsections describe the information gained through the records search and site walkover at the SKW Site.

4.1 Site History

The site history is presented separately for each property.

4.1.1 SKW Alloy, Inc. Landfill

The SKW Site is located off Witmer Road in the Town of Niagara. From 1920 to 1964, the site was owned by Vanadium. During this period, between 350,000 and 594,000 tons of wood, brick, ash, lime slag (calcium hydroxide), ferromanganese slag, and ferrochrome silicon slag and dust was disposed on the site by Vanadium. (NCHD, 1983). Most of this material was reportedly disposed in the eastern 25 acres currently owned by Airco.

In 1964, 62 acres of the site were purchased by the Pittsburgh Metallurgical Company, which subsequently changed its name to Airco Properties, Inc. Although Airco owned the site, an affiliated company, Airco Carbon operated the site and disposed of wastes similar to those disposed by Vanadium. In 1971, baghouse collectors were installed at the Airco Carbon plant and slurried baghouse dusts were disposed on the Airco property.

In 1979, SKW bought the western 37 acres of the 62-acre parcel while Airco retained ownership of the eastern 25 acres. In 1980, SKW received a NYSDEC permit to operate a solid waste disposal facility. This facility was the first of two landfill cells and was designed for the disposal of ferrochrome silicon baghouse dust and ferrosilicon baghouse dust wastes. Cell No. 1 is no longer in use and as of March, 1991 is still scheduled to be closed. This cell has a five foot clay liner and a leachate collection system (Snyder, 1990).

The production of ferrochrome alloy materials at the SKW plant was discontinued in 1981 or 1982 due to economic factors. Reportedly, all ferrochrome dust materials produced at the SKW Alloy plant were disposed of in cell No. 1 and no ferrochrome silicon dusts were disposed of in cell No. 2 (Snyder, 1990).

Cell No. 2 has a two foot clay liner and leachate collection system and has been used to dispose of ferrosilicon and silicon metal baghouse dust. It is expected that cell No. 2 will be closed in the summer of 1991. Leachate from both cells is collected and used to slurry the baghouse dusts (Snyder, 1990). In 1984 the Radian Corporation analyzed samples of ferrosilicon emission dust, ferrochrome silicon dust, and ferrochrome silicon slag from the SKW plant. The ferrosilicon dust sampled failed the EP toxicity analyses for selenium. Selenium was detected in this

sample at 2 mg/L which exceeds RCRA's MCC of 1 mg/L. The EP toxicity test results for ferrochrome silicon dust detected total chromium at a concentration of 14 mg/L which exceeds RCRA MCC of 5 mg/L. The ferrochrome silicon slag sample did not fail the EP toxicity test. The concentration of hexavalent chromium was below the method detection limit in all three analyses (Radian Corporation, 1984). These data are presented in Appendix D.

In November of 1987, AES conducted an EP toxicity analysis on dry dust from silicon metal and ferrosilicon operations. The metal concentrations were below quantifiable limits or the RCRA MCCs. Selenium was detected in the silicon metal dust extract at 0.374 mg/L and in the ferrosilicon dust sample extract at 0.060 mg/L. Analysis for the EP toxicity organic compounds were all below quantifiable limits (AES, 1987). The AES analyses is attached as Appendix D.

In November 1988, NCHD notified SKW that they were in violation of 6 NYCRR Part 218. There were inadequate controls in place to limit dust being generated by vehicular traffic and wastes disposal activities at the SKW landfill (Dicky, 1988). SKW responded to NCHD outlining the measures taken to correct the violation (Kruk, 1988).

In, December 1987, NYSDEC Region 9 office sent SKW a notice of violation of Article 12 of the Navigation Law of New York; Article 17 of the Environmental Conservation Law, and 40 CFR Chapter 1, Part 761. These violations were for failure to report a 790 gallon polychlorinated biphenyl (PCB) oil spill on the Witmer Road landfill site. No fines were levied against the company because of the voluntary clean-up actions performed by SKW. An inspection of the site by NYSDEC confirmed that clean-up was performed satisfactorily (Hinton, 1987).

4.1.2 Airco Properties, Inc. Landfill

The Airco landfill, operated by Airco Carbon (now Carbon/Graphite Group), is unlined and has no leachate collection system. Airco Carbon disposed fire bricks, concrete cinder blocks, coke, and carbon fines in the landfill. The landfill was covered with clay, loam, and seeded by the Carbon/Graphite Group. No waste disposal is currently occurring on the Airco Site. Wastes generated by the Carbon/Graphite Group are being disposed of in the Modern Landfill located in Lewiston, New York (Kosikowski, 1990).

Exposed waste piles, located north and east of the Airco landfill, reportedly contain calcium hydroxide, ferromanganese slag and ferrochrome silicon slag and dust. These wastes were reportedly dumped by Vanadium.

Both owners of the 62-acre site have installed numerous monitoring wells that are being sampled quarterly for total dissolved solids, chemical oxygen demand, total organic carbon, barium, chromium (total and hexavalent), iron, manganese, silica, zinc, specific conductivity, and pH. In addition, SKW is sampling for baseline parameters in accordance with their 6 NYCRR Part 360 permit. Sampling data from both landfills is presented as Appendix E.

4.2 Site Topography

The SKW Site is located approximately one mile east of the Niagara River in the Town of Niagara, New York. The site is relatively flat with the exception of the SKW and Airco landfills and the exposed waste piles on the Airco and Niagara Mohawk properties. Surface drainage flows east and south towards the intermittent stream. Grass covers most of the site; however, some areas such as the exposed waste piles are void of vegetation.

The site is bordered on the north by an automobile parking area and power line right-of-ways, on the south by a swampy area and property owned by Union Carbide, to the west by Witmer Road and several auto junk yards, and to the east by Niagara Mohawk. The Niagara Mohawk property, immediately east and north of the SKW and Airco Landfills, is considered to be part of the disposal area previously owned by Vanadium. Single family homes are located two-tenths of a mile north of the site.

4.3 Site Hydrology

The following paragraphs describe what is known about the hydrology and geology of the SKW Site. The soils on the SKW Site consist of Odessa silty clay loam. This is a poorly drained soil that is reddish in color. The underlying bedrock is Lockport Dolomite (Soil Conservation Service, 1972).

Specific information regarding soil type and water tables is available from Earth Dimensions, Inc.'s soil boring logs. Bedrock is encountered at depths ranging from 11 to 24 feet. Glacial till with extreme ranges in texture (silt to gravel and boulders) overlies the bedrock. This till material ranges in thickness from 0.6 to 7 feet. Clays and silty clays, which range in thickness from 2 to 12.5 feet, overlay the till material. From 0 to 9 feet, fill materials consists of slag, cinders, dust and fly ash (Earth Investigation Ltd., 1988).

Groundwater is located at a depth of 20 feet below ground surface, in the glacial till soils. A perched water table exists above the silty clays during most of the year at depths of approximately 3 feet. Groundwater flow is expected to be south to southwest (SLC Consultants, 1987).

The permeability of the unsaturated zone is expected to be 1×10^{-2} to 1×10^{-4} centimeters per second (Johnston, 1964 and Earth Investigations LTD, 1988).

An intermittent stream enters the site on the eastern border of the Airco property and flows generally westward along the southern border of the site. The nearest permanent surface water body is the Niagara River, one-and-one-half miles west of the site.

Most of the residents in the vicinity of the SKW landfill are served by a public water system which obtains drinking water from the Niagara River. According to information provided by the Town of Niagara Water Department, there are three private wells located on Delaware Avenue, 1,200 feet northwest of the site (Town of Niagara Water Department, 1990).

4.4 Contamination Assessment

The contamination assessment is presented separately for each property.

4.4.1 SKW Alloy, Inc. Landfill

In 1984, the Radian Corporation conducted an EP toxicity analysis on samples of ferrosilicon and ferrochrome silicon dusts and ferrosilicon slag wastes disposed in the SKW landfill. The results of these tests revealed that the ferrosilicon dust failed EP toxicity for selenium (2 mg/L) and the ferrochrome silicon dust failed EP toxicity for chromium (14 mg/L) (Radian Corporation, 1984). Hexavalent chromium was not detected in these samples.

In November 1987, AES conducted an EP toxicity analysis on dry dust from silicon metal and ferrosilicon operations at the SKW plant. Results of this analysis were negative for both metals. Concentrations of EP toxic metals and organic compounds were below quantifiable limits or RCRA MCCs. Selenium was detected at 0.374 mg/L in the silicon metal dust sample and at 0.060 mg/L in the ferrosilicon dust sample (MCC for selenium is 1 mg/L). These levels are significantly lower than the 2 mg/L detected in the 1984 EP toxicity test of ferrosilicon dust. (Appendix D)

Several monitoring wells have been installed around the SKW landfill since 1979. Analyses of groundwater samples collected between 1979 and 1987 from upgradient and downgradient deep wells (e.g., wells installed into the glacial till overlying bedrock) show a contravention of New York State ambient water quality standards for iron, barium, and manganese. Metals were detected at a wide range of concentrations; barium 0.01-6.3 mg/L, iron 0.22-48.5 mg/L, and manganese 0.26-12 mg/L. New York State ambient groundwater standards for barium, iron, and manganese are 1.0 mg/L,

0.3 mg/L, and 0.3 mg/L, respectively. These wells are constructed of carbon steel which may account for the high iron concentrations (SLC Consultants/Constructors, Inc., 1987).

Analyses of groundwater from deep wells MW-5 and MW-12, downgradient of the site exceed the New York State ambient groundwater standards for hexavalent chromium (see Table 1).

Groundwater standards for pH have been exceeded in MW-3, an upgradient deep well, and in MW-13, a deep well located toward the center of the site (see Table 2). Downgradient deep wells did not exceed New York State pH groundwater standards for pH. (SLC Consultants/Constructors, Inc. 1987).

Monitoring data, for both upgradient and downgradient shallow wells show a contravention of New York State groundwater standards for iron, manganese, and hexavalent chromium. New York State pH standards were also exceeded in upgradient and centrally located shallow wells.

Surface water analyses of the intermittent stream indicates high pH levels (7.69 to 12.76) and wide variations in concentrations of chromium, iron, silicon, barium, and zinc (see Tables 3 and 4).

A 1989 summary report of data collected and analyzed by AES, from the deep wells MW-3R, MW-5R, MW-12, MW-14N, and from surface water sampling points SW-6 and SW-7 was reviewed. MW-3R is upgradient and MW-5R, MW-12, MW-14N downgradient of the landfill. The wells are used to monitor the parameters identified in the 6 NYCRR Part 360 permits. SW-6 is a sampling point for surface water entering the SKW property and SW-7 is a sampling point for surface water leaving the property.

Hexavalent chromium was not detected in wells MW-3R, MW-5R, MW-12, or MW-14N in 1989; however, hexavalent chromium was detected in surface water samples in concentrations ranging from 0.20 to 0.88 mg/L with the higher concentrations occurring at the downstream sampling point (SKW Alloys, Inc. 1989). Trichloroethene was detected in well MW-14N at 47.1 micrograms per liter ($\mu\text{g/L}$), in exceedance of the New York State ambient groundwater standard of 10 $\mu\text{g/L}$ for this compound.

In June and September of 1988, AES collected and analyzed leachate samples from the SKW landfill. The June 1988 analysis included a grab sample from cell No. 1 and a grab sample from the leachate collection tank. Analysis of the cell No. 1 sample detected total arsenic (0.105 mg/L) and total selenium (0.130 mg/L). The tank sample also had total arsenic (0.024 mg/L) and total selenium (0.065 mg/L). Total chromium was below quantifiable limits in both samples. The June 1988 sampling did not include analysis for volatile organic compounds (AES, June 1988).

TABLE 1

HEXAVALENT CHROMIUM CONCENTRATIONS IN GLACIAL TILL AQUIFER*
 PRELIMINARY SITE ASSESSMENT SKW ALLOYS, INC. SITE
 NIAGARA, NEW YORK

<u>Well No.</u>	<u>Dates Sampled</u>	<u>Concentration Detected</u>	<u>New York State Ambient Groundwater Standards</u>
MW-5	1/8/85	0.056 mg/L	0.05 mg/L
MW-12	1/8/85 4/15/87	0.084 mg/L 0.064 mg/L	0.05 mg/L 0.05 mg/L

*Source: SLC Consultants/Contractors, Inc., 1987.

TABLE 2
GROUNDWATER pH DATA*

PRELIMINARY SITE ASSESSMENT SKW ALLOYS, INC. SITE
NIAGARA, NEW YORK

<u>Well No.</u>	<u>Date</u>	<u>pH</u>	<u>New York State Standard (pH range)</u>
MW-3	4/11/79	10.30	6.5-8.5
	5/14/79	9.15	
	6/11/79	8.80	
	1/7/81	9.1	
	10/29/81	8.75	
	3/1/83	9.28	
	7/21/83	9.70	
	10/26/83	10.41	
	2/24/84	9.37	
	4/11/84	10.02	
	4/13/85	9.84	
MW-13	1/8/85	12.23	6.5-8.5
	4/2/86	11.10	6.5-8.5

*Source: SLC Consultants/Contractors, Inc., 1987.

TABLE 3
SURFACE WATER QUALITY DATA*

PRELIMINARY SITE ASSESSMENT SKW ALLOYS, INC. SITE
NIAGARA, NEW YORK

<u>Parameter</u>	<u>Concentration Range (mg/L)</u>
Barium	< 0.1-6.3
Chromium (total)	0.023-2.640
Hexavalent Chromium 6	0.005-1.27
Iron	0.02-0.481
Silicon	< 0.01-6.4
Zinc	< 0.005-0.247

Data is for 1979-1987

*Source: SLC Consultants/Contractors, Inc., 1987

TABLE 4
SURFACE WATER pH

PRELIMINARY SITE ASSESSMENT SKW ALLOYS, INC. SITE
NIAGARA, NEW YORK

<u>SAMPLE LOCATION</u>	<u>SAMPLER</u>	<u>DATE</u>	<u>pH</u>
6	Airco Properties, Inc.	4/18/90	12.1
6A	Airco Properties, Inc.	4/18/90	12.46
6A	SKW Alloys, Inc.	11/22/89	12.48
7	SKW Alloys, Inc.	11/22/89	12.4

The September 1988 analysis of SKW landfill leachate detected total selenium at 0.124 mg/L and soluble selenium at 0.086 mg/L. Arsenic, total chromium, and soluble chromium were not detected in these samples. The 28 volatile organic compounds analyzed for were all below the quantifiable limit of detection (AES, September, 1988).

4.4.2 Airco Properties, Inc. Landfill

Groundwater monitoring data was collected by SLC Consultants/Constructors, Inc. between 1979 to April 1990 for the Airco landfill. Analysis was conducted on samples from MW-1, MW-1A, MW-2, MW-2A, MW-4, MW-4A, MW-13, MW-13A ("A" wells are shallow) and surface water sampling points SW-6 and SW-6A. Results of the sampling data for deep wells indicate a contravention of standards for iron, manganese, barium, and hexavalent chromium. Shallow groundwater data indicates a contravention of standards for iron, manganese, and hexavalent chromium.

Both shallow and deep well data show pH levels ranging from 8.5 to 12.97. The highest groundwater pH levels were recorded from shallow wells 2A and 4A which are located on the property boundary between Airco and the Niagara Mohawk.

Surface water sample analyses detected hexavalent chromium at levels ranging from 0.014 to 0.283 mg/L with the higher concentrations occurring at the downstream sampling point (Kosikowski, 1990).

The Airco landfill is covered but not lined and does not have a leachate collection system.

4.4.3 Niagara Mohawk Power Corporation Right-of-Ways

Exposed slag piles reportedly containing ferrochrome dusts, calcium hydroxide, and ferromanganese materials exist on right-of-ways owned by the Niagara Mohawk, to the east and north of the Airco property. No sampling data exists for these waste piles. They are uncovered, unlined, and have no leachate collection system. The characteristics of these wastes are unknown.

5.0 ASSESSMENT OF DATA ADEQUACY AND RECOMMENDATIONS

5.1 Hazardous Waste Deposition

Information reviewed by Jordan indicates the disposal of hazardous waste at this site. One sample of ferrosilicon dust failed EP toxicity for selenium, and pH measurements in the shallow groundwater and surface water run-off were in excess of 12.5. Numerous exposed waste piles have been identified on-site and reportedly contain calcium hydroxide, iron alloy slag, cinders, fly ash, ferromanganese slag, and ferrochrome silicon dusts. There are no data available to describe the characteristics of these wastes. However, pH measurements in excess of 12.5 were reported in the surface water run-off at this site. Due to the uncontrolled nature of the disposal activities, the surface water run-off generated on-site is considered a characteristic hazardous waste.

5.2 Significant Threat Determination

Groundwater data collected since 1979 indicates a contravention of standards exists for hexavalent chromium, barium, iron, and manganese in both the shallow and deep aquifer. In addition, pH measurements in excess of the 6.5 to 8.5 standard range have been recorded in both the shallow and deep aquifer. Groundwater flow in the underlying aquifers is to the southwest. The nearest drinking water wells are located 1,200 feet to the north. Since these wells are upgradient of the site they are not expected to be impacted by contaminants from this site (Town of Niagara, 1990). There are no known drinking water wells downgradient from the site (Niagara County Health Department, 1990).

Analysis of surface water samples collected from the intermittent stream on the SKW Alloy property showed high pH levels (7.69 to 12.76) and a wide range of chromium, barium, iron, and zinc concentrations. Although the stream on the SKW Alloy Site is unclassified, certain contaminant concentrations exceed their respective NYSDEC Surface Water Standards for Class C and/or D water. Hexavalent chromium was detected at concentrations ranging from 0.20 mg/l to 0.88 mg/l in the stream which exceed the NYSDEC Class D Surface Water Standard of 0.016 mg/l for this compound (10 NYCRR 700-705). Selenium has been detected at 0.04 mg/l which exceeds the NYSDEC Class C (there is no Class D standard) Surface Water Standard of 0.001 mg/l for this compound. Total chromium has been detected in the surface water at concentrations up to 2.64 mg/l. The NYSDEC Class D Surface Water Standard for this compound is based on water hardness (10 NYCRR 701-703). Hardness (as measured by CaCO_3 mg/l) has been measured in the surface water at concentrations ranging from 190 mg/l to 1300 mg/l. The Class D Surface Water Standard for total chromium at a water hardness of 190 mg/l is 2.9 mg/l (10 NYCRR 701-703). Although the maximum detected chromium concentration is below this value, these data indicate that total chromium in the surface water is close to the

NYSDEC Class D Surface Water Standard.

Exposure to airborne dust generated from exposed waste piles is a public health concern since this dust may contain chromium. The baghouse dusts in the SKW Landfill are slurried with leachate and disposed of in Cell No. 2. The composition or hazardous characteristics of the leachate is not known. Cell No. 1 is in the process of being covered and closed. The Airco Landfill is already closed and is not likely to be a source of dust. Closure of the existing SKW landfill and covering exposed waste piles would reduce the potential public health risk associated with inhalation of the dust.

The site is not located within a 100-year flood plain and is greater than one mile from the nearest wetland or critical habitat for endangered species (Niagara County Health Department, 1983) (NYSDEC Region 9, Division of Fish and Wildlife, 1990).

5.3 Recommendations

Information reviewed by Jordan indicates the disposal of hazardous waste at this site. Further, the analytical data indicates a contravention of New York State Ambient Groundwater and Drinking Water Standards. Concentrations of hexavalent chromium, manganese, barium, and iron were detected in the groundwater beneath the site in excess of their respective standard concentration. In addition, pH measurements in both the shallow and till aquifer exceeded the standard range of 6.5 to 8.5. Based on the available information, Jordan recommends reclassifying the SKW Alloys Site to Class 2. Hazardous waste disposal and significant threat have both been documented at this site.

GLOSSARY OF ACRONYMS AND ABBREVIATIONS

AES	Advanced Environmental Services, Inc.
EP	Extraction Procedure
MCCs mg/L	Maximum Concentration of Contaminants milligrams per liter
NCHD	Niagara County Health Department
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PCBs	polychlorinate biphenyls
PSA	Preliminary Site Assessment
RCRA	Resource Conservation and Recovery Act
TCL	Target Compound List
USEPA ug/L	U.S. Environmental Protection Agency micrograms per liter

APPENDIX A
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REFERENCES

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- New York State Department of Health, Corning Tower, The Governor Nelson A. Rockefeller Empire State Plaza, Albany, New York.
- New York State Department of Health, Bureau of Environmental Exposure Investigation, Region 9, 584 Delaware Avenue, Buffalo, New York, Contact: Cameron O'Connor.
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Town of Niagara, Water Department, 7105 Lockport Road, New York 14304, contact: Velma Rafferty.

