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678SERBSF10,638

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NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT

MICHAEL F. EASLEY, GOVERNOR
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DEXTER R. MATTHEWS, DIRECTOR

NCDENR

March 28, 2002

Ms. Jennifer Wendel
NC Site Management Section
US EPA Region IV Waste Division
61 Forsythe Street, 11th Floor
Atlanta, Georgia 30303

Subject: Expanded Site Inspection
Sprague Aluminum Co.
Lansing, Ashe County, NC
NCD 003 167 780

Dear Ms. Wendel:

The enclosed document summarizes results of an Expanded Site Inspection (ESI) completed at the Sprague Aluminum Co. (a.k.a., Sprague Electric) site by the NC Superfund Section. The ESI site was formerly part of the Sprague Aluminum electric capacitor plant. The plant is now a separate property owned and operated by United Chemi-con (UC). The two properties are located within a meander of the North Fork New River, in an otherwise rural to light residential setting.

The ESI site contains a series of unlined settling ponds which were used until 1991 to separate aluminum oxides from plant wastewater. The ponds were drained and backfilled during the mid 1990s, with oversight from the NCDENR Groundwater Section, Winston-Salem Regional Office (WSRO). The property is now an open, vacant lot surrounded by a locked chain-link fence.

Prior to pond closure, Sprague contractors sampled pond sludges. The samples contained aluminum and various other metals, including low levels of mercury, but did not exceed hazardous waste criteria. During the 1990s, UC contractors also investigated organic and inorganic soil and groundwater contamination that had occurred at process areas within the capacitor plant. The WSRO is overseeing remediation at the UC plant.

No historical groundwater data were available from the ESI site. However, historical surface water sampling detected elevated iron and manganese downstream from the site on the North Fork New River . Therefore, in May 2000 the NC Superfund Section recommended the ESI.

ESI sampling was completed on October 29-30, 2001. Pond sludge was sampled by hand augering two test borings through 8 to 12 feet of fill covering two of the former ponds. Sludges were analyzed for Target Analyte List (TAL) inorganics under the EPA Contract Lab Program (CLP). Both samples contained elevated concentrations of aluminum and sodium. The deeper sludge sample also contained copper and mercury. No other contaminants were detected.

1646 MAIL SERVICE CENTER, RALEIGH, NORTH CAROLINA 27699-1646
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The region's aquifer consists of saprolite and/or alluvium overburden, overlying fractured bedrock under unconfined conditions. Groundwater is the principal drinking water source within the study area; approximately 5,561 people use groundwater within a 4-mile radius of the site. The nearest domestic wells are across the North Fork New River and are therefore unlikely to be affected by UC or the ESI site.

A primary goal of the ESI was to obtain shallow groundwater samples between the sludge ponds and the river. The NC Superfund Section power-drilled two test borings and installed two temporary monitoring wells in the area. Unfortunately, the wells yielded insufficient groundwater for development or sampling and were subsequently removed. These results were consistent with data from the on-site investigations at UC, which indicated that water table depth was generally close to that of the fractured bedrock. Regional drought conditions are believed to have exacerbated this situation.

The UC production well is located adjacent to the North Fork New River on the west edge of the UC plant, 0.2 mile west and 0.3 mile up river from the ESI site . This well supplies up to 450 plant employees with drinking water. The well was not sampled during the ESI because previous reports indicated that it had been monitored for RCRA metals, including mercury. Subsequently, however, closer data scrutiny revealed that the well had been monitored for copper and lead but not for mercury . Several monitoring wells located between the ESI site and the production well were sampled twice for inorganics in 1993. Mercury (0.6 ug/l) was reported in one well after the first sampling event, but was non-detect when re-sampling occurred five months later. No more recent groundwater data were available.

The North Fork New River is not used as a public water supply within 15 miles downstream from the site. Field observations completed during the ESI contradicted the reported existence of wetland frontage directly down river from the site. Wetlands are also mapped at scattered intervals beginning one mile further down river. The river is a fishery.

Surface water and sediment samples were collected at locations up river and down river from both UC, and the ESI site. TAL metals analysis detected elevated chromium in the farthest downstream water sample, but no contaminants were detected in water or sediment directly down river from the site. Therefore, the ESI data indicated no observed release to the pathway.

The site is vacant and fenced. Portions of the contaminant source sludge contain elevated mercury concentrations, but are buried beneath several feet of compacted fill. Therefore, the likelihood of soil or air exposure to ESI site contaminants is minimal.

Mercury in sludge at the ESI site is considered unlikely to migrate to the UC production well, which is west and up river from the contaminant source. Soil and groundwater contamination originating at the UC plant is being addressed under oversight by the WSRO, NC Groundwater section. However, the NC Superfund Section has requested that the WSRO sample UC's production well for RCRA inorganic contaminants, including mercury.

The NC Superfund Section has requested that the NC Groundwater Section sample the UC production well for RCRA inorganics, to ensure that no mercury or other RCRA metals contamination is present. Based on the lack of an observed release to the surface water pathway, the NC Superfund Section recommends this site for no further action under CERCLA. If you have any questions please contact me at (919) 733-2801 ext. 280.