APPENDIX B

SITE INSPECTION REPORT
(USEPA FORM 2070-13)



**POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT**

PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION

01 STATE New York	01 SITE NUMBER D096311527
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II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site) SKW Alloys		02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER Witmer Road					
03 CITY Town of Niagara		04 STATE New York	05 ZIP CODE 14305	06 COUNTY Niagara	07 COUNTY CODE	08 CONG. DIST	
09 COORDINATES LATITUDE 43° 07' 2" N	LONGITUDE 079° 02' 56" W	10 TYPE OF OWNERSHIP (Check one) <input checked="" type="checkbox"/> A. PRIVATE <input type="checkbox"/> B. FEDERAL <input type="checkbox"/> C. STATE <input type="checkbox"/> D. COUNTY <input type="checkbox"/> E. MUNICIPAL <input type="checkbox"/> F. OTHER					

III. INSPECTION INFORMATION

01 DATE OF INSPECTION 7 / 19 / 90 MONTH DAY YEAR	02 SITE STATUS <input checked="" type="checkbox"/> ACTIVE <input type="checkbox"/> INACTIVE	03 YEARS OF OPERATION 1920 present UNKNOWN BEGINNING YEAR ENDING YEAR	
04 AGENCY PERFORMING INSPECTION (Check all that apply) <input type="checkbox"/> A. EPA <input type="checkbox"/> B. EPA CONTRACTOR <input type="checkbox"/> C. MUNICIPAL <input type="checkbox"/> D. MUNICIPAL CONTRACTOR <input type="checkbox"/> E. STATE <input checked="" type="checkbox"/> F. STATE CONTRACTOR E.C. Jordan Co. <input type="checkbox"/> G. OTHER (Name of firm) (Name of firm) (Specify)			

05 CHIEF INSPECTOR Roger Bondeson	06 TITLE Environmental Scientist	07 ORGANIZATION E.C. Jordan Co.	08 TELEPHONE NO. (207) 775-5401
09 OTHER INSPECTORS Kathy Lanois	10 TITLE Environmental Scientist	11 ORGANIZATION E.C. Jordan Co.	12 TELEPHONE NO. (207) 775-5401
Sri Maddineni	Environmental Engineer II	NYSDEC	(518) 457-0638
Yavuz Erk	Environmental Engineer II	NYSDEC - Region 9	(716) 847-4585
			()
			()

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO. ()
Ronald R. Stipp	Plant Engineer	SKW Alloys, Inc., 3001 Highland Avenue Niagara Falls, New York	(716) 278-8893
Ralph A. Casciani	Plant Manager	SKW Alloys, Inc., 3001 Highland Avenue Niagara Falls, New York	(716) 278-8879
Richard R. Snyder	P.E. Consulting Engineer	86 Countryside Lane Grand Island, NY 14072	(716) 773-5661
			()
			()
			()

17 ACCESS GAINED BY (Check one) <input checked="" type="checkbox"/> PERMISSION <input type="checkbox"/> WARRANT	18 TIME OF INSPECTION 8:00 am	19 WEATHER CONDITIONS Sunny 75-80° F
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IV. INFORMATION AVAILABLE FROM

01 CONTACT Sri Maddineni	02 OF (Agency/Organization) New York State Department of Conservation		03 TELEPHONE NO. (518) 457-0638
04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM Roger Bondeson	05 AGENCY	06 ORGANIZATION E.C. Jordan Co.	07 TELEPHONE NO. (207) 775-5401
			03 DATE 7 / 19 / 90 MONTH DAY YEAR



**POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION**

I. IDENTIFICATION

01 STATE
New York

01 SITE NUMBER
D096311527

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply) <input checked="" type="checkbox"/> A. SOLID <input checked="" type="checkbox"/> B. POWDER, FINES <input type="checkbox"/> C. SLUDGE <input type="checkbox"/> D. OTHER <input checked="" type="checkbox"/> E. SLURRY <input type="checkbox"/> F. LIQUID <input type="checkbox"/> G. GAS (Specify) _____	02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent) TONS <u>102,000</u> CUBIC YARDS _____ NO. OF DRUMS _____	03 WASTE CHARACTERISTICS (Check all that apply) <input checked="" type="checkbox"/> A. TOXIC <input checked="" type="checkbox"/> B. CORROSIVE <input checked="" type="checkbox"/> C. RADIOACTIVE <input checked="" type="checkbox"/> D. PERSISTENT <input type="checkbox"/> E. SOLUBLE <input type="checkbox"/> F. INFECTIOUS <input type="checkbox"/> G. FLAMMABLE <input type="checkbox"/> H. IGNITABLE <input type="checkbox"/> I. HIGHLY VOLATILE <input type="checkbox"/> J. EXPLOSIVE <input type="checkbox"/> K. REACTIVE <input type="checkbox"/> L. INCOMPATIBLE <input type="checkbox"/> M. NOT APPLICABLE
--	--	--

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			This site is two permitted landfills used by
OLW	OILY WASTE			SKW Alloys and Airco Carbon to dispose of
SOL	SOLVENTS			ferrochrome silicon alloy dust, and ferro
PSD	PESTICIDES			silicon dust by products of ferro alloy production.
OCC	OTHER ORGANIC CHEMICALS			The site also includes land owned by the Niagara
IOC	INORGANIC CHEMICALS	Unknown		Mohawk Power Corporation which contains several
ACD	ACIDS			piles of uncontained slag materials.
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04/STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
IOC	ferro chrome	silicon alloy dust		50,000	tons
IOC	ferro manganese	slag		6,000	tons
IOC	ferro chrome	silicon slag		21,000	tons
IOC	ferro silicon dust			25,000	tons
IOC	Calcium hydroxide,	refuse		unknown	
This site was also	reported to have	been used to	dispose of coke,	ore, slag, raw	materials, and
refuse from 1920	to 1964.				

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	Quartz		FDS	steel	
FDS	Coal		FDS		
FDS	Petroleum Coke		FDS		
FDS	Wood Chips		FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Preliminary Site Assessment Report, March 1991, E.C. Jordan Co., and references cited therein.



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE

New York

01 SITE NUMBER

D09611527

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 A. GROUNDWATER CONTAMINATION 02 OBSERVED (DATE: 4/87) POTENTIAL ALLEGED
03 POPULATION POTENTIALLY AFFECTED: < 10 04 NARRATIVE DESCRIPTION

Groundwater on-site is continually being sampled. Laboratory results indicate contamination from metals such as hexavalent chromium and iron.

01 B. SURFACE WATER CONTAMINATION 02 OBSERVED (DATE: _____) POTENTIAL ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 1,000-10,000 04 NARRATIVE DESCRIPTION

Potential for surface water contamination exists, lower Niagara River is approximately 1.5 miles to the west and the Lewiston Reservoir is approximately 1 mile to the northeast. Groundwater discharges to the Niagara River. Intermittent stream on-site shows contamination of chromium, barium, and manganese, and pH of 7.69-12.76.

01 C. CONTAMINATION OF AIR 02 OBSERVED (DATE: _____) POTENTIAL ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 1,000-10,000 04 NARRATIVE DESCRIPTION

Airborne fugitive dusts has been an historical problem. Currently landfilled dusts are slurried; however, numerous exposed piles of dust still exist.

01 D. FIRE/EXPLOSIVE CONDITIONS 02 OBSERVED (DATE: _____) POTENTIAL ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

None expected.

01 E. DIRECT CONTACT 02 OBSERVED (DATE: 7/90) POTENTIAL ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 10-100 04 NARRATIVE DESCRIPTION

Waste is accessible to workers on-site and to the public. Personnel were observed walking on the landfill which is not covered.

01 F. CONTAMINATION OF SOIL 02 OBSERVED (DATE: _____) POTENTIAL ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 10-100 04 NARRATIVE DESCRIPTION

The potential for soil contamination exists since waste materials other than the ferrosilicon dusts were disposed of or stored on site at the time of the inspection.

01 G. DRINKING WATER CONTAMINATION 02 OBSERVED (DATE: _____) POTENTIAL ALLEGED
03 POPULATION POTENTIALLY AFFECTED: < 10 04 NARRATIVE DESCRIPTION

Little potential exists as nearest drinking water wells are located north and upgradient of the site.

01 H. WORKER EXPOSURE/INJURY 02 OBSERVED (DATE: _____) POTENTIAL ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 10-100 04 NARRATIVE DESCRIPTION

Potential exists for worker exposure from dust generated from the waste.

01 I. POPULATION EXPOSURE/INJURY 02 OBSERVED (DATE: _____) POTENTIAL ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

None expected.



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE

New York

01 SITE NUMBER

D096311527

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 J. DAMAGE TO FLORA
04 NARRATIVE DESCRIPTION

02 OBSERVED (DATE: _____) POTENTIAL ALLEGED

None expected.

01 K. DAMAGE TO FAUNA
04 NARRATIVE DESCRIPTION (Include name(s) of species)

02 OBSERVED (DATE: _____) POTENTIAL ALLEGED

None expected.

01 L. CONTAMINATION OF FOOD CHAIN
04 NARRATIVE DESCRIPTION

02 OBSERVED (DATE: _____) POTENTIAL ALLEGED

None expected.

01 M. UNSTABLE CONTAINMENT OF WASTES
(Spills/Runoff/Standing liquids, Leaking drums)
03 POPULATION POTENTIALLY AFFECTED: unknown

02 OBSERVED (DATE: _____) POTENTIAL ALLEGED
04 NARRATIVE DESCRIPTION

Waste was dumped indiscriminately from 1920 to early 1980's.

01 N. DAMAGE TO OFFSITE PROPERTY
03 ACREAGE AFFECTED: unknown

02 OBSERVED (DATE: _____) POTENTIAL ALLEGED
04 NARRATIVE DESCRIPTION

There exists the potential for off-site migration of dust from lime slag piles.

01 O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTps
03 POPULATION POTENTIALLY AFFECTED: _____

02 OBSERVED (DATE: _____) POTENTIAL ALLEGED
04 NARRATIVE DESCRIPTION

None expected.

01 P. ILLEGAL/UNAUTHORIZED DUMPING
03 POPULATION POTENTIALLY AFFECTED: _____

02 OBSERVED (DATE: _____) POTENTIAL ALLEGED
04 NARRATIVE DESCRIPTION

None expected.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: 10,000

IV. COMMENTS

It has been reported that indiscriminate dumping of industrial wastes, old machinery and raw material took place in a random manner on the entire 62 acre site.

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Preliminary Site Assessment Report, March 1991, E.C. Jordan Co., and references cited therein.



**POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION**

I. IDENTIFICATION

01 STATE
New York

01 SITE NUMBER
D096311527

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
<input type="checkbox"/> A. NPDES				This facility contains two separate landfills that are presently awaiting renewal of the two Part 360 permits to operate. Metals have been detected by groundwater sample analysis. Baghouse dust failed EP
<input type="checkbox"/> B. UIC				
<input type="checkbox"/> C. AIR				
<input type="checkbox"/> D. RCRA				
<input type="checkbox"/> E. RCRA INTERIM STATUS				
<input type="checkbox"/> F. SPCC PLAN				
<input checked="" type="checkbox"/> G. STATE (specify)		10/20/81		
<input type="checkbox"/> H. LOCAL (specify)				
<input type="checkbox"/> I. OTHER (specify)				
<input type="checkbox"/> J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (check all that apply)	02 AMOUNT	03 UNIT OF MEASURE	04 TREATMENT (check all that apply)	05 OTHER <input checked="" type="checkbox"/> A. BUILDINGS ONSITE
<input type="checkbox"/> A. SURFACE IMPOUNDMENT <input type="checkbox"/> B. PILES <input type="checkbox"/> C. DRUMS, ABOVE GROUND <input type="checkbox"/> D. TANK, ABOVE GROUND <input type="checkbox"/> E. TANK, BELOW GROUND <input checked="" type="checkbox"/> F. LANDFILL <input type="checkbox"/> G. LANDFARM <input type="checkbox"/> H. OPEN DUMP <input type="checkbox"/> I. OTHER (specify)	_____ _____ _____ 11,000 _____ _____	_____ _____ _____ tons/yr _____ _____	<input type="checkbox"/> A. INCINERATION <input type="checkbox"/> B. UNDERGROUND INJECTION <input type="checkbox"/> C. CHEMICAL/PHYSICAL <input type="checkbox"/> D. BIOLOGICAL <input type="checkbox"/> E. WASTE OIL PROCESSING <input type="checkbox"/> F. SOLVENT RECOVERY <input type="checkbox"/> G. OTHER RECYCLING/RECOVERY <input type="checkbox"/> H. OTHER (specify)	<input checked="" type="checkbox"/> A. BUILDINGS ONSITE 06 AREA OF SITE _____ 62 _____ (acres)

07 COMMENTS

Portions of the 62-acre site allegedly had indiscriminate dumping on-site. In addition to industrial wastes, old machinery and raw materials were placed on-site in a random manner.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (check one)

A. ADEQUATE, SECURE B. MODERATE C. INADEQUATE, POOR D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

SKW Alloy landfill is lined and contains leachate collection system. Landfill is currently being closed in accordance with 6 NYCRR 360. Airco landfill is closed and does not contain a leachate collection system. Exposed wastes are not covered or contained. The slag piles on the Niagara Mohawk Power Corporation land are uncovered and unlined.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: YES NO

02 COMMENTS

Landfill site is fenced and guarded.

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Preliminary Site Assessment Report, March 1991, E.C. Jordan Co., and references cited therein.



**POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT**

PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE
New York

01 SITE NUMBER
D096311527

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (check as applicable)		02 STATUS			03 DISTANCE TO SITE	
COMMUNITY	SURFACE A. <input checked="" type="checkbox"/>	WELL A. <input type="checkbox"/>	ENDANGERED A. <input type="checkbox"/>	AFFECTED B. <input type="checkbox"/>	MONITORED C. <input checked="" type="checkbox"/>	A. <u>Approx. 1.5</u> (mi)
NON-COMMUNITY	B. <input type="checkbox"/>	B. <input checked="" type="checkbox"/>	D. <input type="checkbox"/>	E. <input type="checkbox"/>	F. <input type="checkbox"/>	B. <u>1,200 feet</u> (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (check one)

A. ONLY SOURCE FOR DRINKING B. DRINKING (other sources available) C. COMMERCIAL INDUSTRIAL IRRIGATION (Limited other sources available) D. NOT USED, UNUSABLE
COMMERCIAL, INDUSTRIAL, IRRIGATION
(No other water sources available)

02 POPULATION SERVED BY GROUNDWATER < 5 03 DISTANCE TO NEAREST DRINKING WATER WELL 1,200 (ft)

04 DEPTH TO GROUNDWATER <u>20</u> (ft)	05 DIRECTION OF GROUNDWATER FLOW <u>southwest</u>	06 DEPTH TO AQUIFER OF CONCERN <u>10-15</u> (ft)	07 POTENTIAL YIELD OF AQUIFER <u>2,880-158,400</u> (gpd)	08 SOLE SOURCE AQUIFER <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
---	--	---	---	---

09 DESCRIPTION OF WELLS (including usage, depth, and location relative to population and buildings)

Wells on-site are used exclusively for groundwater monitoring. Wells located 0.2 miles north of site are used by two residences for drinking water.

10 RECHARGE AREA <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO COMMENTS - Recharge via precipitation	11 DISCHARGE AREA <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO COMMENTS
--	--

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

A. RESERVOIR, RECREATION DRINKING WATER SOURCE B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES C. COMMERCIAL INDUSTRIAL D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
<u>Niagara River</u>	<input type="checkbox"/>	<u>1.5</u> (mi)
<u>Lewiston Reservoir</u>	<input type="checkbox"/>	<u>1.5</u> (mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN			02 DISTANCE TO NEAREST POPULATION <u>0.2</u> (mi)
ONE (1) MILE OF SITE A. <u>5,540</u> NO. OF PERSONS	TWO (2) MILES OF SITE B. <u>34,035</u> NO. OF PERSONS	THREE (3) MILES OF SITE C. <u>58,299</u> NO. OF PERSONS	
03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE <u>12,824</u>	04 DISTANCE TO NEAREST OFF-SITE BUILDING <u>500 feet</u>		

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within written vicinity of site, e.g., rural, village, densely populated urban area)

Highly industrialized area with densely populated areas within 1/2 mile of site.



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION

01 STATE
New York

01 SITE NUMBER
D096311527

II. SAMPLES TAKEN - No samples collected for this PSA Task 1

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER			
SURFACE WATER			
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL			
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
Air	Air monitoring performed with an HNU photoionization detector; no readings noted above background.

IV. PHOTOGRAPHS AND MAPS

01 TYPE <input checked="" type="checkbox"/> GROUND <input type="checkbox"/> AERIAL	02 IN CUSTODY OF <u>NYSDEC Central Office</u> <small>(Name of organization or individual)</small>
03 MAPS <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	04 LOCATION OF MAPS <u>Sri Maddineni, NYSDEC, Albany, New York</u>

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

No other field data were collected for this PSA Task 1.

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Preliminary Site Assessment Report, March 1991, E.C. Jordan Co., and references cited therein.



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION

I. IDENTIFICATION

01 STATE

New York

01 SITE NUMBER

D096311527

II. CURRENT OWNER(S)				PARENT COMPANY (If applicable)			
01 NAME SKW Alloys		02 D+B NUMBER		08 NAME		09 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.) 380 Highland Avenue			04 SIC CODE	10 STREET ADDRESS (P.O. Box, RFD #, etc.)			11 SIC CODE
05 CITY Niagara Falls		06 STATE New York	07 ZIP CODE 14305	12 CITY		13 STATE	14 ZIP CODE
01 NAME Airco Properties, Inc.		02 D+B NUMBER		08 NAME		09 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE	10 STREET ADDRESS (P.O. Box, RFD #, etc.)			11 SIC CODE
05 CITY Niagara Falls		06 STATE New York	07 ZIP CODE 14303	12 CITY		13 STATE	14 ZIP CODE
01 NAME Niagara Mohawk Corp.		02 D+B NUMBER		08 NAME		09 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.) 535 Washington Street			04 SIC CODE	10 STREET ADDRESS (P.O. Box, RFD #, etc.)			11 SIC CODE
05 CITY Buffalo		06 STATE New York	07 ZIP CODE 14212	12 CITY		13 STATE	14 ZIP CODE
01 NAME		02 D+B NUMBER		08 NAME		09 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE	10 STREET ADDRESS (P.O. Box, RFD #, etc.)			11 SIC CODE
05 CITY		06 STATE	07 ZIP CODE	12 CITY		13 STATE	14 ZIP CODE
III. PREVIOUS OWNER(S) (List most recent first)				IV. REALTY OWNER(S) (If applicable; list most recent first)			
01 NAME Airco Alloys		02 D+B NUMBER		01 NAME Airco, Inc.		02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.) 4861 Packard Road			04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE
05 CITY Niagara Falls		06 STATE New York	07 ZIP CODE 14304	05 CITY		06 STATE	07 ZIP CODE
01 NAME Pittsburgh Metallurgical		02 D+B NUMBER		01 NAME		02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.) 4861 Packard Road			04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE
05 CITY Niagara Falls		06 STATE New York	07 ZIP CODE 14304	05 CITY		06 STATE	07 ZIP CODE
01 NAME Vanadium Corp. of America		02 D+B NUMBER		01 NAME		02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.) unknown			04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE
05 CITY		06 STATE	07 ZIP CODE	05 CITY		06 STATE	07 ZIP CODE
V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)							
Preliminary Site Assessment Report, March 1991, E.C. Jordan Co., and references cited therein.							



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION

01 STATE
New York

01 SITE NUMBER
D096311527

II. CURRENT OPERATOR (Provide if different from owner)

OPERATOR'S PARENT COMPANY (If applicable)

01 NAME
SKW Alloys, Inc./ Carbon Graphite Group

02 D+B NUMBER

10 NAME

11 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)
3801 Highland Avenue/4861 Packard Road

04 SIC CODE

12 STREET ADDRESS (P.O. Box, RFD #, etc.)

13 SIC CODE

05 CITY
Niagara Falls

06 STATE
New York

07 ZIP CODE
14305

14 CITY

15 STATE

16 ZIP CODE

08 YEARS OF OPERATION
7

09 NAME OF OWNER

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)

PREVIOUS OPERATOR'S PARENT COMPANIES (If applicable)

01 NAME
Airco Alloys

02 D+B NUMBER

10 NAME
Airco, Inc.

11 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)
4861 Packard Road

04 SIC CODE

12 STREET ADDRESS (P.O. Box, RFD #, etc.)

13 SIC CODE

05 CITY
Niagara Falls

06 STATE
New York

07 ZIP CODE
14304

14 CITY

15 STATE

16 ZIP CODE

08 YEARS OF OPERATION
14

09 NAME OF OWNER

01 NAME
Vanadium Corp. of America

02 D+B NUMBER

10 NAME

11 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)
Unknown

04 SIC CODE

12 STREET ADDRESS (P.O. Box, RFD #, etc.)

13 SIC CODE

05 CITY

06 STATE

07 ZIP CODE

14 CITY

15 STATE

16 ZIP CODE

08 YEARS OF OPERATION
44

09 NAME OF OWNER

01 NAME

02 D+B NUMBER

10 NAME

11 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)

04 SIC CODE

12 STREET ADDRESS (P.O. Box, RFD #, etc.)

13 SIC CODE

05 CITY

06 STATE

07 ZIP CODE

14 CITY

15 STATE

16 ZIP CODE

08 YEARS OF OPERATION

09 NAME OF OWNER

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Preliminary Site Assessment Report, March 1991, E.C. Jordan Co., and references cited therein.



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION

01 STATE

New York

01 SITE NUMBER

D096311527

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE 07 ZIP CODE

III. OFF-SITE GENERATOR(S)

01 NAME SKW Alloys	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.) 3801 Highland Avenue	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY Niagara Falls	06 STATE New York	07 ZIP CODE 14305	05 CITY 06 STATE 07 ZIP CODE
01 NAME Carbon/Graphite Group	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.) 4861 Packard Road	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY Niagara Falls	06 STATE New York	07 ZIP CODE 14305	05 CITY 06 STATE 07 ZIP CODE

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	05 CITY 06 STATE 07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	05 CITY 06 STATE 07 ZIP CODE

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Preliminary Site Assessment Report, March 1991, E.C. Jordan Co., and references cited therein.



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE
New York

01 SITE NUMBER
D096311527

II. PAST RESPONSE ACTIVITIES

01 04	A. WATER SUPPLY CLOSED DESCRIPTION	02 DATE _____	03 AGENCY _____
N/A			
01 04	B. TEMPORARY WATER SUPPLY PROVIDED DESCRIPTION	02 DATE _____	03 AGENCY _____
N/A			
01 04	C. PERMANENT WATER SUPPLY PROVIDED DESCRIPTION	02 DATE _____	03 AGENCY _____
N/A			
01 04	D. SPILLED MATERIAL REMOVED DESCRIPTION	02 DATE _____	03 AGENCY _____
N/A			
01 04	E. CONTAMINATED SOIL REMOVED DESCRIPTION	02 DATE _____	03 AGENCY _____
N/A			
01 04	F. WASTE REPACKAGED DESCRIPTION	02 DATE _____	03 AGENCY _____
N/A			
01 04	G. WASTE DISPOSED ELSEWHERE DESCRIPTION	02 DATE _____	03 AGENCY _____
N/A			
01 04	H. ON SITE BURIAL DESCRIPTION	02 DATE _____	03 AGENCY _____
N/A			
01 04	I. IN SITU CHEMICAL TREATMENT DESCRIPTION	02 DATE _____	03 AGENCY _____
N/A			
01 04	J. IN SITU BIOLOGICAL TREATMENT DESCRIPTION	02 DATE _____	03 AGENCY _____
N/A			
01 04	K. IN SITU PHYSICAL TREATMENT DESCRIPTION	02 DATE _____	03 AGENCY _____
N/A			
01 04	L. ENCAPSULATION DESCRIPTION	02 DATE _____	03 AGENCY _____
N/A			
01 04	M. EMERGENCY WASTE TREATMENT DESCRIPTION	02 DATE _____	03 AGENCY _____
N/A			
01 04	N. CUTOFF WALLS DESCRIPTION	02 DATE _____	03 AGENCY _____
N/A			
01 04	O. EMERGENCY DIKING/SURFACE WATER DIVERSION DESCRIPTION	02 DATE _____	03 AGENCY _____
N/A			
01 04	P. CUTOFF TRENCHES/SUMP DESCRIPTION	02 DATE _____	03 AGENCY _____
N/A			
01 04	Q. SUBSURFACE CUTOFF WALL DESCRIPTION	02 DATE _____	03 AGENCY _____
N/A			



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE
New York

01 SITE NUMBER
D096311527

II. PAST RESPONSE ACTIVITIES (Continued)

01 R. BARRIER WALLS CONSTRUCTED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

N/A

01 S. CAPPING/COVERING
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

N/A

01 T. BULK TANKAGE REPAIRED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

N/A

01 U. GROUT CURTAIN CONSTRUCTED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

N/A

01 V. BOTTOM SEALED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

N/A

01 W. GAS CONTROL
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

N/A

01 X. FIRE CONTROL
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

N/A

01 Y. LEACHATE TREATMENT
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

N/A

01 Z. AREA EVACUATED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

N/A

01 1. ACCESS TO SITE RESTRICTED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

N/A

01 2. POPULATION RELOCATED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

N/A

01 3. OTHER REMEDIAL ACTIVITIES
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

N/A

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Preliminary Site Assessment Report, March 1991, E.C. Jordan Co., and references cited therein.