Sincerely,

Stuart F. Parker
Hydrogeologist,
NC Superfund Section

CC: File

STATE OF NORTH CAROLINA

Department of Environment
and Natural Resources
Division of Waste Management
Superfund Section

EXPANDED SITE INSPECTION REPORT:

Sprague Aluminum Co.
NCD 003 167 780
Lansing, Ashe County, NC
Reference No. 02619

March 2002

Stuart F. Parker, Jr.
Hydrogeologist
Division of Waste Management
Superfund Section

EXPANDED SITE INSPECTION

Sprague Aluminum Co.
NCD 003 167 780
Lansing, Ashe County, North Carolina
Reference No. 02619

March 2002

Superfund Section
Division of Waste Management
North Carolina Department of Environment
and Natural Resources

Prepared by:

Stuart F. Parker
Hydrogeologist

Reviewed by:

Jim Bateson, Head
Site Evaluation & Removal Branch

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EXECUTIVE SUMMARY

The Expanded Site Inspection (ESI) site is an inactive part of the former Sprague Aluminum (a.k.a., Sprague Electric)Co. electric capacitor plant. The remainder of the plant was purchased by United Chemi-con in the early 1990s. Sprague Aluminum's former manufacturing process included acid etching of aluminum foil. The ESI site contains a series of unlined settling ponds formerly used to separate aluminum oxides from Sprague's process wastewater. During the mid 1990s the ponds at the ESI site were drained of remnant surface water and backfilled, with oversight by the NCDENR Winston-Salem Regional Office (WSRO), Groundwater Section. The ESI site is now an open, vacant lot surrounded by a locked chain-link fence.

Settling pond sludges at the ESI site were sampled in the mid 1990s. The pond sludges contained various metals, including aluminum and low levels of mercury. No groundwater data were obtained from beneath or downgradient of the property. However, concurrent surface water sampling detected elevated iron and manganese concentrations downstream from the site in the North Fork New River. Based on the sludge contents and the apparent release to the river, the NC Superfund Section recommended the pond property for the ESI.

During October 2001 the NC Superfund Section completed two soil borings at the ESI site's backfilled sludge ponds. Two sludge samples were collected from depths of 8 feet and 12 feet, respectively, beneath the ground surface. Both samples contained elevated concentrations of aluminum and sodium. The deeper sludge sample also contained copper and mercury. No other contaminants were detected.

During the 1990s, UC contractors completed two Comprehensive Site Assessments within the UC manufacturing plant, characterizing organic and inorganic soil and groundwater contamination originating from two source areas there. The WSRO is continuing its oversight of remediation at the UC facility.

The region's unconfined aquifer consists of fractured metamorphic bedrock and its weathered saprolite overburden. Groundwater beneath the site occurs primarily in bedrock. ESI groundwater sampling equipment was designed for use in unconsolidated overburden. Therefore, no groundwater samples were obtained during the ESI.

Groundwater is the principal drinking water source within the study area; approximately 5,561 people use groundwater within a 4-mile radius of the site. UC's production well is the only community well within one mile of the site. All other (domestic) wells within 0.25 mile are across the North Fork New River and are therefore unlikely to be affected by UC or the ESI site.

UC's deep production well supplies 450 employees with drinking water. Previous reports indicated that this well had been historically monitored for inorganic contaminants. However, the NC Superfund Section subsequently determined that the well's available data set did not include testing for mercury. Several monitoring wells located between the ESI site and the production well were sampled for inorganics twice in 1993. None of the samples contained mercury in excess of drinking water limits. Given these results, and the production well's location relative to the ESI site, mercury contamination in the well is considered to be unlikely. However, the NC Superfund Section has advised the NCDENR Groundwater Section, which oversees remediation at UC, to test the well for RCRA inorganics..

The site's surface water pathway is a potential target for site contaminants. The North Fork New River is not used for public water supply within 15 miles downstream from the site. Mapped wetland frontage is reported directly down river from the site, but its presence was not supported by field observation during the ESI. Scattered frontage is mapped farther down river. The river is a fishery. The primary potential threat from the ESI site is of a contaminant release to the fishery via groundwater discharge to surface water.

No groundwater samples were obtained during the October 2001 ESI. However surface water and sediment samples were collected at locations upriver from UC, directly upriver from the ESI site, and at two downstream locations. Contract Laboratory Program (CLP) laboratory analysis detected elevated chromium in the farthest downstream water sample, but no elevated metals concentrations were detected directly down river from either site. Therefore, the NC Superfund Section concluded that no observed release occurred to the pathway.

The site is vacant and fenced. Some of the pond sludge contains low part-per-million mercury concentrations. However, this source material is buried beneath several feet of compacted fill, and the likelihood of soil or air pathway exposure is considered to be minimal. Based on the available results, the Sprague Aluminum site is recommended for no further action under CERCLA.

1.0 INTRODUCTION

Under authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), and the Superfund Amendments and Re-authorization Act of 1986 (SARA), the North Carolina Superfund Section conducted an Expanded Site Inspection (ESI) at a portion of the Sprague Aluminum (a.k.a., Sprague Electric) Co. Site in Lansing, Ashe County, North Carolina. The purpose of this ESI was to collect information concerning conditions at the site sufficient to assess the threat posed to human health and the environment, and to determine the need for additional CERCLA/SARA or other appropriate action. The ESI scope included a review of available file information and an update of selected human and environmental target data. In addition, the NC Superfund Section conducted an on-site reconnaissance on September 26, 2001, and conducted ESI sampling on October 29-30, 2001.

2.0 SITE LOCATION, HISTORY AND WASTE CHARACTERISTICS

2.1 Site Location and Description

The original Sprague Aluminum Co. Property consisted of approximately 60 acres of land located off NC Highway 194, approximately one mile south-southeast of Lansing, NC (Refs 1-2). Geographic coordinates are listed as 36° 28' 48" N latitude and 81° 30' 10" W longitude (Ref. 2). The original site was surrounded on the west, north and east by a meander of the North Fork New River (Figs. 1-2).

Sprague Aluminum operated as Sprague Electric Co. from the mid 1950s until 1991, when United Chemi-con (UC) purchased the facility. However, American Annuity Group (a.k.a., Great American Financial Resources), Sprague's successor-in-interest, retained approximately 12.5 acres along the northeast side of the property (Ref. 3, p.1). This 12.5-acre property is the subject of the ESI.

The 12.5 acre site is an elongate, northwest-southeast oriented parcel which separates the active UC facility from the downstream (east) segment of the river meander. The site is bordered by UC to the west, by elevated, hilly terrain and State Route 1500 to the southwest, and by the New River to the northeast (Ref. 4 ; Figs. 1-2). The site's center coordinates are 36° 28' 45.5." N latitude and 81° 30' 9.5" W longitude (Ref. 5).

The eastern margin of the site lies within the river floodplain, but the remainder of the property is elevated approximately 15 feet above it (Refs. 6-7). The elevated portion is surrounded by an approximately 6-foot-high chain-link fence with access gates at the north and south ends of the parcel. Most of the enclosed portion is relatively level, open, and covered with grass and thin brush, with a few small trees. No visual evidence remains of the settling ponds which reportedly operated on the property (Ref. 4).

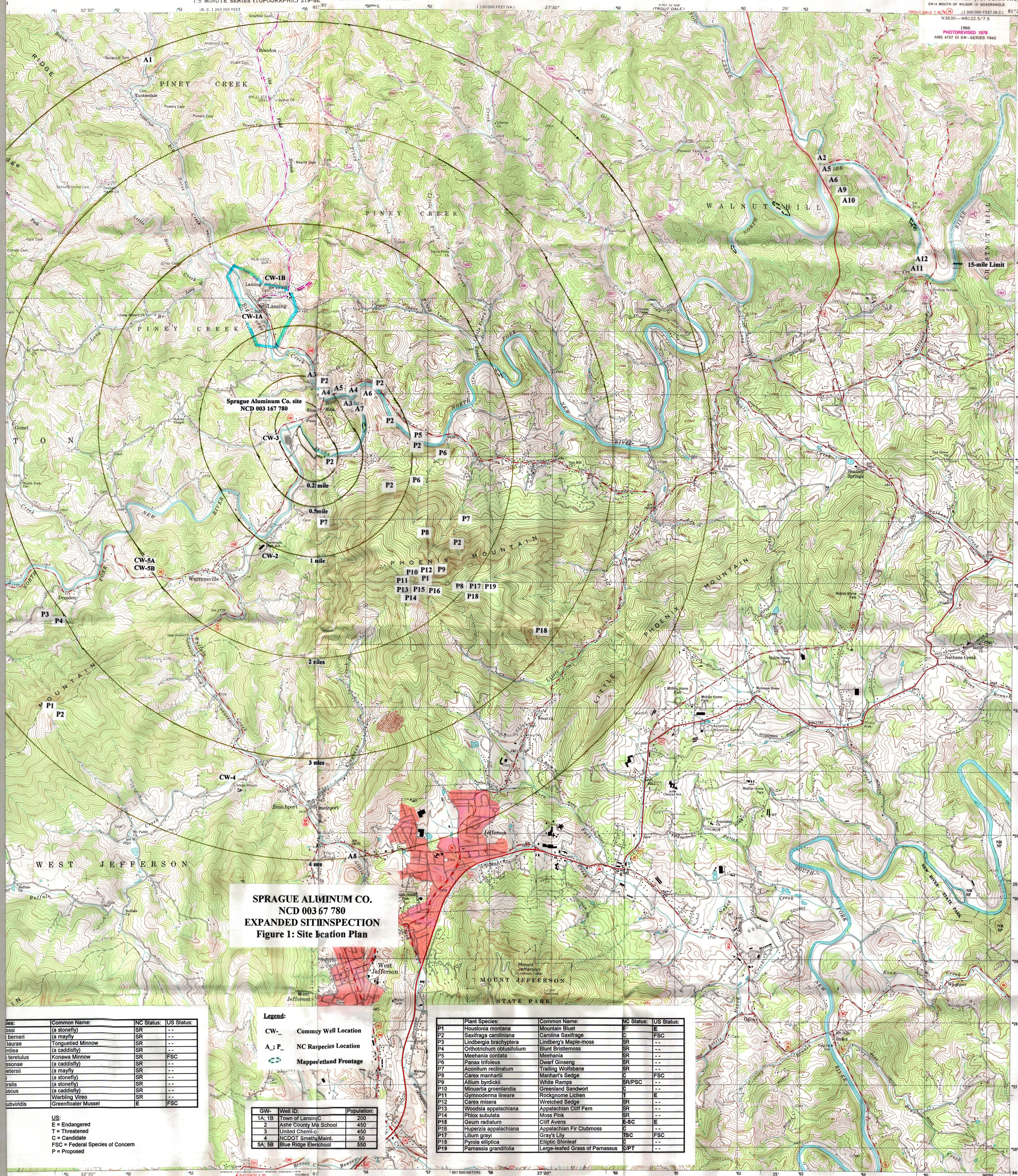
PARK QUADRANGLE
NORTH CAROLINA–VIRGINIA
7.5 MINUTE SERIES (TOPOGRAPHIC) 219-SE

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

GRASSY CREEK QUADRANGLE
NORTH CAROLINA–VIRGINIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
SW/4 MOUTH OF WILSON 15' QUADRANGLE

N3630—W8122.5/7.5

1966
PHOTOREVISED 1978
AMS 4757 III SW—SERIES V842



SPRAGUE ALUMINUM CO.
NCD 003 67 780
EXPANDED SITIINSPECTION
Figure 1: Site Location Plan

Legend:

- CW-_ Community Well Location
- A_; P_ NC Rare Species Location
- Mapped Wetland Frontage

GW-	Well ID:	Population:
1A; 1B	Town of Lansing	200
2	Ashe County Middle School	450
3	United Chemical	450
4	NCDOT Smethport Maint.	50
5A; 5B	Blue Ridge Elementary School	550