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION

01 STATE
New York

01 SITE NUMBER
D096311527

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION YES NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

SKW was issued a NYSDEC Part 360 Permit on 10/20/81; renewal of permit is under review.

Airco Carbon Corp. was issued a NYSDEC Part 360 Permit IN 1981; renewal of the permit to operate is also under review.

Phase I Investigation, Ecology and the Environment, 1989.

Phase I Investigation, NUS Corporation, 1988.

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Preliminary Site Assessment Report, March 1991, E.C. Jordan Co., and references cited therein.

APPENDIX C

INTERVIEW DOCUMENTATION FORMS

E.C. Jordan Co.
Work Assignment No. D002472-6

New York State Department of Environmental Conservation
Preliminary Site Assessments

INFORMATIONAL INTERVIEW

Job No: 6291-20

Date: 7/19/90

Site: SKW Alloy Landfill

Telephone: _____ In-Person

Between: Roger Bondeson
E.C. Jordan Co.

and: Richard R. Snyder, P.E.

Signature: *Roger Bondeson*

Affiliation: Consultant for SKW

Signature: *Richard R. Snyder*

Ownership History:

U.S. Vanadium Corporation (1920-1964)
Pittsburg Metallurgical (1964-1979 now Airco, Inc.)
SKW Alloys purchased the Airco Alloys division of Airco, Inc. in 1979
which included the western 37 acres of the 62 acre parcel originally
owned by U.S. Vanadium Corporation.
Airco, Properties, Inc. owns the eastern 25 acres.

Several piles of raw material were in existence on the site when SKW purchased the property. It is believed that these piles consisted of iron turnings, woodchips, and quartz. The piles were removed prior to 1989.

SKW Alloys has constructed and operated two landfill cells on the property in accordance with NYSDEC solid waste regulations.

Cell one was designed for the disposal of ferrochrome silicon baghouse dust and ferro silicon baghouse dust wastes. This cell has a five foot clay liner and a leachate collection system. It is expected that cell one will be closed in August of 1990.

The production of ferrochrome alloy materials was discontinued in 1981 or 1982 due to economic factors. All ferrochrome silicon dust materials were disposed of in cell one. Cell two does not contain ferrochrome silicon dust materials.

Waste being disposed of in cell two consists of ferrosilicon and silicon metal baghouse dust.

The NYSDEC permit to operate cell two has expired and SKW Alloy is under a consent order to close both cell one and cell two. It is expected that cell two will be closed in the summer of 1991.

Cell two has a two foot liner consisting of clay. Cell two cannot be closed until the height of the cell reaches the elevation agreed upon by SKW and NYSDEC in the consent order. There has been a delay in achieving the appropriate elevation due to a reduction in ferrosilicon silicon metal baghouse dusts being disposed of in the landfill. Much of the silicon metal dust is being recycled as concrete additive.

Leachate from both cells one and two is being collected and used to slurry with baghouse dusts.

The buildings attached to the guard house are leased by Stollberg, Inc. for the production of foundry casting powders.

The other buildings on the property are used for storage of raw materials and equipment parts.

Raw materials such as quartzite and coal fines are stored in piles on the property.

E.C. Jordan Co.
Work Assignment No. D002472-6

New York State Department of Environmental Conservation
Preliminary Site Assessments

INFORMATIONAL INTERVIEW

Job No: 6291-20

Date: 7/19/90

Site: SKW Alloy Landfill

Telephone: (716) 285-9389; In-Person X

Between: Roger Bondeson
E.C. Jordan Co.

and: Suzette D. Kosikowski

Signature: *Roger Bondeson*

Affiliation: The Carbon/Graphite Group, Inc.

Signature: *Suzette D. Kosikowski*

Airco Properties, Inc. owns the eastern 25 acres of the original 62 acres that were owned by the U.S. Vanadium Corporation.

The Carbon/Graphite Group, Inc. currently operates the site while Airco, Properties, Inc. still retains ownership.

The Carbon/Graphite Group, Inc. has not disposed of any materials on this 25-acre parcel since the company became the site operator. The company is waiting to receive permit approval from NYSDEC.

The Carbon/Graphite Group, Inc. currently sends its waste materials to the Modern Landfill.

Airco Carbon disposed of fire bricks, concrete cinder blocks, coke, and carbon fines on the 25-acre parcel.

Exposed piles of waste observed at the time of the site tour were reportedly dumped by the U.S. Vanadium Corporation before the Carbon Graphite Group, Inc. became the operator of the property.

The exposed piles of waste that were observed on the Airco Properties, Inc. property and on the adjacent Niagara Mohawk Power Corporation right-of-way reportedly contain ferrosilicon baghouse dust, iron alloy slags, and lime slag.

The Carbon/Graphite Group conducts groundwater monitoring on a quarterly basis.

E.C. Jordan Co.
Work Assignment No. D002472-6

New York State Department of Environmental Conservation
Preliminary Site Assessments

INFORMATIONAL INTERVIEW

Job No: 6291-20

Date: 7/19/90

Site: SKW Alloy Landfill

Telephone: _____ In-Person X

Between: Roger Bondeson
E.C. Jordan Co.

and: Ronald R. Stipp

Affiliation: Plant Engineer

Signature: *Roger Bondeson*

Signature: *Ronald R. Stipp* 8/13/90

A 10,000/gallon underground storage tank used to store fuel oil was removed in 1989. The tank was removed in the presence of a representative from NYSDEC. The tank was located west of the old scale house and south of the landfill cells.

Piles of woodchips were stored adjacent to cell two.



**POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT**

PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE

New York

01 SITE NUMBER

D096311527

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

A. 10^{-9} - 10^{-8} cm/sec B. 10^{-4} - 10^{-8} cm/sec C. 10^{-4} - 10^{-3} cm/sec D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

A. IMPERMEABLE (Less than 10^{-8} cm/sec) B. RELATIVELY IMPERMEABLE (10^{-4} - 10^{-8} cm/sec) C. RELATIVELY PERMEABLE (10^{-2} - 10^{-4} cm/sec) D. VERY PERMEABLE (Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK

10-25 (ft)

04 DEPTH OF CONTAMINATED SOIL ZONE

unknown (ft)

05 SOIL Ph

5.6 - 7.3

06 NET PRECIPITATION

4.0 (in)

07 ONE YEAR 24 HOUR RAINFALL

2.5 (in)

08 SLOPE

SITE SLOPE

0.5 %

DIRECTION OF SITE SLOPE

East

TERRAIN AVERAGE SLOPE

1.3 %

09 FLOOD POTENTIAL

SITE IS IN N/A YEAR FLOODPLAIN

10

 SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE

OTHER

A. (mi)

B. 2.5 (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

> 1 (mi)

ENDANGERED SPECIES: > 1 mile

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL

A. 0.10 (mi)

RESIDENTIAL AREAS; NATIONAL/STATE PARKS,
FORESTS, OR WILDLIFE RESERVES

B. 0.5 (mi)

AGRICULTURAL LANDS
PRIME AG LAND

C. 4 (mi)

AG LAND

D. 4 (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

The site is located in the northerly section of the City of Niagara Falls, New York, approximately 1.5 miles east of the Whirlpool State Park. It is situated in a highly industrialized area with densely populated residential areas located approximately 0.5 miles to the south and east. The area is generally flat and surface water is not present on-site.

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Preliminary Site Assessment Report, March 1991, E.C. Jordan Co., and references cited therein.

APPENDIX D
EP TOXICITY TEST RESULTS

RADIAN
CORPORATION

November 6, 1984

Mr. Art Elmquest
SKW Alloys, Inc.
P. O. Box 368
Niagara Falls, New York 14302

Dear Mr. Elmquest:

Please find enclosed the analytical results of the solid waste samples that were gathered at the SKW Alloy Ferroalloy facility in Niagara Falls, New York. Please append this data to the trip report you received earlier.

Sincerely,

Ronald J. Dickson

Ronald J. Dickson
Environmental Engineer

RJD/ver

Enclosure

*Austin
Trape - Radian
Corporation*

ANALYSIS RESULTS FOR SKW - NIAGARA FALLS, NEW YORK

SAMPLE: FERROSILICON EMISSION CONTROL DUST

POLLUTANT	EP TOXICITY (MG/L)	MA C _{max}	ASTM DISTILLED WATER LEACH (MG/L)	TOTAL ANALYSIS (MG/KG)
AG	0.0060		<0.0020	<2.0000
AS	0.0600		1.5000	73.0000
BA	0.2700		0.1800	24.0000
CD	0.0040		<0.0020	<1.8000
CR	0.2500		0.1800	170.0000
CU	0.6400		0.0680	170.0000
FE	0.8400		0.0110	6000.0000
HG	0.0009		<0.0005	0.2500
MN	17.0000		0.5800	1000.0000
NI	0.1700		0.0920	13.0000
PB	0.2100		<0.0020	30.0000
SB	<0.0300		<0.0300	<1.6000
SE	2.0000	1.000	5.3000	0.6400
U	NA		NA	NA
V	NA		NA	NA
ZN	21.0000		0.0300	960.0000
CL	440.0000		1500.0000	NA
CNFFREE	NA		NA	NA
CNTOTAL	NA		NA	NA
CR6	<0.0200		<0.0200	NA
F	26.0000		75.0000	NA
NO3	6.5000		<0.1000	NA
RADIOACT	NA		NA	NA
S04	580.0000		1700.0000	NA
TDS	2200.0000		6100.0000	NA
Total phenolics	0.36		0.70	

ANALYSIS RESULTS FOR SKW - NIAGARA FALLS, NEW YORK

SAMPLE: FERROCHROMESILICON EMISSION CONTROL DUST

POLLUTANT	EP TOXICITY (MG/L)	ASTM DISTILLED WATER LEACH (MG/L)	TOTAL ANALYSIS (MG/KG)
AG	<0.0020	<0.0020	<1.2000
AS	0.0600	0.0170	15.0000
BA	0.1100	0.0330	5.2000
CD	<0.0020	<0.0020	<0.1000
CR	14.0000	44.0000	1800.0000
CU	0.1300	<0.0010	24.0000
FE	0.1600	<0.0080	710.0000
HG	0.0008	<0.0005	0.3600
MN	8.9000	0.0090	260.0000
NI	0.2300	<0.0030	13.0000
PB	1.8000	<0.0020	18.0000
SB	0.3800	1.3000	28.0000
SE	0.0180	0.6000	2.7000
U	NA	NA	NA
V	NA	NA	NA
ZN	35.0000	0.2900	1100.0000
CL	330.0000	160.0000	NA
CNFFREE	NA	NA	NA
CNTOTAL	NA	NA	NA
CR6	<0.0200	<0.0200	<0.0200
F	1.1000	9.9000	NA
N03	6.9000	<0.1000	NA
RADIOACT	NA	NA	NA
S04	320.0000	1250.0000	NA
TDS	4000.0000	2700.0000	NA

ANALYSIS RESULTS FOR SKW - NIAGARA FALLS, NEW YORK

SAMPLE: FERROCHROMESILICON SLAG

POLLUTANT	EP TOXICITY (MG/L)	ASTM DISTILLED WATER LEACH (MG/L)	TOTAL ANALYSIS (MG/KG)
AG	<0.0020	<0.0020	<0.6300
AS	0.0030	0.0100	7.3000
BA	0.0300	0.0810	39.0000
CD	<0.0020	<0.0020	<0.0970
CR	0.0140	0.0180	57.0000
CU	0.0080	<0.0010	91.0000
FE	0.4300	<0.0080	2100.0000
HG	0.0010	<0.0005	0.1900
MN	0.3100	0.0010	130.0000
NI	0.0060	0.0070	42.0000
PB	0.0460	0.0040	10.0000
SB	<0.0320	<0.0320	1.7000
SE	0.0120	0.0060	0.2900
U	NA	NA	NA
V	NA	NA	NA
ZN	0.3100	<0.0030	80.0000
CL	38.0000	5.3000	NA
CNFREE	NA	NA	NA
CNTOTAL	NA	NA	NA
CR6	<0.0200	<0.0200	<0.0200
F	0.1600	1.0000	NA
NO3	0.5300	<0.1000	NA
RADIOACT	NA	NA	NA
S04	8.2000	40.0000	NA
TDS	455.0000	320.0000	NA

Organics Analysis
For Ferrosilicon Bag-
house Dust
SKW Alloys, Niagara Falls, NY

<u>Compound</u>	<u>Concentration (ppm)</u>
3,3-Dimethyl hexane ^a	4.5
1,2-Benzenedicarboxylic acid butyl-2-methyl propylester ^a	1.7

^aThis compound is a product of sample preparation and analysis.




CONDENSED SILICA FUME DUST
FROM THE BAGHOUSE COLLECTOR

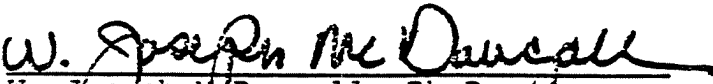
ANALYSIS OF TWO SAMPLES
FOR EP TOXICITY

Report Prepared For

SKW ALLOYS, INC.



Karen E. Kuklis
Project Controller



W. Joseph McDougall, Ph.D.
Technical Evaluation

November 24, 1987
AES Report CNQ

COMMITMENT
TO
HONESTY - QUALITY - SERVICE

EXTRACTION PROCEDURE (E.P.) TOXICITY - METALS
 ADVANCED ENVIRONMENTAL SERVICES, INC.
 LABORATORY REPORT

=====
 Type of Analysis: Metals
 Client: SKW ALLOYS A.E.S. Job Code CNQ

(All results are in mg/l)

Analysis Method No.	Ref No.	Allowable Conc. (mg/l)	Quant. Limits	Analysis Date	A.E.S. Lab No. -		FROM SILICON METAL OPER GRAB REC'D	FROM FERRO SILICON OPER GRAB REC'D	Result
					Sample ID	16071 DRY #11			
Arsenic	7060	5	5.0	0.005	11/12/87	16071 DRY #11	16072 DRY #9	0.035	0.218
Barium	7080	5	100.0	1.00	11/17/87	BQL*			BQL
Cadmium	7130	5	1.0	0.04	11/17/87	0.07			BQL
Chromium	7190	5	5.0	0.50	11/17/87	BQL			BQL
Lead	7420	5	5.0	1.00	11/17/87	BQL			BQL
Mercury	7471	5	0.2	0.001	11/18/87	0.005			0.005
Selenium	7740	5	1.0	0.005	11/12/87	0.374			0.060
Silver	7760	5	5.0	0.10	11/17/87	BQL			BQL

Jahette Bingert
 Jahette Bingert
 Atomic Spectroscopy Supervisor

* Below quantifiable limits.

ADVANCED ENVIRONMENTAL SERVICES
 =====
 STANDARD ADDITIONS DATA SHEET

CUSTOMER: SKW ALLOYS
 JOB CODE: CNQ

UNITS: MILLIGRAMS/LITER, OR PPM

S.#	ELEMENT	0/ABS.	1 SPK/1 ABS	2 SPK/2 ABS	3 SPK/3 ABS	FIN CONC	r*
071	Arsenic	0.116	0.0125/0.160	0.025/0.249	0.050/0.402	0.035	.995
072	Arsenic	0.126*	0.0125/0.173	0.025/0.233	0.050/0.385	0.044	.995
071	Barium	0.001	2.50/0.059	5.00/0.098	10.00/0.192	BQL**	.998
072	Barium	0.000	2.50/0.058	5.00/0.096	10.00/0.194	BQL	.998
071	Cadmium	0.003	0.25/0.035	0.50/0.069	1.00/0.126	0.07	.999
072	Cadmium	0.001	0.25/0.033	0.50/0.065	1.00/0.128	BQL	.999
071	Chromium	0.000	1.25/0.049	2.50/0.098	5.00/0.186	BQL	.999
072	Chromium	0.001	1.25/0.050	2.50/0.098	5.00/0.185	BQL	.999
071	Lead	0.004	2.50/0.030	5.00/0.051	10.00/0.101	BQL	.999
072	Lead	0.002	2.50/0.027	5.00/0.053	10.00/0.105	BQL	.999
071	Mercury	14.0 ¹	0.00125/21.0	0.0025/30.0	0.005/41.0	0.005	.995
072	Mercury	15.0 ¹	0.00125/22.0	0.0025/30.0	0.005/43.0	0.005	.999
071	Selenium	0.0068*	0.0125/0.093	0.025/0.118	0.050/0.161	0.075	.999
072	Selenium	0.073	0.0125/0.092	0.025/0.123	0.050/0.185	0.060	.996
071	Silver	0.000	0.50/0.040	1.00/0.071	2.00/0.136	BQL	.999
072	Silver	0.000	0.50/0.038	1.00/0.064	2.00/0.125	BQL	.998

*"r" is the correlation coefficient.

-/- correlation coefficient is outside of control window of 0.995

* Spike on sample dilution factor of five.

** Below quantifiable limits.

¹ Measured in peak height.

ADVANCED ENVIRONMENTAL SERVICES, INC.
PARAMETER TRACEABILITY REPORT
ATOMIC SPECTROSCOPY DEPARTMENT

AES JOB CODE CMG

<u>ANALYST</u>	<u>ANALYTICAL METHOD</u>	<u>SAMPLE CODE</u>	<u>DATE OF ANALYSIS</u>	<u>TIME OF ANALYSIS</u>
<u>F. Sullivan</u>	<u>7080</u>	<u>16071-72</u>	<u>11-17-87</u>	<u>2300</u>
	<u>7130</u>	<u>16071-72</u>	<u>11-17-87</u>	<u>2000</u>
	<u>7190</u>	<u>16071-72</u>	<u>11-17-87</u>	<u>1900</u>
	<u>7420</u>	<u>16071-72</u>	<u>11-17-87</u>	<u>2100</u>
	<u>7760</u>	<u>16071-72</u>	<u>11-17-87</u>	<u>2200</u>
<u>P. McMahon</u>	<u>7060</u>	<u>16071-72</u>	<u>11-12-87</u>	<u>1300</u>
	<u>7740</u>	<u>16071-72</u>	<u>11-12-87</u>	<u>1600</u>
	<u>7471</u>	<u>16071-72</u>	<u>11-18-87</u>	<u>0700</u>

ADVANCED ENVIRONMENTAL SERVICES, INC.
 LABORATORY REPORT

=====
 Type of Analysis: EPTOX ORGANICS

Units Of Measure: Micrograms/Liter, or ppb
 Client: SKW ALLOYS A.E.S. Job Code CNQ

AES Lab No.- 16071 16072
 Sample ID - DRY #11 DRY #9
 FROM SILICON FROM FERRO
 METAL OPER SILICON OPER
 11/10/87 11/10/87

Analytical Parameter(s)	Method No.	Ref No.	Quant.		Sample Date	BQL*
			Limits			
Lindane	608	1	0.10		11/10/87	BQL
Endrin	"	"	0.50		11/10/87	BQL
Methoxychlor	"	"	1.00		11/10/87	BQL
Toxaphene	"	"	5.00		11/10/87	BQL
2,4-D	509B	6	0.50		11/10/87	BQL
Silvex	"	"	0.50		11/10/87	BQL

* Below quantifiable limits.

James Figler

 James Figler
 Gas Chromatography Supervisor

ANALYTICAL METHODOLOGIES

The method numbers for each procedure are listed in the second column of the tabulated results. The source for each method is listed as a reference number in the third column. The source(s) for the Analytical Methodologies are:

- 1 - EPA 40 CFR Part 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act; Final Rule and Interim Final Rule and Proposed Rule", Federal Register 49 (209), October 26, 1984.
- 2 - EPA 600/4-80-022, "Guidelines Establishing Test Procedures for the Analysis of Pollutants; Proposed Regulations, Correction", Federal Register 44 (244), December 18, 1979.
- 3 - EPA 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", (1983).
- 4 - EPA 600/4-79-057, "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater", (1982).
- 5 - EPA-SW-846, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", second edition (1982).
- 6 - Standard Methods for the Examination of Water and Wastewater", 16th edition, (1985).
- 7 - New York State Institute of Toxicology Analytical Handbook, October 1982, Updated March, 1986.
- 8 - NIOSH Manual of Analytical Methods, second edition 1977.
- 9 - "The Analysis of Polychlorinated Biphenyls in Transformer Fluid and Waste Oil", EPA Environmental Monitoring and Support Laboratory draft, June 24, 1980.
- 10 - "Approved Analytical Procedures for Determining the Content of Constituents Banned from Landburial" (New York State DEC, Division of Solid and Hazardous Waste), January 1985.
- 11 - EPA 600/4-81-055, "Interim Methods for the Sampling and Analysis of Priority Pollutants in Sediments and Fish Tissue", Revised January 7, 1983.
- 12 - "Determination of Formaldehyde in the Atmosphere", Environmental Health Center, Division of Laboratories and Research, NYS Department of Health APC-29.
- 13 - "Chemical Soil Tests", Cornell University Agricultural Experiment Station, NYS College of Agricultural, Ithaca, N.Y. Bulletin 960, Revised October 1965.
- 14 - "Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter", American Society for Testing and Materials, Philadelphia, Pa., Designation: D 240-64 (Reapproved 1973).
- 15 - "Analyzing Trace Amounts of Solvents in Water" (Supelco Bulletin 816).
- 16 - "Determination of Aniline and Substituted Derivatives in Wastewater by Gas and Liquid Chromatography", (Analytical Chemistry, Vol. 55, No. 12, October 1983).

APPENDIX E

GROUNDWATER AND SURFACE WATER SAMPLING DATA
FOR THE
SKW ALLOYS INC. AND AIRCO PROPERTIES INC., LANDFILLS

APPENDIX E-1

SKW ALLOYS, INC. SAMPLING DATA

SLC Consultants/Constructors, Inc.

June 15, 1987



SKW Alloys, Inc.
3801 Highland Avenue
Niagara Falls, NY 14305

ATTENTION: Art Elmquest

Dear Mr. Elmquest:

Please find attached the results from the analysis performed on the samples taken on April 15, 1987 and the deep and shallow well elevations.

The "long list" of parameters was run per the agreement with the NYSDEC. The shallow wells were also sampled where there was enough sample and analyzed.

Please call with any questions.

Sincerely,

A handwritten signature in black ink, appearing to be 'DK' with a long horizontal stroke extending to the left.

Donald J. Kuhn
President
SLC CONSULTANTS/CONSTRUCTORS, INC.

DJK/rk
Attach.: Witmer Road Sampling Report
cc Joseph E. Cumbo, Chief Chemist.