	Plant Species:	Common Name:	NC Status:	US Status:
P1	Houstonia montana	Mountain Bluet	E	E
P2	Saxifraga caroliniana	Carolina Saxifrage	C	FSC
P3	Lindbergia brachyptera	Lindberg's Maple-moss	SR	- -
P4	Orthotrichum obtusifolium	Blunt Bristlemoss	SR	- -
P5	Meehania cordata	Meehania	SR	- -
P6	Panax trifoleus	Dwarf Ginseng	SR	- -
P7	Aconitum reclinatum	Trailing Wolfsbane	SR	- -
P8	Carex manhartii	Manhart's Sedge	C	FSC
P9	Allium byrdickii	White Ramps	SR/PSC	- -
P10	Minuartia groenlandia	Greenland Sandwort	C	- -
P11	Gymnoderma lineare	Rockgnome Lichen	T	E
P12	Carex misera	Wretched Sedge	SR	- -
P13	Woodsia appalachiana	Appalachian Cliff Fern	SR	- -
P14	Phlox subulata	Moss Pink	SR	- -
P15	Geum radiatum	Cliff Avens	E-SC	E
P16	Huperzia appalachiana	Appalachian Fir Clubmoss	C	- -
P17	Lilium grayi	Gray's Lily	TSC	FSC
P18	Pyrola elliptica	Elliptic Shinleaf	C	- -
P19	Parnassia grandifolia	Large-leafed Grass of Parnassus	C/PT	- -

ies:	Common Name:	NC Status:	US Status:
ossi	(a stonefly)	SR	- -
berneri	(a mayfly)	SR	- -
laurae	Tonguetied Minnow	SR	- -
ntiea	(a caddisfly)	SR	- -
teretulus	Konawa Minnow	SR	FSC
ssonae	(a caddisfly)	SR	- -
etersii	(a mayfly)	SR	- -
	(a stonefly)	SR	- -
ralis	(a stonefly)	SR	- -
uscus	(a caddisfly)	SR	- -
	Warbling Vireo	SR	- -
ubviridis	Greenfloater Mussel	E	FSC

US:
E = Endangered
T = Threatened
C = Candidate
FSC = Federal Species of Concern
P = Proposed

INTERIOR—GEOLOGICAL SURVEY, RESTON, VIRGINIA—1978

ROAD CLASSIFICATION
Primary highway, all weather, hard surface
Light-duty road, all weather, improved surface
Secondary highway, all weather, hard surface
Unimproved road, fair or dry weather
U. S. Route
State Route

WARRENSVILLE, N. C.
N3622.5—W8130/7.5
1966
AMS 4656 I NE—SERIES V842

oduced by the United States Geological Survey
ography compiled 1964. Planimetry derived from imagery
n 1998 and other sources. Survey control current as
968
th American Datum of 1983 (NAD 83). Projection and
0-meter grid: Universal Transverse Mercator, zone 17
0-meter ticks: North Carolina Coordinate System of 1983
th American Datum of 1927 (NAD 27) is shown by dashed
er ticks. The values of the shift between NAD 83 and
) 27 for 7.5-minute intersections are obtainable from
onal Geodetic Survey NADCON software
re may be private inholdings within the boundaries of the
onal or State reservations shown on this map
dmark buildings verified 1968

UTM GRID AND 1999 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 40 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO CONVERT FROM FEET TO METERS, MULTIPLY BY 0.3048

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, P.O. BOX 25286, DENVER, COLORADO 80225
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

ADJOINING 7.5' QUADRANGLE NAMES
1 Park
2 Grassy Creek
3 Mouth of Wilson
4 Warrensville
5 Laurel Springs
6 Todd
7 Glendale Spings
8 Horse Gap

INTERIOR—GEOLOGICAL SURVEY, RESTON, VIRGINIA—1999

ROAD CLASSIFICATION
Primary highway hard surface
Light-duty road, hard or improved surface
Secondary highway hard surface
Unimproved road
Interstate Route
U.S. Route
State Route

JEFFERSON, NC
1998
NIMA 4756 IV NW-SERIES V842

ISBN 0-607-91929-9

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
TENNESSEE VALLEY AUTH
MAPPING SERVICES BRANC

N3630—W8130/7.5
1959
PHOTOREVISED 1978
DMA 4657 II SE-SERIES V842

	Animal Spe
A1	Bolotopera
A2	Ephemerell
A3	Exoglossum
A4	Ceraclea m
A5	Phenocobiu
A6	Ceraclea sl
A7	Heteroclon
A8	Zapada chil
A9	Attaneuria
A10	Neophylax
A11	Vireo gilvus
A12	Lasmigona

NC:
E = Endangered
T = Threatened
SC = Special Concern
C = Candidate
SR = Significantly Rare
P=Proposed

Mapped, edited, and published by the Geological Survey

Control by USGS, USC&GS, and Tennessee Valley Authority

Topography by photogrammetric methods from aerial photographs taken 1964. Field checked 1966

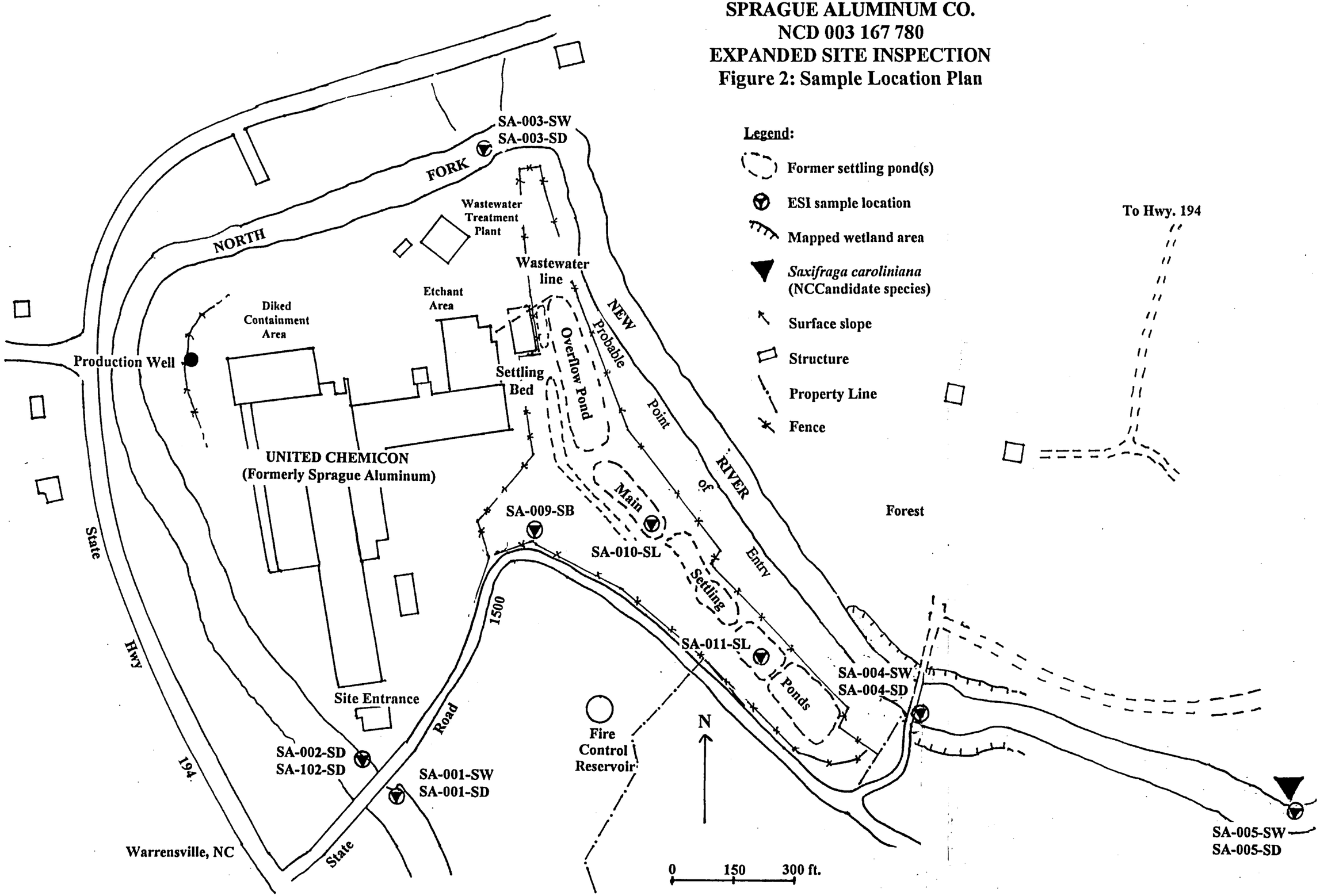
Polyconic projection. 1927 North American datum
10,000-foot grid based on North Carolina coordinate system
1000-meter Universal Transverse Mercator grid ticks, zone 17, shown in blue

Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked

UTM GRID AND 1966 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

THIS MAP COMPLIES WITH NATIONAL MAP ACCU
FOR SALE BY U. S. GEOLOGICAL SURVEY, RESTON
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS

SPRAGUE ALUMINUM CO.
NCD 003 167 780
EXPANDED SITE INSPECTION
Figure 2: Sample Location Plan



Stuart F. Parker NC, Superfund Section, August 2001

The climate in Ashe county is characterized by warm and humid summers and relatively mild winters. The average daily temperature is 79°F in mid-summer and 47 °F in mid-winter (Ref. 8). Mean annual precipitation is 49 inches and mean annual lake evaporation is 33 inches; therefore net precipitation for the area is 16 inches (Ref. 9). The 2-year-24-hour rainfall for the area is estimated at 3 inches (Ref. 10).

2.2 Site History

2.2.1 Site Operational History and Waste Characteristics

Prior to 1991, Sprague Electric Co. manufactured aluminum electrical capacitors, using an acid electrochemical bath to etch the aluminum. Upon purchasing the plant, UC reportedly discontinued aluminum etching at the site, instead purchasing etched aluminum components from off-site vendors (Ref. 3 p. 1).

Raw materials reportedly used at Sprague included: aluminum foil; nitric, tartaric and sulfuric acids; sodium and calcium hydroxides; sodium chloride; and dimethyl formamide (DMF). The acids and DMF were reportedly kept on site in aboveground storage tanks (Ref. 11, pp.6, 11, 13). Waste DMF was stored on site in 55-gallon drums and then shipped off site (Ref. 2). DMF is not listed in CERCLIS (12). Other waste reportedly generated included D002 corrosive waste with a pH of 3 to 4 (Ref. 11 p.3).

Waste aluminum oxides from metal etching were recovered using a series of unlined settling ponds located within the 12.5 acre parcel. Oxides were periodically mined from the ponds and sold to other manufacturers (Ref. 11, p. 6) . None of the ponds operated under permit (Ref. 3, p. 2). The pond basins contained sludge and/or water at combined depths of up to 9 feet (Ref. 14). Water in the ponds reportedly did not discharge overland to the river (Ref. 11). However, the lack of liners and the 16-inch net precipitation indicate that infiltration occurred to the subsurface.

In approximately 1995, American Annuities Group (AAG) contractors closed out the settling ponds with oversight by the NCDENR Groundwater Section, Winston-Salem Regional Office (WSRO). Under a one-time NPDES permit AAG contractors used one of UC's outfalls to pump approximately 2.2 million gallons of pond water to the New River (Ref. 3). Although the wastewater was D002 Corrosive, samples of pond sludge did not exceed hazardous waste criteria (See next section). The ponds were subsequently backfilled and compacted. The area is presently an elongated open field, lightly to moderately vegetated (Refs. 3-4).