Sample Date	pH Units	Cond. umhos	TDS mg/l	COD mg/l	TOC mg/l	Ba	Cr (T)	Cr (VI)	Fe	Mn	SI	Zn	mg/l	
3/7/79	7.30	1200		10	<2	0.10	<0.01		1.23	0.95	9.8	0.82		
4/11/79	7.30	1350		10	2	0.01	<0.01		1.00	1.10	9.0	0.99		
5/14/79	7.65	1000		18	5	0.15	0.01		1.10	0.80	4.9	0.75		
6/11/79	7.45	1100		6.4	17	0.10	<0.01		1.60	0.88	6.2	0.70		
12/14/79	6.85	1250		6	20	0.15	<0.02		1.1	0.24		0.41		
1/16/80	7.80	1200	774	<2	54	0.1	<0.02		0.26	0.26	10	0.31		
4/11/80	6.75	1400	1280	8	39	<0.1	<0.02	<0.01	0.02	0.19	6.1	0.74		
7/8/80	7.25	1300	1020	12	110	0.1	0.02		0.22	0.18	4.3	0.17		
10/30/80														
1/7/81	6.9	1150	847	<20	4		0.096	<0.005	<0.050	0.055	7.0	<0.051		
4/7/81	7.58	1010	878	18.9	10	<0.2	<0.005	<0.005	<0.05	0.02	10.2	0.27		
6/22/81	6.97	1140	1074	21.6	2	0.40	0.016	0.010	<0.05	0.051	3.4	0.19		
10/29/81	7.05	960	1064	17.2	14	<0.2	<0.005	<0.005	<0.05	0.115	0.70	0.01		
1/6/82	7.00	1870	782	8.1	<1	<0.2	<0.005	<0.005	<0.050	0.079	9.5	0.041		
4/14/82	6.95	830	784	<2.00	11.5	0.214	<0.005	<0.005	<0.050	0.081	8.30	0.241		
7/27/82	7.10	670	660	14.9	24.4	<0.200	0.148	<0.005	<0.050	0.048	7.60	<0.051		
10/20/82	7.50	699	536	15.4	30.7	<0.200	<0.005	<0.005	<0.095	0.210	8.32	<0.051		
3/1/83	6.92	870	788	<2.0	71.6	<0.2	0.005	0.005	<0.05	0.035	8.3	0.391		
7/21/83	7.31	840	694	42.2	57.9									
10/26/83	7.12	790	854	5.76	117.0									
2/24/84	7.30	800	654	2.9	10.4	1.9	<0.005	<0.005	<0.05	0.059	5.8	0.15		
4/11/84	7.01	780	700	12.7	8.9	0.01								
7/13/84	7.22	740	442	16	15									
10/11/84	7.42	940	760	13	13									

Continued on next page.

ELC CONSULTANTS/CONSTRUCTORS, INC.

WITMER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 1 (cont'd.)

recycled paper

ng/l

Sample Date	pH Units	Cond. umhos	TDS mg/l	COD mg/l	DOC mg/l	Ba	Cr (VI)	Cr (III)	Fe	Hg	Si	Zn
1/8/85	7.20	800	770	<5	130	0.080	0.009	0.034	1.58	0.003	0.93	0.439
4/3/85	7.30	700	690	7.2	12							
7/25/85	7.25	1000	950	24	22							
10/31/85	7.02	1000	730	3.7	<10							
1/23/86	7.59	1000	750	4.7	89							
4/2/86	7.60	1100	670	11	12	0.062	<0.01	<0.01	0.308	0.044	7.90	0.390
8/4/86	7.45	900	730	<5	5							
10/2/86	7.25	1000	660	7.8	17							
1/28/87	7.15	990	630	<5	18							
4/15/87												

W E L L B R O K E N - N O S A M P L E

C CONSULTANTS/CONSTRUCTORS, INC.

WITNER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 1A

mg/l

Sample Date	pH Units	Cond. units	TDS mg/l	ODD mg/l	TOC mg/l	Ba	Cr(T)	Cr(VI)	Fe	Mn	SI	Zn
3/3/85	7.44	760	740	18	11							
3/25/85												
3/31/85		INSUFFICIENT SAMPLE OR DRY										
4/23/86	7.67	1100	790	9.9	38							
4/2/86	7.70	1500	1200	89	17							
4/4/86						0.042	<0.01	<0.01	1.80	0.725	5.54	0.207
4/2/86												
4/28/87	7.90	2000	1600	110	11							
4/15/87		WELL BROKEN - NO SAMPLE										

SIC CONSULTANTS/CONSTRUCTORS, INC.

WYMER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 2

recycled paper

mg/l

Sample Date	pH Units	Cond. umhos	TDS mg/l	COD mg/l	TOC mg/l	Ba	Cr (T)	Cr (VI)	Fe	Mn	SI	Zn
3/7/79						0.05	0.02		0.64	12.0	8.8	0.15
4/11/79	7.8	500		22	9	0.05	<0.01		1.40	1.1	6.4	0.18
5/14/79	7.95	495				0.10	0.01		0.40	0.35	2.6	0.06
6/1/79	7.70	460	330	7.2	11	<0.10	<0.01		2.5	0.60	4.4	0.27
12/14/79	8.0	500	256	<2	<5	<0.05	<0.02		0.43	0.11	—	0.03
1/16/80	7.55	550	443	6	32	0.1	<0.02		1.90	0.51	4.0	0.27
4/11/80	7.55	440	300	9	15	<0.1	<0.02	<0.01	0.21	0.25	3.8	0.13
7/8/80	7.60	460	268	4	52	0.1	0.02		0.96	0.26	2.7	0.02
10/30/80	7.2	565	617	<20	<5	<0.1	<0.02	<0.02	1.7	0.37	42	0.01
1/7/81	7.71	510	412	40.6	3	<0.2	0.064	<0.005	0.156	0.116	2.5	<0.050
4/7/81	7.50	430	300	26.7	7.8	<0.20	<0.005	<0.005	0.05	0.074	4.9	0.066
6/22/81	7.45	450	310	32.5	2.3	<0.2	0.006	<0.005	0.05	0.133	8.2	0.046
10/29/81	7.50	380	266	50.5	15	<0.2	<0.005	<0.005	<0.05	0.156	0.20	0.015
1/6/82	7.75	360	294	2.26	20.1	<0.2	<0.005	<0.005	<0.050	0.068	4.0	0.047
4/14/82	7.61	280	374	47.5	11.0	<0.200	<0.005	<0.005	<0.050	0.064	4.0	<0.010
7/27/82	7.85	443	284	5.0	17.9	<0.200	0.043	0.009	<0.050	0.106	5.40	<0.050
10/20/82	7.55	360	354	11.0	26.7	<0.200	<0.005	<0.005	<0.050	0.200	6.84	<0.050
3/1/83	7.99	280	240	24.7	46.6	<0.2	0.012	0.011	<0.05	0.083	4.3	<0.050
7/21/83	8.74	270	834	0.38	31.1							
10/28/83	9.90	220	112	31.5	56.2							
2/24/84	9.46	210	140	11.7	15.3	<0.2	<0.005	<0.005	<0.05	<0.005	2.5	<0.02
4/11/84	11.08	675	142	<5.0	6.0	0.04						
7/13/84	10.91	330	150	24	5							
10/11/84					5.3							

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E.I.C. CONSULTANTS/CONSTRUCTORS, INC.

WITMER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 2 (cont'd.)

Sample Date	pH Units	Cond. umhos	TDS mg/l	COD mg/l	TOC mg/l	Ba	Cr (T)	Cr (VI)	Fe	Mn	Si	Zn
1/8/85	11.73	870	36	26	18	0.047	0.028	0.012	0.160	<0.050	<0.4	0.003
4/3/85	11.58	1100	460	4.7	7							
7/25/85	11.65	2000	520	10	12							
10/31/85	11.43	2800	610	15	<10							
1/23/86	12.15	1900	570	16	6.0							
4/2/86	12.2	1500	480	17	<10	0.073	0.039	0.033	0.08	<0.03	2.50	0.115
8/4/86	12.20	2000	1100	20	6							
10/2/86	11.90	1700	410	17	<10							
1/28/87	11.80	2300	580	21	<10							
4/15/87	10.40	1500	380	<5	13	0.063	0.023	0.012	0.124	<0.005	3.08	0.010

SILCO CONSULTANTS/CONSTRUCTORS, INC.

WETTER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 2A

recycled paper

mg/l

Sample Date	pH Units	Cond. umhos	TDS mg/l	COO mg/l	TOC mg/l	Ba	Cr(VI)	Cr(III)	Fe	Mn	Si	Zn
4/3/85	12.14	5000	1200	75	10							
7/25/85	12.23	6300	1300	43	<10							
10/31/85	11.7	2700	1300	19	<10							
1/23/86	12.61	5500	1300	20	870							
4/2/86	12.7	5300	1900	13	<10	0.46	0.517		0.242	<0.03	0.640	0.306
8/4/86	12.70	200	5000	14	4							
10/2/86	12.50	5800	1300	24	<10							
11/28/87	12.15	6100	1400	19	<10							
1/14/87	10.60	5900	1500	67	14	0.452	0.495		0.092	<0.005	0.536	<0.01

ecology and environment

Sample Date	pH Units	Cond. umhos	TDS mg/l	COD mg/l	TOC mg/l	Ba	Cr (T)	Cr (VI)	Fe	Mn	SI	Zn
/79	—	—	—	—	—	0.25	0.02	—	0.47	2.0	23.0	0.12
1/79	10.30	950	—	69	24	0.05	0.03	—	4.20	1.2	12.4	0.44
4/79	9.15	600	—	53	15	<0.05	0.03	—	9.0	0.75	4.8	0.28
1/79	8.80	600	—	42	26	<0.10	<0.01	—	10.3	0.27	2.9	0.14
14/79	—	—	—	—	—	—	—	—	—	—	—	—
6/80	7.95	500	266	59	40	<0.1	<0.02	—	16.4	0.61	2.6	0.22
1/80	7.50	550	487	68	25	<0.1	<0.02	—	3.6	1.26	4.8	0.37
1/80	6.85	490	370	25	32	0.1	0.02	—	22	0.46	0.8	0.05
3/80	—	—	—	—	15	<0.1	<0.02	<0.02	42	1.07	2.8	0.22
1/81	9.1	350	307	180	40	<0.2	0.021	<0.005	<0.050	0.020	3.0	<50
1/81	8.05	360	256	99.5	78	<0.2	<0.005	<0.005	0.16	0.028	3.0	0.010
2/81	7.97	350	238	92.1	5.5	0.24	<0.005	<0.005	0.07	<0.02	5.0	0.013
2/81	8.75	360	250	99.4	54	<0.2	<0.005	<0.005	<0.05	<0.020	3.40	0.050
3/82	8.55	310	236	101	32.5	<0.2	<0.005	<0.005	0.075	<0.020	3.5	0.010
14/82	7.95	400	276	118	12.0	0.226	<0.005	<0.005	<0.050	<0.020	1.70	<0.010
2/82	8.48	340	352	139	37.5	<0.200	<0.005	<0.005	0.114	0.029	1.48	<0.050
2/82	8.00	303	262	166	48.0	<0.200	<0.005	<0.005	0.054	<0.020	6.78	<0.050
1/83	9.28	245	198	132	40.6	<0.2	<0.005	—	0.069	<0.02	3.71	<0.050
21/83	9.70	230	204	42.2	43.3	—	—	—	—	—	—	—
2/26/83	10.41	330	294	29.5	46.7	—	—	—	—	—	—	—
24/84	9.37	240	244	65.0	50.0	*	*	*	*	*	1.8	*
11/84	10.02	2400	2000	116	5.0	*	*	*	*	*	*	*
13/84	—	—	—	—	—	—	—	—	—	—	—	—
7/11/84	*	*	*	<5	2.3	—	—	—	—	—	—	—

* = Insufficient Sample

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S.L.C. CONSULTANTS/CONSTRUCTORS, INC.

WINTER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 3 (cont'd.)

recycled paper

Sample Date	pH	Cond.	DO	COD	TOC	Ba	Cr (T)	Cr (VI)	Fe	Mn	Si	Zn
	units	umhos	mg/l	mg/l	mg/l							
1/8/85	9.04	360	200	90	26							
4/3/85												
7/25/85												
10/31/85												
1/23/86												
4/2/86												
6/4/86												
10/2/86												
1/28/87												
4/15/87												

ecology and environment

I.C. CONSULTANTS/CONSTRUCTORS, INC.

WYOMER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 3A

Sample Date	pH Units	Cond. umhos	TDS mg/l	CO ₂ mg/l	TOC mg/l	Ba	Cr(T)	Cr(VI)	Fe	Mn	Si	Zn
1/3/85	I. S.											
1/25/85	I. S.	INSUFFICIENT SAMPLE OR DRY										
10/31/85	I. S.											
1/23/86	10.12	330	280	41	23							
1/2/86	9.90	450	230	97	35							
8/4/86	10.15	5200	380	130	19	0.062	0.149	0.327	8.90	0.250	36.7	0.365
10/2/86	11.00	590	380	140	36							
1/28/87	10.89	610	330	56	11							
4/15/87	10.20	860	380	140	23	0.325	0.835	<0.01	42.0	1.62	67.0	0.429

I.S. = Insufficient Sample

22

SILC CONSULTANTS/CONSTRUCTORS, INC.

WYMER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 4

recycled paper

mg/l

Sample Date	pH Units	Cond. umhos	TDS mg/l	COD mg/l	TOC mg/l	Ba	Cr (T)	Cr (VI)	Fe	Mn	SI	Zn
3/7/79	7.45	1050		102	28	0.20	0.02		0.62	5.5	11.0	0.83
4/11/79	7.55	1150		4	6	0.15	0.01		0.41	3.8	11.5	0.38
5/14/79	7.35	1150		25	5	0.05	0.02		0.85	1.25	4.6	0.33
6/11/79	7.45	1100		9.6	18	<0.10	<0.01		1.6	0.99	4.6	0.44
12/14/79	7.45	950	596	40	<5	0.08	<0.02		0.32	0.01	—	0.060
1/16/80	7.45	1000	684	<2	80	<0.1	<0.02		0.15	1.18	5.0	0.19
4/11/80	6.90	1450	1380	<2	43	0.4	0.02	<0.01	0.05	0.57	5.4	0.67
7/8/80	7.05	1600	1290	6	100	0.2	<0.02		0.20	0.64	3.6	0.38
10/30/80	7.05	1050	642	2	<5	<0.1	<0.02		0.56	0.28	4.7	0.19
11/7/81	7.4	960	803	<20	3		0.064	0.02240	<0.050	0.067	5.2	<0.050
4/7/81	7.35	1400	1290	16.1	13.9	<0.2	<0.005	<0.005	<0.05	0.475	7.4	0.460
6/22/01	6.85	2200	1970	22	1.5	0.75	0.007	<0.005	<0.05	0.770	<5.0	0.457
10/29/01	6.90	2250	1960	88	23	<0.2	<0.005	<0.005	<0.05	0.622	0.40	0.094
1/6/82	6.85	2650	2318	18.2	<1	<0.2	<0.005	<0.005	<0.05	0.508	5.5	0.490
4/14/82	7.05	2600	2400	140	9.5	<0.200	0.029	0.027	<0.050	0.550	5.70	0.540
7/27/02	7.01	2700	2700	39.7	37.1	<0.200	0.295	<0.005	<0.050	0.532	4.98	0.160
10/20/02	7.65	2580	2070	14.9	37.8	<0.200	<0.005	<0.005	<0.050	0.453	7.42	0.140
3/1/03	6.95	2520	2252	15.4	66.4	<0.2	0.0069	0.005	0.162	0.426	6.1	0.388
7/21/03	7.3	2250	1746	18.5	50.3							
10/25/03	7.38	1300	1040	14.9	96.4							
2/24/04	7.10	2100	1790	88.5	58.5	3.1	<0.005	<0.005	<0.05	0.813	4.6	0.19
4/11/04	6.86	1900	1780	19.5	4.4	0.04						
7/13/04	7.07	2700	1710	585	20							
10/11/04	7.16	1700	1300	<5	6.6							

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WITMER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 4 (cont'd.)

Sample Date	pH Units	Cond. units	TDS mg/l	COD mg/l	TOC mg/l	Ba	Cr (P)	Cr (VI)	Fe	Mn	Si	Zn
1/8/85	7.48	900	760	9.5	76	0.058	0.059	0.039	4.67	0.247	<0.4	0.299
1/1/85	6.87	1200	1400	80	12							
1/25/85	7.15	2000	1500	83	44							
10/31/85	7.20	1300	620	3.7	<10							
1/23/86	7.25	1800	1300	10	89							
1/2/86	7.45	2000	1500	11	12	0.105	0.010	<0.01	6.42	0.499	15.7	0.766
3/4/86	7.45	400	1500	13	8							
10/2/86	7.40	1600	960	10	<10							
1/28/87	7.10	1900	1200	18	31							
1/15/87	7.0	1900	1400	36	21	0.078	<0.01	<0.01	3.43	0.711	7.99	0.302

S/LC CONSULTANTS/CONSTRUCTORS, INC.

WITMER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 4A

recycled paper

ng/l

Sample Date	pH Units	Cond. umhos	TDS mg/l	CO ₂ mg/l	DOC mg/l	Ba	Cr (P)	Cr (VI)	Fe	Mn	Si	Zn
4/3/05	12.23	2500	1000	110	14							
7/25/05	12.25	7400	1700	82	38							
10/31/05	11.85	3000	1400	29	12							
1/23/06	12.70	7200	1000	30	10		0.698	<0.01	0.082	<0.03	0.735	0.086
4/2/06	12.8	6000	2000	24	19	0.122						
8/4/06	12.70	5900	1900	50	18							
10/2/06	12.55	6800	1500	36	18							
11/28/07	12.20	6800	1600	20	<10		0.714	0.546	0.119	<0.005	0.386	<0.007
1/4/15/07	10.60	7900	2000	25	18	0.159						

ecology and environment

Sample Date	pH Units	Cond. umhos	TDS mg/l	COD mg/l	TOC mg/l	Ba	Cr (T)	Cr (VI)	Fe	Mn	SI	Zn
7/79	7.30	1200		8	<2	<0.50	0.01		4.1	2.5	7.8	0.37
11/79	7.55	1050		4	<2	0.05	0.01		5.9	1.4	7.0	0.15
14/79	7.40	7.40		24	<2	0.05	<0.01		6.0	1.35	4.6	0.30
11/79	7.40	1000		20	23	<0.10	<0.01		5.7	1.02	4.3	0.14
14/79												
16/80	7.65	1000	626	4	70	<0.1	0.02		5.90	0.52	5.3	0.07
11/80	7.00	1150	1410	10	62	0.1	0.08		0.91	1.10	3.6	0.15
3/80	7.20	950	754	5	95	<0.1	<0.02		2.1	0.62	3.2	0.05
30/80	7.50	1000	606	5	<5	<0.1	<0.02	<0.02	10.5	1.68	6.6	0.30
7/81	7.2	980	565	80	4		0.030	0.01310	<0.05	0.218	1.6	<0.050
7/81	7.48	940	708	47	20	<0.2	<0.005	<0.005	0.16	0.201	5.5	0.033
22/81	7.00	850	656	40	1.3	0.43	0.008	<0.005	0.05	0.210	6.4	<0.010
29/81	7.08	900	640	36.9	31	<0.2	<0.005	<0.005	0.13	0.231	3.9	<0.050
5/82	7.10	880	674	32.3	10.4	<0.2	<0.005	<0.005	0.305	0.176	5.5	0.017
14/82	7.19	690	756	33.9	12.5	<0.200	<0.005	<0.005	<0.050	0.280	4.20	<0.010
27/82	7.27	700	684	53.1	48.2	<0.200	0.142	<0.005	<0.050	0.197	3.42	<0.050
20/82	7.65	906	712	86.2	59.4	<0.200	<0.005	<0.005	<0.050	0.137	7.92	<0.050
1/83	7.27	690	494	71.3	86.5	<0.2	0.009	0.009	<0.05	0.153	3.61	<0.050
21/83	7.33	700	454	51.9	30.5							
26/83	7.41	670	554	28.0	115.0							
24/84	7.58	780	670	35.0	7.5	1.8	<0.005	<0.005	<0.05	0.460	3.1	<0.02
11/84	7.07	760	600	29.3	6.4	0.08						
13/84	7.23	820	648	140	35							
11/04	7.21	800	580	157	48							

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SIC CONSULTANTS/CONSTRUCTORS, INC.

WYMER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 5 (cont'd.)

recycled paper

Sample Date	pH units	Cond. ughos	TDS mg/l	COO mg/l	TOC mg/l	Ba	Cr (T)	Cr (VI)	Fe	Mn	SI	Zn
mg/l												
1/8/85	7.53	620	570	23	110	0.128	0.089	0.056	48.5	0.579	<0.4	0.296
4/3/85	7.15	850	620	140	34							
7/25/85	7.20	960	740	31	14							
10/31/85	7.53	1000	690	22	14							
1/23/86	7.51	900	690	27	72							
4/2/86	8.00	900	550	32	25	0.101	0.040	<0.01	42.9	0.552	11.5	0.192
8/4/86	7.45	840	710	28	14							
10/2/86	7.40	820	680	29	13							
1/28/87	7.30	900	590	57	20	0.076	<0.01	<0.01	27.6	0.493	5.92	0.087
4/15/87	7.0	870	570	32	25							

ecology and environment

S.L.C. CONSULTANTS/CONSTRUCTORS, INC.

WITMER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 5A

Sample Date	pH Units	Cond. umhos	TDS mg/l	COD mg/l	TOC mg/l	Ba	Cr(T)	Cr(VI)	Fe	Mn	Si	Zn
4/3/85	7.39	1600	1200	242	66							
7/25/85	7.62	1500	1100	360	100							
10/31/85	7.46	510	390	440	76							
1/23/86	7.85	440	320	41	25	0.142	0.143	0.060	4.32	1.59	13.4	0.172
4/2/86	7.90	930	380	490	16							
8/4/86	7.65	1000	620	67	22							
10/2/86	7.80	550	370	73	<10							
11/28/87	7.6	500	190	110	28	0.523	0.500	0.193	52.7	6.63	52.5	0.887

I.S.

I.S. = Insufficient Sample

SIC CONSULTANTS/CONSTRUCTORS, INC.