2.2.2 Site Regulatory History

Site raw materials, wastes, and regulated closure of the site's settling ponds are discussed in the previous section. During the early to mid 1980s, Sprague requested deletion from status as a Treatment, Storage & Disposal Facility under RCRA. The NC Division of Health Services granted their request, and also downgraded Sprague from Large Quantity Generator to Small Quantity Generator status (Ref. 11, p. 3).

2.2.3 Site Assessment History

2.2.3.1 Sprague Aluminum Capacitor Plant

In 1990 and 1991, EPA Region IV's Field Investigation Team (FIT) completed a Phase I Screening Site Inspection (SSI) report on Sprague Electric Co., followed by a Phase II Site Inspection (SI). During the Phase II SI, the FIT collected sixteen samples at the site. Surface and subsurface soil samples were collected at the facility's aboveground storage tank area, drum storage area and at background locations south of the facility. Surface water and sediment samples were collected upstream, adjacent to, and downstream from the site on the New River (Ref. 11, pp. 11-12).

Site Inspection sampling at the facility's drum storage area detected elevated concentrations of mercury (0.40 mg/kg), nickel (190 mg/kg) and zinc (260 mg/kg) in surface soil. The mercury concentration was estimated. Elevated beryllium (1.6 mg/kg) was reported in subsurface soil from the same location. An elevated lead concentration, also estimated (40 mg/kg), was detected in surface soil at the facility's aboveground storage tank area. Cyanide (0.86 to 0.89 mg/kg) was also reported there (Ref. 11, pp. 17-18). None of the surface soil results exceed current federal soil exposure benchmarks or state soil remediation goals (Refs. 12-13).

Elevated copper (29 ug/l) was detected in surface water on the west side of the Sprague Facility site, but not down river. Elevated iron (800 ug/l) and manganese (100 ug/l) were reported in surface water downstream from the site (Ref. 11, p. 21). None of these results exceeded federal surface water benchmarks or NC freshwater quality standards. No elevated contaminants were detected in New River sediment (Ref. 11, p. 20). However, the Final SI report recommended further federal action due to the presence of metals at the site (Ref. 11). A Site Inspection Prioritization (SIP), completed for the EPA one year later, recommended further action based on the release to the New River (Ref. 15).

In April 1999, two site investigations were completed at UC for American Annuity Group and submitted to the NCDENR Winston-Salem Regional Office. These Comprehensive Site Assessment (CSA) reports characterized soil, groundwater and surface water conditions in relation to two source areas at the UC plant: an aluminum etchant area at the northeast end of UC's main building, and a containment dike area beneath an aboveground storage tank at the main building's northwest end (Refs. 16-17).

The etchant area CSA reported that groundwater sampling in the early 1990s detected up to 74 mg/l aluminum in on-site monitoring wells, and 3 mg/l aluminum in the facility's supply well. These concentrations did not exceed state or federal groundwater limits. No other contaminants were reported in the drinking water well. In an etchant area monitoring well, isolated detections of barium and cadmium exceeded their respective NC groundwater standards. Total chromium concentrations exceeded the State drinking water standard in several monitoring wells in and to the north of the etchant area(Refs. 12-13). Groundwater pH was reduced to less than 4.0 at the center of the plume (Ref. 16).

During the early 1990s, sampling at the Containment dike area detected tetrachloromethane (PPE), acetone and methyl ethyl ketone (ME) in soil, and toluene, methylbenzene and xylene in groundwater. In 1998, installation and sampling of additional monitoring wells revealed groundwater plumes of PPE and trichloroethane (TCA) originating beneath the containment dike area and extending north toward the New River. TCA and PPE concentrations approached 200 ug/l in shallow groundwater wells and reached maxima of 70 ug/l and 5 ug/l, respectively, in on-site bedrock wells. Sampling also detected localized groundwater contamination by naphthalene and 2-methyl naphthalene. According to the CSA, chlorinated solvents had been stored on site in 55 gallon drums and used to clean plant equipment in an on-site vapor decrease during the mid 1970s (Ref. 17).

In monitoring wells close to the river, TCA and PPE concentrations were on the order of 1-10 ug/l (Refs. 16-17). Upon reviewing the CSA, the WSRO concurred that groundwater contamination had been defined at the site, and supported monitored natural attenuation as a potential corrective action. The WSRO Groundwater Section continues to oversee the investigation and remediation of these areas. (Ref. 18).

2.2.3.2 Settling Pond Property (ESI Site)

The June 1990 SSI sampling included collection of a sediment sample and a water sample from one of the settling ponds. The settling pond sediment sample contained aluminum (290,000 mg/kg) and mercury (0.8 mg/kg). The mercury concentration was reported by the lab to be an estimated value. SI sampling also detected manganese (120 ug/l) in water at the settling pond. No organic compounds were detected (Ref. 11, p. 20).

During 1992, Laidlaw Environmental Consultants collected six sludge samples from the site's settling ponds and five soil samples from the pond walls above the water lines. No organic contaminants exceeded their quantitation limits in the samples. None of the inorganics that were detectable in background soil exceeded three times their background concentrations in the sludges (Ref. 19)

Arsenic, mercury and selenium were below quantitation limits in the background soil sample. Arsenic and mercury concentrations exceeded detection limits in one sludge sample each, and selenium exceeded its background detection limit in two samples. Antimony, beryllium, boron, copper, manganese, nickel, vanadium and zinc each were present in at least one sludge sample. However, no background data were available for comparison (Ref. 19).