WITMER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 6

recycled paper

Sample Date	pH Units	Cond. umhos	TDS mg/l	COD mg/l	TOC mg/l	Ba	Cr (P)	Cr (VI)	Fe	Mn	Si	Zn
3/7/79	11.75	4100		14	8	0.15	0.25		0.07	0.03	2.9	0.02
4/11/79	12.05	4100		6	7	0.10	0.23		0.06	0.01	1.5	<0.005
5/14/79	11.55	4000		41	2	0.10	0.30		0.04	0.01	1.6	0.01
6/11/79	11.05	3350		24	8	0.10	0.13		0.05	<0.01	4.4	<0.01
12/14/79	11.40	6000	1310	34	8	0.15	0.07		0.08	<0.005	—	0.015
1/16/80	12.30	6000	1230	10	15	0.1	0.19		0.06	0.02	0.5	0.02
4/11/80	11.70	3700	991	18	16	0.1	0.25	0.18	0.02	0.01	0.8	<0.01
7/8/80	11.30	4400	1160	19	10	0.3	0.16		0.02	0.02	0.6	0.01
10/30/80	12.10	4300	856	8	8	<0.1	0.06	<0.02	0.03	0.02	0.9	<0.01
1/7/81			S T R E A M F R O Z E N									
4/7/81	12.05	4000	1104	95.3	18.3	0.29	0.144	0.040	<0.05	<0.02	0.70	0.012
6/22/81	9.10	135	62	19.6	<1	<0.20	0.033	<0.005	<0.05	<0.02	3.4	0.020
10/29/81	11.30		N O F L O W									
1/6/82		2100	690	24.2	14.1	<0.2	0.248	0.042	0.058	<0.020	2.5	0.050
4/14/82	11.05	1450	658	18.1	11.0	0.250	0.195	0.053	<0.050	<0.020	1.00	<0.010
7/27/82			N O F L O W									
10/21/82			N O F L O W									
3/1/83	11.18	2210	746	34.3	60.3	<0.2	0.023	0.014	<0.05	<0.02	1.61	<0.050
7/21/83			D R Y									
10/25/83	11.99	1460	506	21.5	18.4							
2/24/84	12.29	2200	970	34.0	40.0	4.9	0.33	0.17	<0.05	0.017	2.1	<0.02
4/11/84	11.68	1200	1020	22.5	15.3	0.12						
7/13/84			D R Y									
10/11/84			N O F L O W									

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E.C. CONSULTANTS/CONSTRUCTORS, INC.

WITMER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 6 (cont'd.)

Sample Date	pH Units	Cond. u/mhos	TDS mg/l	CO ₂ mg/l	TOC mg/l	Ba	Cr(T)	Cr(VI)	Fe	Mn	SI	Zn
1/8/85	12.27	2500	1100	20	34	0.137	0.135	0.086	<0.050	<0.050	<0.4	0.016
1/3/85	11.41	1600	540	110	27							
1/25/85		INSUFFICIENT SAMPLE OR DRY										
10/31/85	9.40	240	180	83	24							
1/23/86	8.46	2100	700	18	9.1							
1/2/86	12.5	2800	840	36	27	0.113	0.179	0.116	0.063	<0.03	1.59	0.080
1/4/86	7.90	320	230	50	16							
10/2/86	11.30	540	190	30	11							
1/28/87		F R O Z E N										
1/15/87	11.50	2100	530	33	22	0.085	0.103	0.095	0.051	<0.005	2.27	<0.01

SJC CONSULTANTS/CONSTRUCTORS, INC.

WITMER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 6A

recycled paper

mg/l

Sample Date	pH Units	Cond. umhos	TDS mg/l	COD mg/l	TOC mg/l	Ba	Cr (T)	Cr (VI)	Fe	Mn	Si	Zn
1/16/80	12.20	5500	1070	10	15	0.1	0.30		0.05	<0.01	0.6	0.01
4/11/80	11.75	3650	1410	10	12	0.1	0.39		0.04	0.01	0.05	<0.01
7/8/80	11.55	4200	1140	9	15	0.4	0.72		0.02	0.01	1.1	<0.01
10/30/80	11.90	3200	546	6	6	<0.1	0.19	<0.02	0.04	0.02	1.5	0.01
1/7/81			STREAM FROZEN									
4/7/81	11.91	2900	858	18.9	18.3	0.21	0.300	0.100	<0.05	<0.02	3.6	<0.01
6/22/81	10.05	225	118	19.6	1	0.26	0.158	0.021	<0.05	<0.02	6.0	0.012
10/29/81	11.40	3400	125	35.1	25	<0.2	0.658	0.426	<0.05	0.020	0.2	<0.050
2/1/82	11.25	2380	742	44.4	25.6	<0.2	0.461	0.098	0.053	<0.020	3.5	0.067
4/14/82	11.15	1900	798	13.6	15.5	<0.200	0.469	0.243	<0.050	<0.020	2.50	<0.010
7/27/82			NO FLOW									
10/20/82			NO FLOW									
3/1/83	11.15	1925	718	29.9	6.94	<0.2	0.599	0.283	<0.05	<0.02	1.71	<0.050
7/21/83			DRY									
10/26/83	12.06	1760	662	21.9	12.0							
2/28/84	12.4	2700	1100	75.3	33.0	6.3	0.21	0.10	<0.05	0.018	1.9	<0.02
4/18/84	11.67	880	920	23	7.6	0.06						
7/13/84			DRY									
10/11/84			NO FLOW									
1/8/85	12.48	2200	870	25	31	0.180	0.305	0.258	0.215	<0.050	<0.4	0.016
4/3/85	11.48	1500	530	18	22							
7/23/85			INSUFFICIENT SAMPLE OR DRY									
10/31/85	11.54	2800	720	29	<10							
1/23/86			STREAM FROZEN									

Continued on next page.

E.C. CONSULTANTS/CONSTRUCTORS, INC.

WINNER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 6A (cont'd.)

ng/l

Sample Date	pH	Cond. umhos	TDS mg/l	COD mg/l	TOC mg/l	Ba	Cr (T)	Cr (VI)	Fe	Mn	SI	Zn
1/2/86	12.3	4300	1100	28	26	0.275	0.463	0.450	0.159	<0.03	1.38	0.105
8/4/86	12.45	310	1200	45	8							
10/2/86	12.00	1900	520	27	16							
1/28/87			F R O Z E N									
4/15/87	11.40	3400	960	27	20	0.226	0.333	0.306	0.308	0.021	2.22	0.011

1.102

SIC CONSULTANTS/CONSTRUCTORS, INC.

WITMER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 7

recycled paper

mg/l

Sample Date	pH Units	Cond. umhos	TDS mg/l	COD mg/l	TOC mg/l	Ba	Cr(T)	Cr(VI)	Fe	Mn	SI	Zn
3/7/79	11.70	3500		19	10	0.05	0.48		0.06	0.01	3.3	0.01
4/11/79	11.80	2800		10	8	0.10	0.59		0.18	0.03	5.0	0.01
5/14/79	11.60	3950		22	12	0.20	0.95		0.02	0.01	2.5	0.01
6/11/79	12.10	7000		28	9	0.20	1.1		0.02	<0.01	0.8	<0.01
12/14/79	11.40	6000		22	8	0.15	0.17		0.12	<0.005	—	0.015
1/16/80	12.30	7000	1440	22	12	<0.1	0.35		0.06	<0.01	0.5	0.01
4/11/80	11.75	3800	1520	12	14	0.2	1.6		0.02	<0.01	0.05	0.02
7/8/80	11.65	7800	1950	17	15	0.9	2.2		<0.02	<0.01	<0.01	<0.01
10/30/80	12.30	7500	1520	2	8	0.5	0.82	0.03	0.07	0.02	0.5	0.01
1/7/81												
4/7/81	12.05	6100	1804	45.4	27.4	0.37	1.73	1.27	<0.05	<0.02	0.50	<0.01
6/22/81	10.77	630	268	14.5	1.0	0.40	0.384	0.130	<0.05	<0.02	6.4	<0.010
10/29/81	11.52	4700	290	38	37	<0.2	1.800	0.860	<0.05	0.022	0.2	<0.05
1/6/82	11.35	2170	680	52.5	24.1	<0.2	0.438	0.114	0.066	<0.020	3.0	0.029
4/14/82	11.20	2400	1044	11.3	36.5	0.214	1.25	0.851	<0.050	<0.020	1.30	<0.010
7/27/82												
10/20/82												
3/1/83	11.55	5300	1694	25.5	6.54	<0.2	2.640	0.980	<0.05	<0.02	2.9	<0.050
7/21/83												
10/26/83	12.29	2840	944	18.8	13.2							
2/24/84	12.36	2700	1030	15.7	9.2	4.9	0.88	0.55	<0.05	0.014	1.9	<0.02
4/11/84	11.71	900	900	32	9.8	0.06						
7/13/84												
10/11/84												

Continued on next page.

WITMER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 4 (cont'd)

mg/l

Sample Date	PH Units	Cond, umhos	TDS mg/l	COD mg/l	TOC mg/l	Ba	Cr(T)	Cr(VI)	Fe	Mn	Si	Zn
1/08/85	7.48	900	760	9.5	76	0.058	0.059	0.039	4.67	0.247	<0.4	0.299
4/03/85	6.87	1200	1400	80	12							
7/25/85	7.15	2000	1500	83	44							
10/31/85	7.20	1300	620	3.7	<10							
1/23/86	7.25	1800	1300	10	89					0.499	15.7	0.766
4/02/86	7.45	2000	1500	11	12	0.105	0.019	<0.01	6.42			
8/04/86	7.45	400	1500	13	8							
10/02/86	7.40	1600	960	10	<10							
1/28/87	7.10	1900	1200	18	31							
4/15/87	7.10	1900	1400	36	21	0.078	<0.01	<0.01	3.43	0.711	7.99	0.30
7/23/87	7.30	1500	1100	15	19							
10/27/87	7.35	1500	899	24	24							
1/12/88	6.84	1750	1100	<1.0	4.4							
4/07/88	6.91	2400	1190	17	11.3	<1.00	<0.50	<0.01	1.20	0.51	13.7	0.77
8/02/88	6.68	1460	1140	<1.0	29.8							
10/18/88	7.34	1052	916	9.6	2.7							
1/19/89	7.44	1479	859	<1.0	34							
4/19/89	7.00	1660	1050	<1.0	2.6	0.029	0.006	0.03	1.22	0.42	10.2	0.58
7/20/89	7.06	1550	1370	<1.0	3.2							
10/05/89	7.31	1300	900	11.6	36							
1/11/90	7.45	1125	711	48	89.0	1.41	<0.50	<0.01	4.41	0.63	14.3	0.98
4/19/90	7.22	1600	1180	<1.00	39.4							

WITMER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 4A

mg/l

Sample Date	PH Units	Cond. umhos	TDS mg/l	COD mg/l	TOC mg/l	Ba	Cr(T)	Cr(VI)	Fe	Mn	Si	Zn
4/03/85	12.23	2500	1800	110	14							
7/25/85	12.25	7400	1700	82	38							
10/31/85	11.85	3000	1400	29	12							
1/23/86	12.70	7200	1800	30	10							
4/02/86	12.8	6000	2000	24	19	0.122	0.698	<0.01	0.082	<0.03	0.735	0.086
8/04/86	12.70	5900	1900	50	18							
10/02/86	12.55	6800	1500	36	18							
1/28/87	12.20	6800	1600	20	<10							
4/15/87	10.60	7900	2000	25	18	0.159	0.714	0.546	0.119	<0.005	0.386	<0.087
7/23/87	12.55	5900	1700	20	32							
10/27/87	11.80	6700	3800	36	23							
1/12/88	12.37	7025	1640	22.6	9.7							
4/07/88	11.56	7750	1620	19	12.7	<1.00	1.20	1.05	0.44	<0.10	1.3	<0.05
8/02/88	11.79	3600	1660	63.8	29.4							
10/18/88	12.21	3000	1540	59.3	21.5							
1/19/89	12.83	7920	1570	33.6	11.2							
4/19/89	12.95	7000	1790	70	9.7	0.094	0.90	0.71	1.28	0.056	3.3	0.23
7/20/89	12.58	5300	1970	21	11.8							
10/04/89	12.63	5400	1530	21.6	23							
1/11/90	12.80	4050	1400	22	6.77							
4/19/90	12.78	7500	2040	14.5	6.23	<1.00	0.78	1.01	<0.30	<0.10	0.56	0.05

WILMER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 6

surface water

mg/l

Sample Date	PH Units	Cond, umhos	TDS mg/l	COD mg/l	TQC mg/l	Ba	Cr(T)	Cr(VI)	Fe	Mn	Si	Zn
3/07/79	11.75	4100		14	8	0.15	0.25		0.07	0.03	2.9	0.02
4/11/79	12.05	4100		6	7	0.10	0.23		0.06	0.01	1.5	<0.005
5/14/79	11.55	4000		41	2	0.10	0.30		0.04	0.01	1.6	0.01
6/11/79	11.85	3350		24	8	0.10	0.13		0.05	<0.01	4.4	<0.01
12/14/79	11.40	6000	1310	34	8	0.15	0.07		0.08	<0.005	—	0.015
1/16/80	12.30	6000	1230	10	15	0.1	0.19		0.06	0.02	0.5	0.02
4/11/80	11.70	3700	991	18	16	0.1	0.25	0.18	0.02	0.01	0.8	<0.01
7/08/80	11.30	4400	1160	19	10	0.3	0.16		0.02	0.02	0.6	0.01
10/30/80	12.10	4300	856	8	8	<0.1	0.06	<0.02	0.03	0.02	0.9	<0.01
1/07/81												
4/07/81	12.05	4000	1104	95.3	18.3	0.29	0.144	0.040	<0.05	<0.02	0.70	0.012
6/22/81	9.10	135	62	19.6	<1	<0.20	0.033	<0.005	<0.05	<0.02	3.4	0.020
10/29/81	11.30											
1/06/82	21.00	2100	690	24.2	14.1	<0.2	0.248	0.042	0.058	<0.020	2.5	0.050
4/14/82	11.05	1450	658	18.1	11.0	0.250	0.195	0.053	<0.050	<0.020	1.80	<0.010
7/27/82												
10/20/82												
3/01/83	11.18	2210	746	34.3	60.3	<0.2	0.023	0.014	<0.05	<0.02	1.61	<0.050
7/21/83												
10/26/83	11.99	1460	506	21.5	18.4							
2/24/84	12.29	2200	970	34.0	40.0	4.9	0.33		<0.05	0.017	2.1	<0.02
4/11/84	11.68	1200	1020	22.5	15.3	0.12						
7/13/84												
10/11/84												

WITMER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 6 (cont'd)

mg/l

Sample Date	PH Units	Cond. umhos	TDS mg/l	COD mg/l	TCC mg/l	Ba	Cr(T)	Cr(VI)	Fe	Mn	Si	Zn
1/08/85	12.27	2500	1100	20	34	0.137	0.135	0.086	<0.050	<0.050	<0.4	0.016
4/03/85	11.41	1600	540	110	27							
7/25/85	INSUFFICIENT SAMPLE OR DRY											
10/31/85	9.40	240	180	83	24							
1/23/86	8.46	2100	700	18	9.1							
4/02/86	12.5	2800	840	36	27	0.113	0.179	0.116	0.063	<0.03	1.59	0.080
8/04/86	7.90	320	230	50	16							
10/02/86	11.30	540	190	30	11							
1/28/87	F R O Z E N											
4/15/87	11.50	2100	530	33	22	0.085	0.103	0.095	0.051	<0.005	2.27	<0.01
7/23/87	10.60	250	180	34	22							
10/27/87	11.10	1000	540	28	19							
1/12/88	F R O Z E N											
4/07/88	11.10	2750	550	26	13.2	<1.00	<0.50	0.07	<0.30	<0.10	5.1	<0.05
8/02/88	D R Y											
10/18/88	D R Y											
1/19/89	11.81	699	391	37.8	12.6							
4/19/89	11.66	1205	433	41.6	11.6	0.014	0.036	0.06	0.19	0.020	3.3	0.04
7/20/89	D R Y											
10/04/89	D R Y											
1/11/90	11.69	850	450	39	14.9							
4/18/90	12.11	1900	702	27.3	9.30	<1.00	<0.50	0.19	<0.30	<0.10	390	<0.05

WINTER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 6A

Stream (early site)

mg/l

Sample Date	PH Units	Cond. umhos	TDS mg/l	COD mg/l	TOC mg/l	Ba	Cr(T)	Cr(VI)	Fe	Mn	Si	Zn
1/16/80	12.20	5500	1070	10	15	0.1	0.30	<0.02	0.05	<0.01	0.6	0.01
4/11/80	11.75	3650	1410	10	12	0.1	0.39	0.100	0.04	0.01	0.05	<0.01
7/08/80	11.55	4200	1140	9	15	0.4	0.72	0.021	0.02	0.01	1.1	<0.01
10/30/80	11.90	3200	546	6	6	<0.1	0.19	0.426	0.04	0.02	1.5	0.01
1/07/81												
4/07/81	11.91	2900	858	18.9	18.3	0.21	0.300	0.100	<0.05	<0.02	3.6	<0.01
6/22/81	10.05	225	118	19.6	1	0.26	0.158	0.021	<0.05	<0.02	6.0	0.012
10/29/81	11.40	3400	125	35.1	25	<0.2	0.658	0.426	<0.05	0.020	0.2	<0.050
1/06/82	11.25	2380	742	44.4	25.6	<0.2	0.461	0.098	0.053	<0.020	3.5	0.067
4/14/82	11.15	1900	798	13.6	15.5	<0.200	0.469	0.243	<0.050	<0.020	2.50	<0.010
7/27/82			NO FLOW									
10/20/82			NO FLOW									
3/01/83	11.15	1925	718	29.9	6.94	<0.2	0.599	0.283	<0.05	<0.02	1.71	<0.050
7/21/83			DRY									
10/26/83	12.06	1760	662	21.9	12.0							
2/24/84	12.4	2700	1100	75.3	33.0	6.3	0.21	0.10	<0.05	0.018	1.9	<0.02
4/11/84	11.67	880	920	23	7.6	0.06						
7/13/84			DRY									
10/11/84			NO FLOW									
1/08/85	12.48	2200	870	25	31	0.180	0.305	0.258	0.215	<0.050	<0.4	0.016
4/03/85	11.48	1500	530	18	22							
7/25/85			INSUFFICIENT SAMPLE OR DRY									
10/31/85	11.54	2800	720	29	<10							
1/23/86			STREAM FROZEN									

WITMER ROAD SAMPLING PROJECT
 SAMPLE LOCATION NO. 6A (cont'd)

Sample Date	PH Units	Cond. umhos	TDS mg/l	COD mg/l	TOC mg/l	Ba	Cr(T)	Cr(VI)	Fe mg/l	Mn	Si	Zn
4/02/86	12.3	4300	1100	28	26	0,275	0,463	0,450	0,159	<0,03	1,38	0,105
8/04/86	12.45	310	1200	45	8							
10/02/86	12.00	1900	520	27	16							
1/28/87			FROZEN									
4/15/87	11.40	3400	960	27	20	0,226	0,333	0,306	0,308	0,021	2,22	0,011
7/23/87	12.20	3000	920	24	18		0,303					
10/27/87	11.20	4100	2000	860	200							
1/12/88			FROZEN									
4/07/88	11.85	3500	689	24	<1,0	<1,0	<0,50	0,17	<0,30	<0,10	3,4	<0,05
8/02/88			DRY									
10/18/88			DRY									
1/19/89	12.69	2620	678	20,4	13,6							
4/19/89	11.51	1200	416	29,6	9,7	0,034	0,103	0,11	0,33	0,022	4,5	0,02
7/20/89			DRY									
10/04/89			DRY									
1/11/90	12,5	1525	560	43	12,0							
4/18/90	1246	3250	958	21,1	8,07	<1,00	<0,50	0,36	<0,30	<0,10	2,50	<0,05

WITMER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 13

mg/l

Sample Date	PH Units	Cond. umhos	TDS mg/l	COD mg/l	TOC mg/l	Ba	Cr(T)	Cr(VI)	Fe	Mn	Si	Zn
1/16/80	8.00	1000	682	4	110	<0.1	0.02	<0.02	0.79	1.84	4.9	0.08
4/11/80	8.50	1050	1010	<2	25	0.3	0.02	0.60	0.28	0.28	5.0	0.14
7/08/80	7.75	1050	717	<2	70	<0.1	0.02	0.06	0.19	0.19	3.2	0.03
10/30/80	7.70	1100	582	2	<5	<0.1	<0.02	3.4	1.83	1.83	7.1	0.23
1/30/81	7.6	1100	626	25	1		0.153	<0.050	0.241	0.241	3.4	<0.050
4/07/81	8.25	970	742	4.9	10.8	0.23	<0.005	<0.05	0.185	0.185	5.6	0.071
6/22/81	7.25	940	672	<5.0	1.5	0.22	0.016	<0.05	0.139	0.139	8.8	0.151
10/29/81	7.30	985	750	67.3	29	<0.2	0.022	<0.05	0.180	0.180	0.6	0.054
1/06/82	7.40	865	700	10.1	2.5	<0.2	<0.005	<0.050	0.137	0.137	6.5	0.089
4/14/82	7.32	800	702	29.4	16.0	<0.200	<0.005	<0.050	0.136	0.136	5.50	0.056
7/27/82	7.48	760	658	22.5	23.0	<0.200	0.078	<0.050	0.097	0.097	4.45	<0.050
10/20/82	8.08	1080	724	<5.0	20.4	<0.200	<0.005	<0.050	0.155	0.155	7.58	<0.050
3/01/83	7.02	1060	934	11.4	59.5	<0.2	0.007	<0.005	0.177	0.177	5.4	0.125
7/21/83	7.60	890	756	13.9	25.3							
10/26/83	7.55	800	682	9.60	107.0							
2/24/84	7.84	860	668	2.9	20.0	1.3	0.005	<0.05	0.129	0.129	4.5	0.023
4/11/84	7.31	820	720	15.0	16.5	0.03						
7/13/84	7.48	970	636	<25	15							
10/11/84	7.53	760	760	11	16							
1/08/85	12.23	780	680	12	100	0.048	0.038	0.007	1.23	0.223	<0.4	0.042
4/03/85	7.20	860	660	53	12							
7/25/85	7.37	1000	840	27	13							
10/31/85	7.22	1000	710	3.7	12							
1/23/86	8.12	910	680	12	36							

WITMER ROAD SAMPLING PROJECT
 SAMPLE LOCATION NO. 13A

mg/l

Sample Date	PH Units	Cond, umhos	TDS mg/l	COD mg/l	TOC mg/l	Ba	Cr(T)	Cr(VI)	Fe	Mn	Si	Zn
4/03/85	10.36	520	260	95	13							
7/25/85			INSUFFICIENT SAMPLE OR DRY									
10/31/85	10.51	540	320	26	15							
1/23/86	11.14	440	270	21	6.7							
4/02/86	12.3	440	180	15	19	<0.03	0.703	0.674	0.094	<0.03	11.5	0.095
8/04/86	11.35	2000	350	26	9							
10/02/86	11.15	580	310	26	11							
1/28/87	10.20	310	220	22	45							
4/15/87	9.60	310	200	20	<10	<0.01	0.714	0.632	0.040	<0.005	9.22	<0.01
7/23/87	10.90	410	180	34	23							
10/27/87	10.60	450	260	36	17							
1/12/88	10.34	375	204	29.8	6.9							
4/07/88	10.77	490	228	30	7.5	<1.00	0.66	0.62	<0.30	<0.10	20.5	<0.05
8/02/88			WELL DRY - NO SAMPLE TAKEN									
10/18/88			WELL DRY - NO SAMPLE TAKEN									
1/19/89	11.72	614	301	15.8	7.6							
4/19/89	11.62	450	36	16.4	7.5	<0.01	0.56	0.60	0.48	0.011	16.5	0.02
7/20/89	11.33	525	523	20.9	7.3							
10/05/89			WELL DRY - NO SAMPLE TAKEN									
1/11/90	10.91	300	202	17	6.01							
4/19/90	10.84	280	207	5.30	4.28	<1.00	0.61	0.76	<0.30	<0.10	14.7	<0.05

CONSULTANTS/CONSTRUCTORS, INC.