None of the settling pond sludge results exceeded NC Soil Remediation Goals. Arsenic, copper, manganese, mercury, nickel and selenium concentrations exceeded 20 times their respective NC groundwater standards, the factor used for groundwater protection. Note, however, that the background sample quantitation limits for arsenic, mercury and selenium also exceeded the groundwater protection factors (Ref.19; Ref. 13).

In May 2000, the NC Superfund Section completed a Site Re-assessment (SRA) of the Sprague Aluminum site, focusing on the 12.5 acre parcel containing the settling ponds. Citing the site's history of groundwater contamination, its potential for surface water contamination and the lack of groundwater data downgradient of the settling ponds, the SRA report recommended an Expanded Site Inspection (Ref. 3).

On October 29-30, 2001, the NC Superfund Section completed ESI sampling at the site. Sampling locations are listed in Table 1 and illustrated on Figure 2.

3.0. WASTE/SOURCE SAMPLING

Historical sampling detected high concentrations of aluminum in the pond sludge. Some of the samples also contained mercury and arsenic. Several metals were detected at concentrations exceeding 20 times their groundwater limits. However, background soil was not analyzed for some of these inorganic ANALYTE, while background soil concentrations of others were comparable to those detected in the sludge (Ref. 11; Ref. 19).

ESI sampling included collection of subsurface sludge and background soil samples using hand augers. One sludge sample (SA-010-SL) was collected from 8 feet beneath the top of backfill in the north central portion of the site. The sample was a uniform light gray and cream-textured. A second sludge sample (SA-011-SL) was collected from 12 feet beneath the top of backfill in the south-central portion of the site. This sample was black and vitreous in appearance (Ref. 4). This contrast to the first sample's appearance was consistent with previously reported variations in sludge appearance (Ref. 14, p. 2). A background subsurface soil sample (SA-009-SB) was collected upgrading at the property boundary along SR 1500. Sample depth was between 2.5 and 2.75 feet (Ref. 4).

Table 1
Sprague Aluminum Company
NCD 003 167 780
Expanded Site Inspection
Sampling Locations: October 2001

Sample:	Location:	Analysis:	Rationale/Comment:
SA-001-SW SA-001-SD	North Fork New River (NFNR) S of United Chemi-con (UC).	TAL	Background surface water pathway sample.
SA-002-SD SA-102-SD	Similar to SA-002.	TAL	Second background location w/ duplicate sample, MS/MSD.
SA-003-SW SA-003-SD	NFNR at UC/ ESI site property line.	TAL	Site background/Chemi-con release sample.
SA-004-SW SA-004-SD	NFNR downstream from former settling ponds.	TAL	Surface water pathway PPE release and fishery target sample.
SA-005-SW SA-005-SD	NFNR, 1000 ft downstream from south site property line.	TAL	Fishery/rare species target sample.
SA-009-SB	Soil (subsurface) near SA-006.	TAL	Background soil. MS/MSD.
SA-010-SL	Pond sludge (subsurface).	TAL	Release sample.
SA-011-SL	Pond sludge (subsurface).	TAL	Release sample.
Pres Blank	Aqueous.	TAL	A/QC.

SW = Surface Water; SD = Sediment; SB = Subsurface Soil; SL = Sludge.
TCL = Target Compound List; TAL = Target Analyte List.

Table 2:
Sprague Aluminum Co.
Lansing, Ashe County NC
ESI Sample Results: Soil/Sediment

Sample #: Location:		SA-001-SD Background	SA-002-SD Background	SA-102-SD Dup.	SA-003-SD Upriver	SA-004-SD Downriver	SA-005-SD Downriver	SA-009-SB Soil	SA-010-SL Sludge	SA-011-SL Sludge
ALUMINUM	MG/KG	12000	11000	11000	4600	5400	14000	22000	200000	65000
ARSENIC	MG/KG	2.2 U	2.1 U	2.2 U	1.8 U	2 U	2.8 U	4.3 U	4 U	3.9 U
BARIUM	MG/KG	200	160	160	67	73	200	470	60	220
CADMIUM	MG/KG	0.24 U	0.22 U	0.23 U	0.2 U	0.21 U	0.3 U	0.18 U	0.42 U	0.33 U
CALCIUM	MG/KG	2400	2300	2000	980	1300	2300	2000	1300	2600
CHROMIUM	MG/KG	36	29	29	16	16	41	72	13	89
COBALT	MG/KG	18	15	14	7.5	7.8	19	26	3.5	18
COPPER	MG/KG	28	26	23	12	16	42	34	88	120
IRON	MG/KG	25000	22000	21000	11000	11000	26000	37000	4800	37000
LEAD	MG/KG	13	8.1	9.3	5.9	5.5	13	10	6.1 U	15
MAGNESIUM	MG/KG	4400	4200	3800	1600	2000	4600	10000	940	2700
MANGANESE	MG/KG	510	340	300	250	210	430	790	220	460
MERCURY (tot.)	MG/KG	0.15 U	0.14 U	0.15 U	0.12 U	0.13 U	0.18 U	0.12 U	0.26 U	26
NICKEL	MG/KG	17	13	13	6.3	6.9	19	23	15	20
SODIUM	MG/KG	370	540	470	360	440	500	220	2100	1600
VANADIUM	MG/KG	73	59	60	26	27	68	87	12	120
ZINC	MG/KG	79	66	62	35	35	95	85	32	55

SD = Sediment; SB = Subsurface Soil; SL = buried Sludge. SPtab2

Data Qualifiers

NA = Not analyzed. J = Estimated value.

U-Material was analyzed for but not detected. The number is the minimum quantitation limit.