WITNER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 7 (cont'd.)

Sample Date	pH Units	Cond. umhos	TDS mg/l	COD mg/l	TOC mg/l	Ba	Cr (T)	Cr (VI)	Fe	Mn	Si	Zn
1/85	7.69	3700	1500	15	40	0.276	0.927	0.561	<0.050	<0.050	<0.4	0.009
1/85	11.43	1500	500	4.1	25							
25/85	12.22	6800	1700	54	13							
7/31/85	11.70	1000	850	22	18							
23/86	12.12	3600	1100	26	8.3							
2/86	12.3	2700	770	25	25	0.181	0.403	0.371	0.202	<0.03	1.62	0.247
1/86	12.05	210	1600	26	5							
7/2/86	12.15	2600	710	320	63							
28/87			F R O Z E N									
15/87	11.10	2400	740	80	22	0.148	0.281	0.244	0.481	0.064	2.74	<0.01

S.L.C CONSULTANTS/CONSTRUCTORS, INC.
 WITMER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 12

recycled paper

Sample Date	pH Units	Cond. umhos	TDS mg/l	COD mg/l	TOC mg/l	Ba	Cr (P)	Cr (VI)	Fe	Mn	Si	Zn
1/16/80	7.70	1150	734	2	72	<0.1	0.02		0.26	0.11	4.5	0.06
4/11/80	7.00	1350	1220	<2	76	<0.1	<0.02		0.02	0.15	5.4	0.08
7/8/80	7.30	1450	1070	<2	130	<0.1	<0.02		0.27	0.21	3.8	0.02
10/30/80	7.90	1450	842	7	<5	0.5	<0.02	<0.02	3.8	1.39	9.8	0.05
1/30/81	7.5	1250	720	<20	1	<0.2	0.124	0.01250	<0.050	0.105	2.8	<0.050
4/7/81	7.05	980	796	63	7.8	<0.2	0.017	<0.005	<0.05	0.217	5.5	0.023
6/22/81	7.15	900	706	<5	1.3	0.41	0.017	0.008	<0.05	0.133	6.0	0.101
10/29/81	7.11	1005	800	67.3	26.5	<0.2	<0.005	<0.005	<0.05	0.156	0.5	0.016
3/16/82	7.25	890	720	18.2	6.4	<0.2	<0.005	<0.005	<0.050	0.088	7.0	0.183
4/14/82	7.20	800	606	11.3	48.0	<0.200	<0.005	<0.005	<0.050	<0.020	6.10	0.018
7/27/82	7.49	910	810	37.2	37.1	<0.200	0.088	<0.005	<0.050	0.052	3.95	<0.050
10/20/82	7.80	1850	1540	5.32	39.4	<0.200	<0.005	<0.005	<0.050	0.134	6.78	<0.050
3/1/83	7.15	900	868	17.6	70.8	<0.2	0.053	<0.005	<0.05	0.038	6.51	<0.050
7/21/83	7.80	790	572	53.8	52.6							
10/26/83	8.39	670	518	50.3	102.0							
2/24/84	7.95	670	546	10.0	16.8	1.4	0.018	0.016	<0.05	0.019	4.6	<0.02
4/11/84	7.51	680	540	19.5	8.3	0.05						
7/13/84	7.56	775	514	<5.0	25							
10/11/84	7.58	940	550	12	10							
1/8/85	7.43	610	580	23	150	0.082	0.163	0.084	1.36	0.076	<0.4	0.034
4/3/85	7.20	740	520	23	10							
7/25/85	7.41	1100	800	38	11							
10/31/85	7.39	1400	930	11	20							
1/23/86	8.05	840	630	18	55							

A.C. CONSULTANTS/CONSTRUCTORS, INC.

WITHER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 12 (cont'd.)

mg/l

Sample Date	pH Units	Cond. umhos	TDS mg/l	COO mg/l	DOC mg/l	Ba	Cr (T)	Cr (VI)	Fe	Mn	SI	Zn
1/2/86	7.60	890	580	13	17	0.068	0.027	0.023	0.068	0.034	6.84	<0.05
1/4/86	7.82	1300	630	12	17							
10/2/86	7.55	1200	840	16	<10							
1/28/87	7.48	960	610	15	12		0.073	0.064	0.117	0.010	5.92	0.013
1/15/87	6.80	920	620	13	21	0.061						

SILC CONSULTANTS/CONSTRUCTORS, INC.

WITMER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 12A

recycled paper

Sample Date	pH Units	Cond. umhos	TDS mg/l	COD mg/l	TOC mg/l	Ba	Cr (P)	Cr (VI)	Fe	Mn	Si	Zn
4/3/85												
7/25/85												
10/31/85												
1/23/86	7.49	630	460	84	88							
4/2/86	7.65	600	370	54	39	<0.03	<0.01	<0.01	<0.05	0.399	6.22	0.082
8/4/86												
10/2/86												
1/28/87	7.25	800	530	37	25							
3/4/15/87	6.60	720	450	26	90	0.032	<0.01	0.030	1.17	0.269	5.50	<0.01

I.S.

INSUFFICIENT SAMPLE OR DRY

D R Y

D R Y

D R Y

D R Y

ecology and environment

I.S. = Insufficient Sample

WINNER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 13

Sample Date	pH Units	Cond. untkos	TDS mg/l	COD mg/l	TOC mg/l	ng/l									
						Ba	Cr(T)	Cr(VI)	Fe	Mn	Si	Zn			
/16/80	8.00	1000	682	4	110	<0.1	0.02	<0.02	0.79	1.84	4.9	0.08			
/11/80	8.50	1050	1010	<2	25	0.3	0.02	0.60	0.28	5.0	0.14				
/8/80	7.75	1050	717	<2	70	<0.1	0.02	0.06	0.19	3.2	0.03				
0/30/80	7.70	1100	582	2	<5	<0.1	<0.02	3.4	1.83	7.1	0.23				
/30/81	7.6	1100	626	25	1		0.153	<0.050	0.241	3.4	<0.050				
/7/81	8.25	970	742	4.9	10.8	0.23	<0.005	<0.005	0.185	5.6	0.071				
/22/81	7.25	940	672	<5.0	1.5	0.22	0.016	<0.013	0.139	8.8	0.151				
0/29/81	7.30	985	750	67.3	29	<0.2	0.022	<0.005	0.180	0.6	0.054				
/6/82	7.40	865	700	10.1	2.5	<0.2	<0.005	<0.005	0.137	6.5	0.089				
/14/82	7.32	800	702	29.4	16.0	<0.200	<0.005	<0.005	0.136	5.50	0.056				
/27/82	7.48	760	658	22.5	23.0	<0.200	0.078	<0.005	0.097	4.45	<0.050				
0/20/82	8.08	1080	724	<5.0	20.4	<0.200	<0.005	<0.005	0.155	7.58	<0.050				
/1/83	7.02	1060	934	11.4	59.5	<0.2	<0.007	<0.005	0.177	5.4	0.125				
/21/83	7.60	890	756	13.9	25.3										
0/26/83	7.55	800	682	9.60	107.0										
/24/84	7.84	860	668	2.9	20.0	1.3	0.005	<0.05	0.129	4.5	0.023				
/11/84	7.31	820	720	15.0	16.5	0.03									
/13/84	7.48	970	636	<25	15										
0/11/84	7.53	760	760	11	16										
/8/85	13.23	780	680	12	100	0.048	0.038	0.007	1.23	<0.4	0.042				
/3/85	7.20	860	660	53	12										
/25/85	7.37	1000	840	27	13										
0/31/85	7.22	1000	710	3.7	12										
/23/86	8.12	910	680	12	36										

Continued on next page.

SIC CONSULTANTS/CONSTRUCTORS, INC.

WITNER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 13 (cont'd.)

recycled paper

Sample Date	pH Units	Cond. umhos	TDS mg/l	COO mg/l	TOC mg/l	Ba	Cr (T)	Cr (VI)	Fe	Mn	Si	Zn
4/2/86	11.1	1200	740	15	25	0.087	<0.01	<0.01	6.32	0.372	17.2	0.311
8/4/86	7.59	1200	790	6.6	<1							
10/2/86	7.45	970	630	8.0	<10							
1/28/87	7.45	1000	690	<10	<10							
4/15/87	6.80	990	790	5.1	14	0.035	<0.01	<0.01	0.318	0.135	5.70	0.056

S.I.C. CONSULTANTS/CONSTRUCTORS, INC.

WITTNER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 13A

Sample Date	pH Units	Cond. umhos	TDS mg/l	COO mg/l	TOC mg/l	Ba	Cr(T)	Cr(VI)	Fe	Mn	Si	Zn
4/3/85	10.36	520	260	95	13							
7/25/85			INSUFFICIENT SAMPLE OR DRY		15							
10/31/85	10.51	540	320	26	6.7							
1/23/86	11.14	440	270	21	19							
4/2/86	12.3	440	180	15	9	<0.03	0.703	0.674	0.094	<0.03	11.5	0.095
8/4/86	11.35	2000	350	26	11							
10/2/86	11.15	580	310	26	45							
11/28/87	10.20	310	220	22	<10	<0.01	0.714	0.632	0.040	<0.005	9.22	<0.01
4/15/87	9.60	310	200	20								

SKW Alloys, Inc.

P.O. Box 368
Niagara Falls, NY 14302
Telephone 716-285-1252
TWX: 710-524-1650
FAX: 716-278-8897/8809

July 23, 1990

E. C. Jordan Co.
Engineers and Scientists
261 Commercial Street
P.O. Box 7050
Portland, Maine 04112

Attn: Mr. Roger L. Bondeson

Dear Mr. Bondeson:

Enclosed with this correspondence is the information concerning SKW Alloys, Inc.'s Witmer Road landfill which you requested on July 19, 1990 during your site visit. This includes the following:

- 1) Landfill leachate analysis,
- 2) EP toxicity test data for dry dust from silicon metal and ferro silicon operations,
- 3) Landfill annual report for 1989 submitted to NYSDEC,
- 4) Information concerning sales of silicon metal and ferro silicon baghouse dust,
- 5) Site soil boring logs,
- 6) Soil and Hydrogeologic Summary prepared by Earth Investigations, Ltd.,
- 7) UST removal form, and
- 8) Copy of draft consent order.

If you have any questions concerning any of this information or any other items concerning the site please give either myself (716-278-8893) or Richard R. Snyder, P.E. (716-773-5661) a call.

Sincerely,



Ronald Stipp
Plant Engineer

enc:

Quarterly Report

Annual Report

Division of Solid Waste
New York State Department of Environmental Conservation

Quarterly and Annual Report

MIXED SOLID WASTE LANDFILLS

If this form is used for a quarterly report, answer question A and complete Sections 1 and 8 through 13. Submit the quarterly report no later than 60 days after the last day of each calendar quarter.

If this form is used for an annual report answer question B and complete Sections 1 through 7 and 9 through 13. Submit the annual report no later than 60 days after January 1, each year.

If this form is used for quarterly and annual reports, answer questions A and B and complete all Sections. (see below for instructions.)

A. This report is for the following quarter (please check one and fill in year):

_____ First Quarter;	January 1, 19__	to March 31, 19__
_____ Second Quarter;	April 1, 19__	to June 30, 19__
_____ Third Quarter;	July 1, 19__	to September 30, 19__
_____ Fourth Quarter;	October 1, 19__	to December 31, 19__

B. This Annual Report is for the period between January 1, 19__ and December 31, 19__.

Instructions:

1. Entries on the application form should be either typewritten or neatly printed in black ink.
2. Attach additional sheets if space on the application form is insufficient or supplementary information is required or appropriate.
3. The Quarterly and Annual Report Forms must be submitted by the owner or operator.
4. The report forms are required to be completed for all mixed waste landfills in accordance with 6 NYCRR 360-1.4(c), 360-1.14(f)(2), 360-2.11(c)(4)(iv), and 360-2.17(t). Failure to complete and submit these forms is a violation of Environmental Conservation Law.

SECTION 1

Owner/Facility Information

Facility Name SKW Alloys Witmer Road Landfill DEC Facility Code # 32N04
 DEC Region 9 Town Town of Niagara County Niagara
 Part 360 Permit Number 2585 Date of Permit Expiration 10/4/84 but extended under State Administrative Act Section 401
 Owner Name SKW Alloys, Inc. Phone # (716) 278-8893
 Mailing Address P.O. Box 368 Niagara Falls, NY 14302
 Operator Name Ron Stipp Phone # (716) 278-8893

SECTION 2

Quantity of Solid Waste *

Total quantity of solid waste (by waste type) disposed of, in tons, in the last calendar year:

Refuse **	<u>0</u>	tons/yr.
Sewage Sludge and Septage	<u>0</u>	tons/yr.
Water Supply Treatment Plant Sludge	<u>0</u>	tons/yr.
Industrial Sludge	<u>0</u>	tons/yr.
Non-Energy Recovery Facility Ash Residue	<u>0</u>	tons/yr.
Energy Recovery Facility Ash Residue	<u>0</u>	tons/yr.
Industrial Waste	<u>9,576</u>	tons/yr.
Construction And Demolition Debris	<u>0</u>	tons/yr.
Asbestos Waste	<u>0</u>	tons/yr.
Yard Waste	<u>0</u>	tons/yr.
Waste Tires	<u>0</u>	tons/yr.
Other (Specify) _____	<u>0</u>	tons/yr.
TOTAL	<u>9,576</u>	tons/yr.

Note: Specify method of data collection (e.g. scale, truck count, estimated) Estimated (based on furnace production and sales of baghouse dust)

* Attach, on a separate sheet, a description of the facility's service area and identify the location (Town, County, Out-of-State) from where the waste originates. Include, if known, the approximate percentage of waste type received from each location.

** Refuse includes garbage, household and commercial wastes, excluding the specific wastes types listed.

SECTION 3
Unauthorized Solid Waste

Has unauthorized solid waste ever been received at the Landfill? Yes ___ No **X** ___

If yes, give information below for each incident:

Date Solid Waste Received	Type of Solid Waste Received	Date of Disposal	Disposal Method and Location
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

SECTION 4
Site Life

- What is the remaining life of the existing landfill? 1 years 3 months
capacity? 12,000 cu.yd.
- What is the projected life of the new landfill space under permit to construct? _____ years _____ months
capacity? _____ cu.yd.

SECTION 5
Primary Leachate

Does the facility have a constructed liner and a leachate collection system? Yes No

Name of off-site leachate treatment facility(s) utilized: Leachate is utilized to slurry baghouse dust and is recycled back to the landfill

Acreage of the lined area from which leachate is collected: approximately 3 acre(s)

LEACHATE (gals)													ANNUAL TOTAL (gals)	
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC		
COLLECTED														780,000
TREATED ON-SITE														
TREATED OFF-SITE														

SECTION 6
Secondary Leachate

Does landfill have a double liner system with a secondary leachate collection and removal system? _____ Yes x No

If yes, enter the quantity of secondary leachate that was collected and removed for treatment each month:

LEACHATE (gals)													ANNUAL TOTAL (gals)
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
COLLECTED													
TREATED ON-SITE													
TREATED OFF-SITE													

Acreage of the lined area from which secondary leachate is collected: _____ acre(s)

SECTION 7
List Changes

List any changes from approved reports, plans, specifications, permit conditions and fill progression plan with a justification for each change.

Not applicable

SECTION 8
Analytical Results

Submit (attached to this form) a table showing the sample collection date, the analytical results and methods [including all peaks even if below the Method Detection Limits (MDL)], designation of upgradient wells and location number for each environmental monitoring point sampled, applicable water quality standards, New York State Department of Health guidance values and statistical triggers if applicable, QA/QC notations, MDL's, Practical quantitation limits (PQL) and Chemical Abstracts Service (CAS) numbers on all compounds. List submissions (required by this section) that have been attached to this form or the reasons for not attaching a required piece of information:

Attachments 1 and 2

SECTION 9
Comparing Data

Submit (attached to this form) tables or graphical representations comparing current water quality and existing water quality and upgradient water quality. These may include Piper diagrams, staff diagrams, tables, or other analyses. List submissions (required by this section) that have been attached to this form or the reasons for not attaching a required piece of information: A comparison of ground water quality upgradient of the landfill with ground water quality down gradient of the landfill is provided by Attachment 2. The site's ground water is now undergoing a baseline monitoring program to satisfy the requirements of the new Part 360 regulations.

SECTION 10
Discussion of Results

Submit (attached to this form) a summary of the contraventions of state water quality standards, a discussion of results, including elevations of parameters above background concentrations or statistical trigger values; and any proposed modifications to the sampling and analysis schedule necessary to meet the Existing, Operational and Contingency water quality monitoring requirements. List submissions (required by this section) that have been attached to this form or the reasons for not attaching a required piece of information:

Carbon steel monitoring wells have been replaced by PVC wells and a new upgradient well installed in an effort to eliminate the potential for high concentrations of iron found in some samples. As previously noted the site's ground water monitoring system is now undergoing caseline monitoring to satisfy the requirements of the new Part 360 Regulations.

SECTION 11
Surface Impoundments

Does this landfill have a surface impoundment? Yes X No

If yes, there are separate water quality reporting requirements for surface impoundments. Namely, repeat sections 8 through 10 for quarterly reports and sections 9 and 10 for annual reports.

SECTION 12
Permit/Consent Order Reporting Requirements

Are there any additional permit/consent order reporting requirements not covered by the previous sections of this form? Yes No

If yes, list the reporting requirements with their respective responses below (attach additional sheets if necessary):

SECTION 13
Signature and Date

Owner or Operator must sign, date, and submit one completed form with an original signature to:

New York State Department of Environmental Conservation
Division of Solid Waste
Bureau of Municipal Waste Permitting
50 Wolf Road
Albany, New York 12233-4013

and one copy with an original signature to the appropriate Regional Solid Waste Engineer (RSWE). (see attachment for Regional Office addresses)

Certification

I hereby affirm under penalty of perjury that information provided on this form and attached statements and exhibits is true to the best of my knowledge and belief. False statements made here in are punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law.

NAME & TITLE	SIGNATURE	DATE
--------------	-----------	------

REGION 5
(Clinton, Essex, Franklin,
Fulton, Hamilton,
Saratoga, Warren,
Washington)

MAIN OFFICE
George Stahlner
Route 80
Ray Brook, NY 12977
(518) 891-1370

SUB-OFFICE
Constantine Caraylannis
Box 220
Hudson Street Extension
Warrensburg, NY 12805

REGION 4
(Albany, Columbia,
Delaware, Greene,
Montgomery, Otsego,
Rensselaer, Schoenectady,
Schoharie)
Richard Forgea
2178 Gullerland Avenue
Schenectady, NY 12306
(518) 382-0880

DEC CENTRAL OFFICE
Division of Solid Waste
60 Wolf Road, Albany, NY 12233-4010
(518) 457-6603
Norman H. Nosenchuck, Director
John J. Willison, Assistant Director

REGION 3
(Dutchess, Orange,
Putnam, Rockland,
Sullivan, Ulster,
Westchester)
Richard Gardineer
21 South Pult Corners Rd
New Paltz, NY 12561
(914) 255-5453

REGION 1
(Nassau, Suffolk)
Gerald Brezner
SUNY
Campus Building 40

REGION 6
(Herkimer, Jefferson,
Lewis, Oneida, St.
Lawrence)

MAIN OFFICE
John Kenne
State Office Building
317 Washington Street
Watertown, NY 13001
(315) 785-2513

SUB-OFFICE
Robert Senior
State Office Building
207 Genesee Street
Utica, NY 13501
(315) 783-2554

REGION 2
(New York City)
Gilbert Burns
Hunters Point Plaza
47-40 21st Street
Long Island City, NY 11101
(718) 482-4091

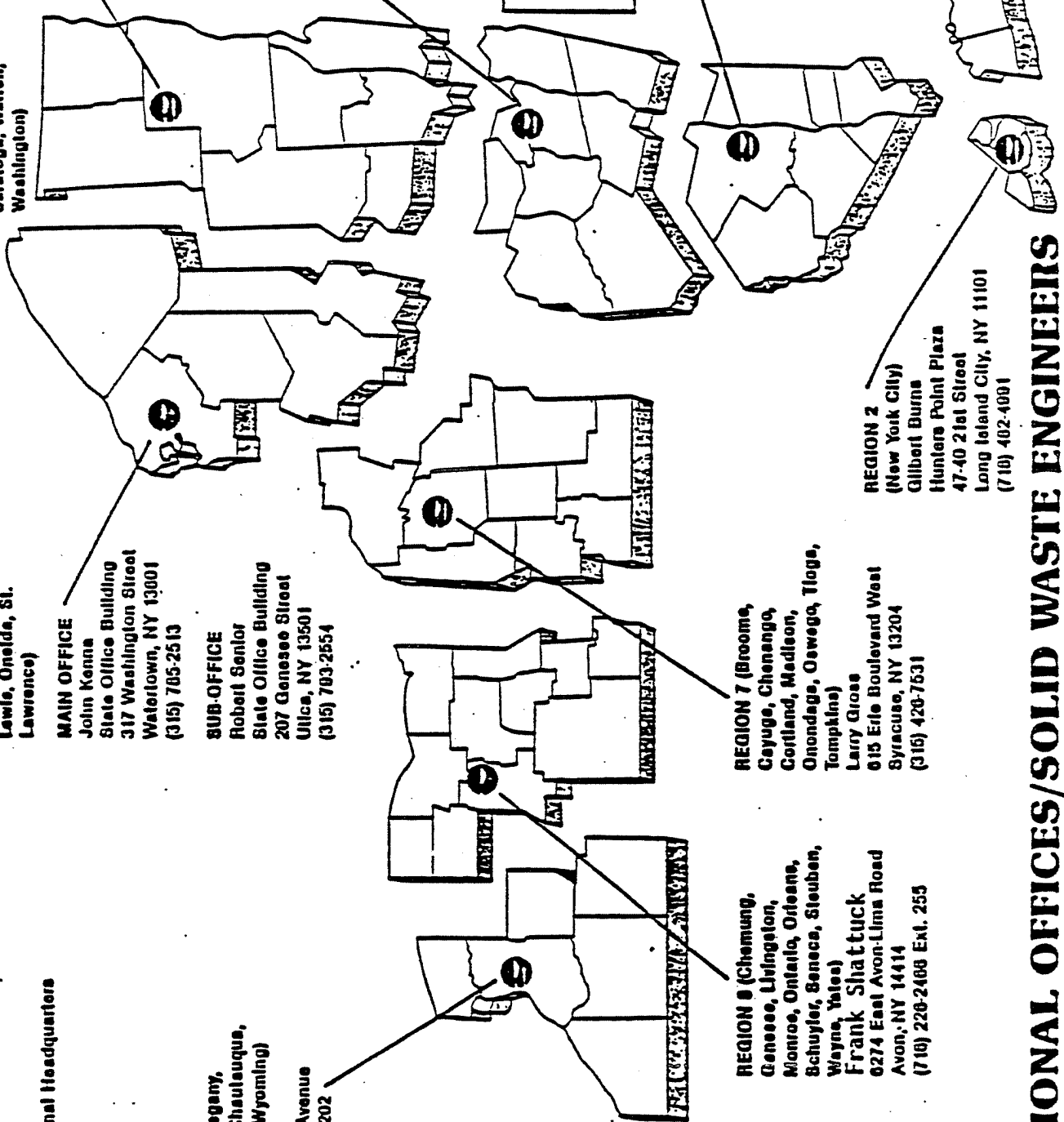
REGION 7 (Broome,
Cayuga, Chenango,
Cortland, Madison,
Onondaga, Oswego, Tloga,
Tomphine)
Larry Gross
615 Erie Boulevard West
Syracuse, NY 13204
(315) 428-7631

Legend
Regional Headquarters

REGION 9 (Allegany,
Cattaraugus, Chautauque,
Erie, Niagara, Wyoming)
Robert Milroy
600 Delaware Avenue
Buffalo, NY 14202
(716) 847-4585

REGION 8 (Chemung,
Genesee, Livingston,
Monroe, Ontario, Orleans,
Schuyler, Seneca, Steuben,
Wayne, Yates)
Frank Shattuck
6274 East Avon-Lima Road
Avon, NY 14414
(716) 228-2488 Ext. 255

REGIONAL OFFICES/SOLID WASTE ENGINEERS
Division of Solid Waste



Attachment I

SKW Alloys, Inc. Witmer Road Landfill Ground and Surface Water Monitoring Program

Compound or Analytical Parameter	CAS Number	MDL	Water Quality Standard	Method Number
pH	N.A.	N.A.		423
Specific Conductance	N.A.	N.A.		120.1
Chemical Oxygen Demand	N.A.	1.0 mg/l		410.4
Total Dissolved Solids	N.A.	1.0 mg/l		160.1
Total Organic Carbon	N.A.	1.0 mg/l		505B
Arsenic	7440-38-2	.005 mg/l	5.0	206.2
Barium	7440-39-3	.010 mg/l	100	208.1
Chromium	7440-47-3	.005 mg/l	5.0	218.2
Iron		.10 mg/l		236.1
Selenium	7782-49-2	.005 mg/l	1.0	270.2
Manganese	7439-96-5	.10 mg/l		243.1
Hexavalent Chromium	7440-47-3	.01 mg/l		7196
Silica		.10 mg/l		218.1
Alkalinity	N.A.	1.0 mg/l		310.1
Ammonia	7664-41-7	.010 mg/l		350.1
Chloride		1.0 mg/l		325.2
Hardness (as Calcium Carbonate)	N.A.	1.0 mg/l		314B
Nitrate/Nitrite		.01 mg/l		353.2
Phenols	108-95-2	.005 mg/l		420.2

Sulfates		2.0 mg/l		375.2
Cadmium	7440-43-9	.04 mg/l	1.0	213.2
Calcium	7440-70-2	.25 mg/l		215.1
Lead	7439-92-1	1.0 mg/l	5.0	239.2
Magnesium	7439-95-4	1.0 mg/l		242.1
Potassium	7440-09-7	1.0 mg/l		258.1
Sodium	7440-23-5	5.0 mg/l		273.1
Silver	7440-22-4	.001 mg/l	5.0	272.2
BOD5	N.A.	1.0 mg/l		507
Boron	7440-42-8	.25 mg/l		404A
Color	N.A.	5.0 color units		110.2
Cyanide	57-12-5	.01 mg/l		335.3
Dissolved Oxygen	N.A.	1.0 mg/l		360.1
Total Kjeldahl Nitrogen	N.A.	.10 mg/l		351.2
Aluminum	7429-90-5	5.0 mg/l		202.1
Antimony	7440-36-0	1.0 mg/l		204.1
Beryllium	7440-41-7	.05 mg/l		210.1
Copper	7440-50-8	.20 mg/l		220.1
Mercury	7439-97-6	.001 mg/l	.2	245.2
Nickel	7440-02-0	.30 mg/l		249.1
Thallium	7440-28-0	1.0 mg/l		279.1
Zinc	7440-66-6	.05 mg/l		289.1
Bromodichloromethane	75-27-4	1.0 ug/l		601
Bromoform	75-25-2	1.0 ug/l		601
Bromomethane	74-83-9	1.0 ug/l		601
Carbon Tetrachloride	56-23-5	1.0 ug/l		601
Vinyl Chloride	75-01-4	1.0 ug/l		601
Chloroethane	75-00-3	1.0 ug/l		601
2-Chloroethylvinyl Ether	110-75-8	1.0 ug/l		601
Chloroform	67-66-3	1.0 ug/l		601
Chloromethane	74-87-3	1.0 ug/l		601
Dibromochloromethane	124-48-1	1.0 ug/l		601

Trichlorofluoro- methane	75-69-4	1.0 ug/l	601
Trichloroethene	79-01-6	1.0 ug/l	601
1,1,2-Trichloroethane	79-00-5	1.0 ug/l	601
Dichlorodifluoro- methane	75-71-8	1.0 ug/l	601
1,1-Dichloroethane	75-34-3	1.0 ug/l	601
1,2-Dichloroethane	107-06-2	1.0 ug/l	601
1,1-Dichloroethene	75-35-4	1.0 ug/l	601
trans-1,2- Dichloroethene		1.0 ug/l	601
1,2-Dichloropropane	8003-19-8	1.0 ug/l	601
cis-1,3-Dichloro- propene	542-75-6	1.0 ug/l	601
trans-1,3-Dichloro- propene	542-75-6	1.0 ug/l	601
Methylene Chloride	75-09-2	5.0 ug/l	601
1,1,2,2-Tetrachoro- ethane	630-20-6	1.0 ug/l	601
Tetrachloroethene	127-18-4	1.0 ug/l	601
1,1,1-Trichloroethane	71-55-6	1.0 ug/l	601
Benzene	71-43-2	1.0 ug/l	601
Toluene	108-88-3	1.0 ug/l	601
Ethylbenzene	100-41-4	1.0 ug/l	601
1,4-Dichlorobenzene	106-46-7	1.0 ug/l	601
1,3-Dichlorobenzene			
1,2-Dichlorobenzene	955-50-1	1.0 ug/l	601
m-Xylene	108-38-3	1.0 ug/l	601
p-Xylene	106-42-3	1.0 ug/l	601
o-Xylene	95-46-6	1.0 ug/l	601

Attachment 2

SKW Alloys, Inc. Witmer Road Landfill Ground and Surface Water
Monitoring Data for 1989

Ground and Surface Water Monitoring 1/19/89

Upgradient Wells - 3 (deep), 3A (shallow), 13 (deep), 13A (shallow)

Down gradient Wells - 5 (deep), 5A (shallow), 12 (deep), 12A (shallow)

Surface water entering site - 6A

Surface water leaving site - 7

3 - Well dry

12A - Well dry

Parameter	Well 3A	Well 13	Well 13A	Well 5	Well 5A	Well 12
pH	12.16	7.05	11.64	8.92	8.84	7.25
Specific conductance	925	1,110	643	605	1,073	1,804
COD	37.8	8.40	20.4	24.9	63.4	8.4
TOC	13.4	39.2	8.5	9.7	83.2	42.2
Total dissolved solids	31	670	264	2410	625	1,050

Parameter	Surface Water Pt. 6A	Surface Water Pt. 7
pH	12.43	12.76
Specific conductance	5,110	2,530
COD	24.9	44.0
TOC	8.4	19.7

	3R	5R	12	14N	6A	7
Chromium (mg/l) (soluble)	BQL	BQL	.013	BQL	.120	.230
Chromium (mg/l) (total)	.017	.005	.035	.007	.180	.230
Iron (mg/l) (soluble)	.22	.19	.16	.75	.11	BQL
Iron (mg/l) (total)	5.05	1.09	.81	2.59	.28	BQL
Manganese (mg/l) (soluble)	.13	BQL	.12	.16	BQL	BQL
Manganese (mg/l) (total)	.37	BQL	.15	.19	BQL	BQL
Hexavalent Chromium (mg/l) (soluble)	BQL	BQL	BQL	BQL	.20	.36
Hexavalent Chromium (mg/l) (total)	BQL	BQL	BQL	BQL	.20	.26
Silica (mg/l) (soluble)	12.2	12.2	9.2	12.5	5.3	4.8
Silica (mg/l) (total)	13.8	15.0	11.8	13.8	5.9	4.8

Ground and Surface Water Baseline Monitoring (8/11/89)

Upgradient Wells - 3R

Downgradient Wells - 5R, 12, and 14N

Surface water entering site - 6A

Surface water leaving site - 7

Compound or Analytical	Well 3R	Well 14N	Well 5R	Well 12	Surface Water 7	Surface Water 6A
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Parameter	3R	14N	5R	12	7	(dry) 6A
Oxidation Reduction Pot	2	13	-117	-9	-296	
pH	7.11	6.96	9.24	7.32	12.37	
Specific Conductance	700	900	950	4025	1120	
Chemical Oxygen Demand (mg/l)	31	13.6	44	13.6	31.9	
Total Dissolved Solids (mg/l)	568	724	695	894	1700	
Total Organic Carbon (mg/l)	19	50	13.6	4.6	9.4	
Arsenic (mg/l)	BQL	BQL	BQL	BQL	BQL	
Barium (mg/l)	BQL	BQL	BQL	BQL	BQL	
Chromium (mg/l)	BQL	BQL	BQL	BQL	1.32	
Iron (mg/l)	2.05	1.55	.50	BQL	BQL	
Selenium (mg/l)	BQL	BQL	BQL	BQL	.040	
Manganese (mg/l)	.73	.25	.12	.17	BQL	
Hexavalent Chromium (mg/l)	BQL	BQL	BQL	BQL	.88	
Alkalinity (mg/l)	410	360	52	405	1520	
Ammonia (mg/l)	.016	.032	.053	.096	2.86	
Chloride (mg/l)	BQL	7.0	187	157	45	
Hardness (as Calcium Carbonate) (mg/l)	430	540	200	560	1300	
Nitrate/Nitrite (mg/l)	.1	BQL	.1	.09	3.71	
Phenols	.007	.005	.005	BQL	.046	

	3R	14N	5R	12	7	6A
(mg/l)						
Sulfates	150	200	230	215	13	
(mg/l)						
Cadmium	.0005	BQL	BQL	BQL	BQL	
(mg/l)						
Calcium	127	130	93.6	118	733	
(mg/l)						
Lead (mg/l)	BQL	BQL	.005	BQL	BQL	
Magnesium	48.1	55.3	6.83	64.6	1.18	
(mg/l)						
Potassium	1.36	1.96	69.8	5.05	60.8	
(mg/l)						
Sodium	16.8	55.2	124	88.2	106	
(mg/l)						
BOD5 (mg/l)	1.8	3.4	4.4	3.6	7.6	
Boron (mg/l)	.36	BQL	BQL	BQL	BQL	
Color	BQL	15	25	25	50	
(Color units)						
Cyanide	BQL	BQL	BQL	BQL	.01	
(mg/l)						
Dissolved	8.1	8.5	8.5	8.4	8.1	
Oxygen(mg/l)						
Total Kjeldahl	BQL	BQL	BQL	BQL	3.71	
Nitrogen (mg/l)						
Aluminum	BQL	BQL	BQL	BQL	BQL	
(mg/l)						
Antimony	BQL	BQL	BQL	BQL	BQL	
(mg/l)						
Beryllium	BQL	BQL	BQL	BQL	BQL	
(mg/l)						
Copper (mg/l)	BQL	BQL	BQL	BQL	BQL	
Mercury	BQL	BQL	BQL	BQL	BQL	
(mg/l)						
Nickel (mg/l)	BQL	BQL	BQL	BQL	BQL	
Thallium	BQL	BQL	BQL	BQL	BQL	
(mg/l)						

	3R	14N	5A	12	7
Zinc (mg/l)	.05	.67	BQL	BQL	BQL
Bromodichloro- methane (ug/l)	BQL	BQL	BQL	BQL	BQL
Bromoform (ug/l)	BQL	BQL	BQL	BQL	BQL
Bromomethane (ug/l)	BQL	BQL	BQL	BQL	BQL
Carbon Tetrachloride (ug/l)	BQL	BQL	BQL	BQL	BQL
Vinyl Chloride (ug/l)	BQL	BQL	BQL	BQL	BQL
Chloroethane (ug/l)	BQL	BQL	BQL	BQL	BQL
2-Chloroethyl- vinyl Ether (ug/l)	BQL	BQL	BQL	BQL	BQL
Chloroform (ug/l)	BQL	BQL	BQL	BQL	BQL
Chloromethane (ug/l)	BQL	BQL	BQL	BQL	BQL
Dibromochloro- methane (ug/l)	BQL	BQL	BQL	BQL	BQL
Trichlorofluoro- methane (ug/l)	BQL	BQL	BQL	BQL	BQL
Trichloroethene (ug/l)	BQL	47.1	BQL	BQL	BQL
1,1,2-Trichloro- ethane (ug/l)	BQL	BQL	BQL	BQL	BQL
Dichlorodifluoro- methane (ug/l)	BQL	BQL	BQL	BQL	BQL
1,1-Dichloro- ethane (ug/l)	BQL	BQL	BQL	BQL	2.15
1,2-Dichloro- ethane (ug/l)	BQL	BQL	BQL	BQL	BQL

GA
Dr/

	3R	14N	SR	12	7
1,1-Dichloroethene (ug/l)	BQL	BQL	BQL	BQL	BQL
trans-1,2-Dichloroethene (ug/l)	BQL	BQL	BQL	1.10	BQL
1,2-Dichloropropane (ug/l)	BQL	BQL	BQL	BQL	BQL
cis-1,3-Dichloropropene (ug/l)	BQL	BQL	BQL	BQL	BQL
trans-1,3-Dichloropropene (ug/l)	BQL	BQL	BQL	BQL	BQL
Methylene Chloride 6.67 (ug/l)	BQL	BQL	BQL	BQL	BQL
1,1,2,2-Tetrachloroethane (ug/l)	BQL	BQL	BQL	BQL	BQL
Tetrachloroethene (ug/l)	BQL	BQL	BQL	BQL	BQL
1,1,1-Trichloroethane (ug/l)	BQL	BQL	BQL	BQL	1.38
Benzene (ug/l)	BQL	BQL	BQL	BQL	BQL
Toluene (ug/l)	BQL	BQL	BQL	BQL	BQL
Ethylbenzene (ug/l)	BQL	BQL	BQL	BQL	BQL
1,4-Dichlorobenzene (ug/l)	BQL	BQL	BQL	BQL	BQL
1,3-Dichlorobenzene (ug/l)	BQL	BQL	BQL	BQL	BQL
1,2-Dichlorobenzene (ug/l)	BQL	BQL	BQL	BQL	BQL
m,p-Xylene (ug/l)	BQL	BQL	BQL	BQL	BQL
o-Xylene (ug/l)	BQL	BQL	BQL	BQL	BQL

6A
DFY

Ground and Surface Water Monitoring 11/22/89

Upgradient Wells - 3R

Downgradient Wells - 5R, 12, and 14N

Surface water entering site - 6A

Surface water leaving site - 7

Parameter	Well 3R	Well 5R	Well 12	Well 14N	Surface Water 7	Surface 6A
Oxidation Reduction Pot.	10.5	10.0	14.0	27.0	10.0	10.5
Dissolved Oxygen (mg/l)	N.R.	N.R.	N.R.	N.R.	9.2	8.4
Turbidity (NTU)	48.7	21.6	83.3	127.5	1.05	20.6
pH	7.55	9.44	7.31	7.14	12.4	12.46
Specific Conductance	850	1575	1555	1300	1150	1325
Alkalinity (mg/l)	370	65	390	400	260	300
Ammonia (as N) (mg/l)	.027	.200	.076	BQL	1.03	1.05
Chloride (mg/l)	13	250	170	92	27	24
COD (mg/l)	BQL	36	BQL	12	18	21
Hardness (as calcium carbonate) (mg/l)	420	260	600	540	190	230
Nitrate/ Nitrite (mg/l)	.35	.04	.02	.02	.44	.37
Phenols	.009	BQL	BQL	.006	.009	.006

(mg/l)						
Sulfates	100	260	220	160	22	21
(mg/l)						
Total	548	1000	1050	831	354	564
Dissolved						
Solids (mg/l)						
TOC (mg/l)	26.4	17.4	39.5	41.0	10.6	13.7
Cadmium	BQL	BQL	BQL	BQL	BQL	BQL
(mg/l)						
Calcium	103	93.4	97.6	114	78.4	104
(mg/l)						
Iron (mg/l)	1.64	.59	3.52	3.93	BQL	BQL
Lead (mg/l)	BQL	BQL	BQL	BQL	BQL	BQL
Magnesium	47.8	6.80	70.8	57.1	1.08	4.10
(mg/l)						
Manganese	.13	BQL	.18	.21	BQL	BQL
(mg/l)						
Potassium	1.42	101	10.6	3.08	9.39	7.53
(mg/l)						
Sodium	12.6	117	96.8	49.5	22.4	20.9
(mg/l)						

APPENDIX E-2

AIRCO PROPERTIES, INC., SAMPLING DATA



The Carbon/Graphite Group, Inc.

4861 Packard Road
Niagara Falls, NY 14304

(716) 285-9381

July 20, 1990

Mr. Roger L. Bondeson
Environmental Scientist
ABB Environmental Services, Inc.
261 Commercial Street
P.O. Box 7050
Portland, Maine 04112

Subject: Airco Properties, Inc. Landfill

Dear Mr. Bondeson:

Enclosed please find a copy of the quarterly ground and surface water monitoring data for the above subject facility as requested during your 7/19/90 inspection of the site.

If you require any additional information please contact me.

Sincerely,
The Carbon/Graphite Group, Inc.

Suzette D. Kosikowski
Suzette D. Kosikowski
Supervisor of Environmental
Compliance

SDK/bm



The Carbon/Graphite Group, Inc.

4861 Packard Road
Niagara Falls, NY 14304

(716) 285-9381

May 14, 1990

Regional Solid Waste Engineer
New York State Department of
Environmental Conservation
Region 9 Office
600 Delaware Avenue
Buffalo, New York 14202-1073

Subject: Submission of Quarterly Groundwater Data
for the Witmer Road Landfill

Dear Sir:

Enclosed herewith, please find the second quarter 1990 results and summary sheets for the monitoring of the surface and groundwaters from Airco Properties, Inc. Solid Waste Management Facility, located at Witmer Road, Town of Niagara, New York. The permit number and facility number for this facility are 90-84-0293 and 32N39 respectively.

The metal analyses performed on the groundwater samples taken at the landfill are for total metals.

If there are any questions, please feel free to contact me.

Sincerely,
The Carbon/Graphite Group, Inc.

Suzette D Kosikowski

Suzette D. Kosikowski
Supervisor of Environmental
Compliance

SDK/bm

cc: NYSDEC
50 Wolf Road
Bureau of Municipal Waste
Albany, New York 12233

James Sacco
Town Supervisor
Town of Niagara
7105 Lockport Road
Niagara Falls, New York 14305

Niagara County Health Department
County Office Building
10th Street and East Falls Street
Niagara Falls, New York 14305

THE CARBON/GRAPHITE GROUP, INC.
Before Evacuation

Well Number	1	1A	2	2A	4	4A	13	13A
4/06/79	599,75	599,78	599,76	601,86	605,27	605,29		
5/08/79	598,26	598,84	599,45	601,33	604,98	604,30		
6/08/79	595,84	596,98	598,12	599,00	601,88	603,65		
1/14/80	598,21	598,54	597,77	601,56	605,38	604,71	592,36	599,57*
4/10/80	599,40	599,96	596,76	602,11	596,71	605,69	593,07	599,67
6/30/80	594,86	595,21	597,58	600,80	603,45	603,52	591,53	595,05
10/28/80	590,88	595,10	596,76	598,30	600,62	603,63	590,58	594,90
1/06/81	593,08	595,20	597,65	598,48	601,70	603,09	592,01	594,91
4/06/81	597,43	597,89	598,39	601,03	603,65	603,56	592,69	599,06
6/19/81	594,84	595,75	597,49	598,77	603,30	603,18	592,40	595,95
10/28/81	596,18	595,37	598,77	602,05	602,83	603,81	592,63	599,28
1/05/82	599,66	599,86	600,59	602,56	*605,56	604,75	594,32	599,62
4/13/82	599,70	600,26	600,29	602,23	*605,43	604,94	594,43	599,34
7/26/82	594,78	595,80	597,74	599,49	602,35	603,13	591,99	594,89
10/19/82	591,25	595,09	597,81	601,46	600,38	603,19	590,34	595,12
2/28/83	597,03	598,09	599,61	601,91	603,56	603,56	592,35	599,16
7/20/83	593,09	595,03	597,70	600,83	601,02	603,38	589,64	594,89
10/25/83	592,70	595,12	599,39	602,20	601,92	603,78	590,64	599,24
2/23/84	599,46	599,82	601,19	602,30	605,75	605,06	593,95	599,31
4/10/84	600,03	599,89	601,72	602,47	606,70	605,97	594,51	599,32
7/12/84	596,76	596,78	599,75	601,72	604,14	604,63	592,48	598,95
10/10/84	592,61	595,10	599,32	601,72	601,04	603,17	589,73	598,56
7/07/85	597,39	595,98	599,94	602,27	603,57	604,46	591,84	599,35
4/02/85	599,96	599,85	601,45	602,41	606,59	605,71	594,01	599,31
7/24/85**	593,14	595,19	598,32	601,14	601,34	603,24	590,45	595,04
10/30/85	591,59	595,11	599,09	601,90	601,48	603,84	590,16	599,18
1/22/86	599,75	599,37	601,32	602,52	606,70	605,58	593,69	599,38
4/01/86	599,54	599,78	600,88	602,13	606,19	604,99	593,72	599,05
8/02/86	594,23	595,63	598,99	601,70	602,92	603,35	591,23	598,05
10/01/86	593,99	595,44	599,81	602,53	602,73	604,35	592,49	599,44

* = New Well, Initial Readings.

** = New T O W C elevations protective rings and locking cans installed

THE CARBON/GRAPHITE GROUP, INC.
Before Evacuation

Well Number	1	1A	2	2A	4	4A	13	13A
1/27/87	599,90	600,07	600,64	601,81	605,31	604,10	596,15	599,28
4/14/87	***	***	601,34	602,15	607,12	605,79	597,53	599,33
7/22/87	594,97	596,48	599,55	602,14	602,89	603,77	595,11	599,32
10/26/87	598,04	597,85	599,91	601,92	603,41	603,68	595,84	599,18
1/11/88	596,12	600,13	599,51	601,65	605,03	604,20	596,09	599,38
4/05/88	600,22	600,61	601,15	602,16	605,80	604,69	597,21	599,46
8/01/88	593,15	595,67	601,37	597,99	601,26	603,17	593,87	**
10/17/88	590,08	595,37	597,00	601,19	599,27	603,13	591,83	594,37
1/18/89	595,62	600,11	599,61	601,69	602,09	603,77	595,10	599,14
4/18/89	599,46	600,69	601,02	602,16	605,60	604,73	597,07	599,42
7/19/89	594,96	599,12	599,01	601,42	603,90	603,64	595,35	598,90
10/04/89	590,59	595,64	598,03	601,60	600,67	603,18	593,18	594,84
1/10/90	597,64	601,19	600,51	601,19				
1/11/90					604,60	604,47	596,52	599,50
04/18/90	600,02	601,07	601,26	602,37	607,30	606,22	597,72	599,74

** = Evacuation not available due to obstruction on well.
 *** = Well broken - no sample.

THE CARBON/GRAPHITE GROUP, INC.
Before Sampling

Well Number	1	1A	2	2A	4	4A	13	13A
4/10/79	599.14	599.59	597.14	601.70	605.31	605.21		
5/14/79	597.78	598.20	598.53	600.62	604.62	604.02		
6/11/79	595.66	596.91	598.13	598.79	600.94	603.25		
1/16/80	597.86	598.41	596.03	601.49	599.64	604.71	588.15	599.45
4/11/80	N.D.	599.69	596.51	601.90	605.61	605.63	590.06	599.75
7/08/80	594.21	595.15	597.65	599.27	602.99	603.04	591.95	595.07
10/30/80	590.40	595.10	597.23	601.43	600.83	603.41	590.60	595.50
1/07/81	593.65	595.23	597.49	598.44	601.52	603.10	591.67	594.93
4/07/81	597.44	597.83	598.40	601.05	603.74	603.56	592.11	598.93
6/22/81	595.27	595.52	597.69	602.46	603.19	605.12	592.29	599.53
10/29/81	596.78	595.48	599.04	602.12	603.53	604.00	592.34	599.36
1/06/82	599.87	600.01	600.70	602.46	605.98	604.86	593.89	599.48
4/14/82	599.45	599.91	599.88	602.22	605.07	605.05	594.03	599.36
7/27/82	594.83	595.74	597.72	599.31	602.27	603.14	591.44	594.87
10/20/82	590.70	595.04	597.79	601.46	600.32	603.20	590.11	594.90
3/01/83	598.16	598.22	600.18	601.94	603.49	603.52	591.83	599.09
7/21/83	593.11	595.05	597.72	600.66	601.40	603.15	589.64	594.91
10/26/83	592.66	595.09	599.23	602.22	601.92	603.77	590.83	599.24
2/24/84	599.55	599.67	600.82	602.32	605.59	605.11	594.25	599.33
4/11/84	600.23	600.01	601.27	602.51	606.67	605.86	594.56	599.27
7/13/84	595.93	596.47	599.65	601.73	603.43	604.67	592.28	598.80
10/11/84	592.57	595.10	598.44	601.70	600.96	603.15	589.55	598.34
1/08/85	596.88	695.08	600.20	602.28	603.05	604.33	591.41	599.33
4/03/85	600.30	596.44	601.62	602.67	607.01	605.80	594.10	599.31
7/25/85**	593.04	595.21	598.23	601.18	601.31	603.16	590.31	595.00
10/31/85	591.66	595.24	598.77	601.98	601.39	603.80	590.23	597.42
1/23/86	599.31	597.72	600.81	602.35	606.37	605.59	593.01	598.57
4/02/86	599.19	597.37	600.10	602.18	606.01	605.20	593.74	598.77
8/04/86	594.02	595.28	598.64	602.81	602.79	603.46	591.31	597.89
10/02/86	594.39	595.32	598.96	602.53	603.03	604.41	592.69	599.53

100-10000

THE CARBON/GRAPHITE GROUP, INC.
Before Sampling

Well Number	1	1A	2	2A	4	4A	13	13A
1/28/87	598.81	599.12	599.50	601.74	605.27	604.13	596.20	598.50
4/15/87	**	**	600.11	602.22	607.17	605.84	597.50	599.36
7/23/87	595.05	595.54	597.60	602.12	603.13	603.75	595.16	598.45
10/27/87	598.19	596.07	597.23	602.02	603.75	603.68	596.13	599.11
1/12/88	598.12	600.13	602.49	597.19	605.15	604.19	596.59	599.38
4/07/88	600.31	600.55	601.00	602.29	605.93	604.55	597.50	599.68
8/01/88	593.03	595.56	601.33	594.92	601.22	603.16	593.80	**
10/18/88	589.98	595.36	594.71	601.05	599.20	603.14	591.87	594.37
1/19/89	595.32	600.05	597.14	601.82	601.94	607.71	594.96	597.86
4/19/89	599.67	600.51	600.28	602.11	605.60	604.70	597.05	596.54
7/20/89	594.92	595.19	598.01	601.35	603.80	603.55	595.35	597.04
10/04/89				601.01				
10/05/89	590.72	WELL DRY	597.00		600.56		593.01	WELL DRY
1/11/90	598.27	601.02	599.92	602.05	596.25	604.07	593.95	594.94
4/18/90	598.57			602.37	599.30	606.27	596.90	597.44
4/19/90		599.57	601.47					

** = Deviation not available due to obstruction in well.

WITMER ROAD DRILLING PROJECT

SAMPLE LOCATION NO. 1

mg/l

Sample Date	PH Units	Cond. umhos	TDS mg/l	CO ₂ mg/l	TOC mg/l	Ba	Cr(T)	Cr(VI)	Fe	Mn	Si	Zn
3/07/79	7.30	1200		10	<2	0.10	<0.01		1.23	0.95	9.8	0.82
4/11/79	7.30	1350		10	2	0.01	<0.01		1.00	1.10	9.0	0.99
5/14/79	7.65	1000		18	5	0.15	0.01		1.18	0.80	4.9	0.75
6/11/79	7.45	1100		6.4	17	0.10	<0.01		4.60	0.88	6.2	0.70
12/14/79	6.85	1250		6	20	0.15	<0.02		1.1	0.24	—	0.41
1/16/80	7.80	1200	774	<2	54	0.1	<0.02		0.26	0.26	10	0.31
4/11/80	6.75	1400	1280	8	39	<0.1	<0.02	<0.01	0.02	0.19	6.1	0.74
7/08/80	7.25	1300	1020	12	110	0.1	0.02		0.22	0.18	4.3	0.17
10/30/80	—	—	—	—	—	—	—	—	—	—	—	—
1/07/81	6.9	1150	847	<20	4	—	0.096	<0.005	<0.050	0.055	7.0	<0.050
4/07/81	7.58	1010	878	18.9	10	<0.2	<0.005	<0.005	<0.05	0.02	10.2	0.277
6/22/81	6.97	1140	1074	21.6	2	0.40	0.016	0.010	<0.05	0.051	3.4	0.190
12/29/81	7.05	960	1064	17.2	14	<0.2	<0.005	<0.005	<0.05	0.115	0.70	0.011
1/06/82	7.00	1870	782	8.1	<1	<0.2	<0.005	<0.005	<0.050	0.079	9.5	0.048
4/14/82	6.95	830	784	<2.00	11.5	0.214	<0.005	<0.005	<0.050	0.081	8.30	0.240
7/27/82	7.10	670	660	14.9	24.4	<0.200	0.148	<0.005	<0.050	0.048	7.60	<0.050
10/20/82	7.50	699	536	15.4	30.7	<0.200	<0.005	<0.005	0.095	0.210	8.32	<0.050
3/01/83	6.92	870	788	<2.0	71.6	<0.2	0.005	0.005	<0.05	0.035	8.3	0.398
7/21/83	7.31	840	694	42.2	57.9	—	—	—	—	—	—	—
10/26/83	7.12	790	854	5.76	117.0	—	—	—	—	—	—	—
2/24/84	7.30	800	654	2.9	10.4	1.9	<0.005	<0.005	<0.05	0.059	5.8	0.15
4/11/84	7.01	780	700	12.7	8.9	0.01	—	—	—	—	—	—
7/13/84	7.22	740	442	16	15	—	—	—	—	—	—	—
10/11/84	7.42	940	760	13	13	—	—	—	—	—	—	—

WITMER ROAD SAMPLING PROJECT
 SAMPLE LOCATION NO. 1 (cont'd)

Sample Date	PH Units	Cond. umhos	TDS mg/l	COD mg/l	TOC mg/l	Ba	Cr(T)	Cr(VI)	Fe mg/l	Mn	Si	Zn
1/08/85	7.28	800	770	<5	130	0.080	0.034	0.009	1.58	0.083	0.93	0.439
4/03/85	7.30	700	690	7.2	12							
7/25/85	7.25	1000	950	24	22							
10/31/85	7.02	1000	730	3.7	<10							
1/23/86	7.59	1000	750	4.7	89							
4/02/86	7.60	1100	670	11	12	0.062	<0.01	<0.01	0.308	0.044	7.90	0.390
8/04/86	7.45	900	730	<5	5							
10/02/86	7.25	1000	660	7.8	17							
1/28/87	7.15	990	630	<5	18							
4/15/87	7.35	920	1100	12	<10	0.079	<0.01	<0.01	0.805	0.102	11.5	0.145
7/23/87	7.15	1200	920	11	28							
10/27/87	6.97	1520	1000	34.5	4.9							
1/12/88	6.84	1520	932	<1.0	4.2	<1.00	<0.50	<0.01	<0.30	<0.10	17.2	0.50
4/07/88	6.84	1500	2120	10.8	5.3							
8/02/88	7.27	1623	1120	<1.0	43.8							
10/18/88	7.18	1230	1270	<1.0	2.2	0.027	0.005	0.04	1.28	0.12	14	0.82
1/19/89	7.06	1200	1610	34	3.6							
4/19/89	7.40	1400	1190	9.0	28							
7/20/89	7.37	1800	1060	3.1	3.40							
10/05/89	7.25	1275	1050	2.99	24.0	<1.00	<0.50	<0.01	1.34	<0.10	17.7	0.54

WELL BROKEN - NO SAMPLE
 WELLY DRY - NO SAMPLE TAKEN

WINTER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 1A

mg/l

Sample Date	PH Units	Cond. umhos	TDS mg/l	COND mg/l	TOC mg/l	Ba	Cr(T)	Cr(VI)	Fe	Mn	Si	Zn
4/03/85	7.44	760	740	18	11							
7/25/85	INSUFFICIENT SAMPLE OR DRY											
10/31/85	D R Y											
1/23/86	7.67	1100	790	9.9	38							
4/02/86	7.70	1500	1200	89	17	0.042	<0.01	<0.01	1.80	0.725	5.54	0.20
8/04/86	D R Y											
10/02/86	D R Y											
1/28/87	7.90	2000	1600	110	11							
4/15/87	W E L L B R O K E N - N O S A M P L E											
7/23/87	INSUFFICIENT SAMPLE											
10/27/87	7.45	2300	750	23	32							
1/12/88	8.58	3750	2470	5.0	24.3							
4/07/88	9.52	2010	1270	146	20.3	<1.00	<0.50	<0.01	<0.30	<0.10	2.4	5.15
8/02/88	W E L L D R Y - N O S A M P L E T A K E N											
10/18/88	W E L L D R Y - N O S A M P L E T A K E N											
1/19/89	7.90	3850	2270	15.8	12.7							
4/19/89	8.86	2500	2280	164	15	0.023	0.010	<0.01	0.77	0.40	8.6	0.43
7/20/89	W E L L D R Y - N O S A M P L E T A K E N											
10/05/89	W E L L D R Y - N O S A M P L E T A K E N											
1/11/90	8.46	1350	1970	24	8.99							
4/19/90	10.08	3500	3340	234	42.0	<1.00	<0.50	<0.01	0.69	<0.10	6.50	0.31

WITMER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 2

mg/l

Sample Date	PH Units	Cond. umhos	TDS mg/l	COD mg/l	TOC mg/l	Ba	Cr(T)	Cr(VI)	Fe	Mn	Si	Zn
3/07/79						0.05	0.02		0.64	12.0	8.8	0.15
4/11/79						0.05	<0.01		1.40	1.1	6.4	0.18
5/14/79	7.8	500		22	9	0.10	0.01		0.40	0.35	2.6	0.06
6/01/79	7.95	495		7.2	11	<0.10	<0.01		2.5	0.60	4.4	0.27
12/14/79	7.70	460		2	<5	<0.05	<0.02		0.43	0.11	—	0.03
1/16/80	8.0	500	338	<2	32	0.1	<0.02		1.90	0.51	4.0	0.27
4/11/80	7.55	550	256	6	15	<0.1	<0.02	<0.01	0.21	0.25	3.8	0.13
7/08/80	7.55	440	443	9	52	0.1	0.02		0.96	0.26	2.7	0.02
10/30/80	7.60	460	268	4	<5	<0.1	<0.02		1.7	0.37	42	0.01
1/07/81	7.2	565	617	<20	3		0.064	<0.005	0.156	0.116	2.5	<0.050
4/07/81	7.71	510	412	40.6	7.8	<0.2	<0.005	<0.005	0.05	0.074	4.9	0.066
6/22/81	7.50	430	300	26.7	2.3	<0.20	0.006	<0.005	0.05	0.133	8.2	0.046
10/29/81	7.45	450	310	32.5	15	<0.2	<0.005	<0.005	<0.05	0.156	0.20	0.015
1/06/81	7.50	380	266	50.5	20.1	<0.2	<0.005	<0.005	<0.050	0.068	4.0	0.047
4/14/82	7.75	360	294	2.26	11.0	<0.200	<0.005	<0.005	<0.050	0.064	4.0	<0.010
7/27/82	7.61	280	374	47.5	17.9	<0.200	0.043	0.009	<0.050	0.106	5.40	<0.050
10/20/82	7.85	443	284	<5.0	26.7	<0.200	<0.005	<0.005	<0.050	0.200	6.84	<0.050
3/01/83	7.55	360	354	11.0	46.6	<0.2	0.012	0.011	<0.05	0.083	4.3	<0.050
7/21/83	7.99	280	240	24.7	31.1							
10/26/83	8.74	270	834	0.38	56.2							
2/24/84	9.90	220	112	31.5	15.3	<0.2	<0.005	<0.005	<0.05	<0.005	2.5	<0.02
4/11/84	9.46	210	140	11.7	6.0	0.04						
7/13/84	11.08	675	142	<5.0	5							
10/11/84	10.91	330	150	24	5.3							

WITMER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 2 (cont'd)

Sample Date	PH Units	Cond. umhos	TDS mg/l	COD mg/l	TOC mg/l	Ba	Cr(T)	Cr(VI)	Fe	Mn	Si	Zn
1/08/85	11.73	870	36	26	18	0.047	0.028	0.012	0.160	<0.050	<0.4	0.003
4/03/85	11.58	1100	460	4,7	7							
7/25/85	11.65	2000	520	10	12							
10/31/85	11.43	2800	610	15	<10							
1/23/86	12.15	1900	570	16	6,0							
4/02/86	12.2	1500	480	17	<10	0.073	0.039	0.033	0.08	<0.03	2.50	0.115
8/04/86	12.20	2000	1100	20	6							
10/02/86	11.90	1700	410	17	<10							
1/28/87	11.80	2300	580	21	<10							
4/15/87	10.40	1500	380	<5	13	0.063	0.023	0.012	0.124	<0.005	3.08	0.010
7/23/87	11.89	1400	460	24	<10		0.031					
10/27/87	11.10	1300	2000	30	20							
1/12/88	12.12	1550	329	22,6	8,3							
4/07/88	12.08	8250	725	32	6,8	<1,00	0.63	0.57	<0.30	<0.10	1.3	<0.05
8/02/88	10.98	925	244	61,9	9,6							
10/18/88	11.22	525	145	15	8,9							
1/19/89	12.05	741	286	15,8	6,2							
4/19/89	12.08	1225	312	14,0	5,4	0.025	0.048	0.06	0.23	0.021	8.6	0.13
7/20/89	11.87	1355	522	16	4,9							
10/05/89	11.99	1550	410	26,0	14							
1/11/90	12.63	2250	931	19	5,84							
4/19/90	12.32	3000	947	<1,00	4,30	<1,00	<0.50	0.36	<0.30	<0.10	2.00	<0.05

WITMER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 2A

Sample Date	PH Units	Cond. umhos	TDS mg/l	COD mg/l	TOC mg/l	Ba	Cr(T)	Cr(VI)	Fe mg/l	Mn	Si	Zn
4/03/85	12.14	5000	1200	75	10							
7/25/85	12.23	6300	1300	43	<10							
10/31/75	11.7	2700	1300	19	<10							
1/23/86	12.61	5500	1300	20	870							
4/02/86	12.7	5300	1900	13	<10	0.46	0.517	0.428	0.242	<0.03	0.640	0.306
8/04/86	12.70	200	5000	14	4							
10/02/86	12.50	5800	1300	24	<10							
1/28/87	12.15	6100	1400	19	<10							
4/15/87	10.60	5900	1500	67	14	0.452	0.495	0.356	0.092	<0.005	0.536	<0.01
7/23/87	12.50	1500	1500	26	12		0.472					
10/27/87	11.80	6100	3600	20	16							
1/12/88	12.65	6075	1360	10.2	5.1							
4/07/88	10.86	1750	346	12	6.3	<1.00	<0.50	0.02	<0.30	<0.10	9.1	<0.05
8/02/88	11.56	3250	1340	15.4	8.9							
10/18/88	12.00	2900	1160	31	2.7							
1/19/89	12.95	6230	1360	5.9	5.6							
4/19/89	12.97	5500	1350	14.0	5.4	0.200	0.56	0.55	1.06	0.015	1.5	0.09
7/20/89	13.29	4600	1520	6.2	6.0							
10/04/89	12.60	5000	1820	16.6	11.0							
1/11/90	12.87	4025	1280	26	6.27							
4/18/90	12.68	4500	1420	7.61	4.37	<1.00	0.61	0.70	<0.30	<0.10	0.56	0.08

WITMER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 4

mg/l

Sample Date	PH Units	Cond. umhos	TDS mg/l	COD mg/l	TiOC mg/l	Ba	Cr(T)	Cr(VI)	Fe	Mn	Si	Zn
3/07/79	7.45	1050		102	28	0.20	0.02		0.62	5.5	11.0	0.83
4/11/79	7.55	1150		4	6	0.15	0.01		0.41	3.8	11.5	0.38
5/14/79	7.35	1150		25	5	0.05	0.02		0.85	1.25	4.6	0.33
6/11/79	7.45	1100		9.6	18	<0.10	<0.01		1.6	0.99	4.6	0.44
12/14/79	7.45	950	596	40	<5	0.08	<0.02		0.32	0.01	—	0.060
1/16/80	7.45	1000	684	<2	80	<0.01	<0.02		0.15	1.18	5.0	0.19
4/11/80	6.90	1450	1380	<2	43	0.4	0.02	<0.01	0.05	0.57	5.4	0.67
7/08/80	7.05	1600	1290	6	100	0.2	<0.02		0.20	0.64	3.6	0.38
10/30/80	7.85	1050	642	2	<5	<0.1	<0.02		0.56	0.28	4.7	0.19
1/07/81	7.4	960	803	<20	3		0.064	0.02240	<0.050	0.067	5.2	<0.050
4/07/81	7.35	1400	1290	16.1	13.9	<0.2	<0.005	<0.005	<0.05	0.475	7.4	0.468
6/22/81	6.85	2200	1970	22	1.5	0.75	0.007	<0.005	<0.05	0.770	<5.0	0.457
10/29/81	6.90	2250	1960	88	23	<0.2	<0.005	<0.005	<0.05	0.622	0.40	0.094
1/06/82	6.85	2650	2318	18.2	<1	<0.2	<0.005	<0.005	<0.05	0.508	5.5	0.490
4/14/82	7.05	2600	2400	140	9.5	<0.200	0.029	0.027	<0.050	0.550	5.70	0.540
7/27/82	7.01	2700	2700	39.7	37.1	<0.200	0.295	<0.005	<0.050	0.532	4.98	0.160
10/20/82	7.65	2580	2070	14.9	37.8	<0.200	<0.005	<0.005	0.105	0.453	7.42	0.140
3/01/83	6.95	2520	2252	15.4	66.4	<0.200	<0.005	0.005	0.162	0.426	6.1	0.388
7/21/83	7.3	2250	1746	18.5	50.3	<0.2	0.0069					
10/26/83	7.38	1300	1040	14.9	96.4							
2/24/84	7.10	2100	1790	88.5	58.5	3.1	<0.005	<0.005	<0.05	0.813	4.6	0.19
4/11/84	6.86	1900	1780	19.5	4.4	0.04						
7/13/84	7.07	2700	1710	585	20							
10/11/84	7.16	1700	1300	<5	6.6							

WITMER ROAD SAMPLING PROJECT

SAMPLE LOCATION NO. 13 (cont'd)

Sample Date	PH Units	Cond, umhos	TDS mg/l	COD mg/l	TOC mg/l	Ba	Cr(T)	Cr(VI)	mg/l			
									Fe	Mn	Si	Zn
4/02/86	11.1	1200	740	15	25	0.087	<0.01	<0.01	6.32	0.372	17.2	0.311
8/04/86	7.59	1200	790	6.6	<1							
10/02/86	7.45	970	630	8.0	<10							
1/28/87	7.45	1000	690	<10	<10							
4/15/87	6.80	990	790	5.1	14	0.035	<0.01	<0.01	0.318	0.135	5.70	0.056
7/23/87	7.61	910	750	12	26							
10/27/87	7.50	1000	870	14	39							
1/12/88	6.91	900	667	<1.0	3.8							
4/07/88	6.86	1500	580	<1.0	7.4							
8/02/88	6.43	1400	770	15.3	19.0	<1.00	<0.50	<0.01	<0.30	0.17	12.9	0.61
10/18/88	7.15	910	700	9.6	6.9							
1/19/89	7.12	1219	712	<1.0	24.1							
4/19/89	7.12	1050	741	16.4	40	0.020	0.005	0.04	1.44	0.28	9.6	0.43
7/20/89	6.92	1100	888	<1.0	37.7							
10/05/89	7.35	1100	690	11.6	7.7							
1/11/90	7.77	975	635	3.1	45.9							
4/19/90	7.63	1050	771	<1.00	5.45	<1.00	<0.50	<0.01	0.46	0.17	14.5	0.10