Table 3:
Sprague Aluminum Co.
Lansing, Ashe County NC
ESI Sample Results: Surface Water

Sample #:		BB-011-TBW	SA-001-SW	SA-003-SW	SA-004-SW	SA-005-SW	SA-007-PB
Location:		Lab Blank	Background	Upriver	Downriver	Downriver	Blank
ALUMINUM	UG/L	35	57 U	71 U	76 U	55 U	47 U
ARSENIC	UG/L	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U
BARIUM	UG/L	2.5 U	21	26	26	24	2.5 U
CADMIUM	UG/L	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
CALCIUM	UG/L	19	4900	5800	5800	5400	20 U
CHROMIUM	UG/L	1.8 U	1.8 U	1.8 U	1.8 U	4.7	1.8 U
COPPER	UG/L	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
IRON	UG/L	40 U	130	150	180	170	40 U
LEAD	UG/L	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MAGNESIUM	UG/L	28 U	1800	2200	2200	2000	28 U
MANGANESE	UG/L	0.5 U	8	9.1	13	8.6	0.5 U
MERCURY (tot.)	UG/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
SODIUM	UG/L	280 U	2200	2700	3000	2600	280 U
ZINC	UG/L	27	26 U	22 U	34 U	25 U	26 U

SW = Surface Water; BW = Laboratory Blank; PB = Preservative Blank sptab3
U = Material was analyzed for but not detected. The number is the minimum quantitation limit.

The ESI sludge and background soil samples were analyzed at an EPA Contract Laboratory for Target Analyte List (TAL) inorganics. Sludge sample SA-010-SL contained concentrations of aluminum (200,000 mg/kg) and sodium (2100 mg/kg) exceeding 3 times background. Sample SA-011-SL contained concentrations of aluminum (65,000), copper (120 mg/kg), mercury (26 mg/kg) and sodium(1600 mg/kg) exceeding 3 times background (Table 2; Appendix A).

The aluminum concentration in sludge sample SA-010-SL exceeded its EPA Region III Risk-based Concentration (RBC) for residential (but not industrial) soil (78,000 mg/kg). The mercury concentration in SA-011-SL also exceeded its residential (but not industrial) RBC and the NC Soil Remediation Goal (23 mg/kg) (Refs. SCAM; RBC; IS (Table 2, Appendix A). No other results exceeded soil limits.

4.0 GROUNDWATER PATHWAY

4.1 Site Hydrogeologic Setting

Site soil is mapped as Braddock/Urban Complex, which reportedly consists of gravelly loam surface soil, underlain by clay loam, clay and gravelly loam, and sandy loam saprolite to a 7-foot depth (Ref. 21). Monitoring well logs at the adjacent UC facility reported mixed minacious clay and silt saprolite, overlying weathered bedrock at depths ranging from 20 to 40 feet (Refs. 16-17). Clayey sand and clay were encountered on site during subsurface explorations conducted during the ESI (See Section 4.3). Coarse to fine alluvium exists in the river and adjacent floodplain, where bedrock is anticipated to be nearer to the surface (Ref. 4).

The land surface at the former ponds consists of lightly to moderately vegetated compacted fill. What appeared to be old tracks of earth-compacting equipment were still visible at the time of the ESI (Ref. 4).

The site is located in the Appalachian Mountain physiographic province and in the Blue Ridge geologic belt (Ref. 22). Bedrock beneath the site is mapped as middle-Proterozoic biotite granitic gneiss (Ref . 23). The faulted and fractured bedrock, and overlying saprolite, are anticipated to behave as a single unconfined aquifer. Historical groundwater measurements from monitoring wells at UC indicate groundwater depths of 30 feet or more beneath most of that property. The water table depth was therefore anticipated to be close to the bedrock (Refs. 16-17). Groundwater is expected to occur at shallower depths along the northeast margins of the pond property, in the New River floodplain (Ref. 22). Drought in the Southeast US (Ref. 24) is anticipated to have reduced water table elevations in much of the study area.

Groundwater beneath the settling pond property is expected to migrate to the northeast and discharge to the North Fork New River (Ref. 1). Being the study area's primary surface drainage, the river is expected to function as a groundwater discharge boundary between surficial aquifers on opposite sides (Ref. 22).

4.2 Groundwater Targets

UC's bedrock well supplies 450 employees at the facility and is located 0.2 mile west of the site (Ref. 3; Ref. 25; Fig. 2). Two municipal wells located 1.1 and 1.5 miles north of the site supply drinking water to 200 residents in Lansing, NC. Three additional community/public wells supply 1,050 people at public facilities within the study area (Fig. 1). None of Jefferson, NC's municipal wells are within a 4 mile radius of the site (Ref. 25; Fig. 1).

An estimated 3,861 people in the study area use private domestic wells or springs to obtain drinking water. The site's total groundwater population is therefore approximately 5,561 people (Ref. 25; Refs. 27-28; Table 4). The nearest residential wells to the site are located across the river and upgrading from its floodplain (Ref. 1). The opposing hydraulic gradient across the river is therefore expected to minimize the likelihood of any site contaminants migrating to the wells.

Table 4
Sprague Aluminum Company
NCD 003 167 780
Expanded Site Inspection
Groundwater Target Summary

Radial Distance (miles):	Residence Count	Residential Well Population	Community Well Population	Total Radial Population
> 0.0 - 0.25	9	21	450	471
> 0.25 - 0.5	41	95	0	95
> 0.5 - 1.0	102	237	0	237
> 1.0 - 2.0	264	612	650	1262
> 2.0 - 3.0	411	954	550	1504
>3.0 - 4.0	837	1942	50	1992
Total:		3861	1700	5561

4.3 Groundwater Sampling

UC is addressing groundwater contamination at its facility active facility with oversight by the NCDENR, Winston Salem Regional Office (Refs.16-18). UC's community groundwater well has been monitored primarily for copper and lead, for which results have been within drinking water limits. To date, no groundwater sampling has been conducted beneath or downgradient from the former settling ponds (Ref. 3).

During the September 28-29, 2001 ESI, the NC Superfund Section used power augering equipment to install two temporary monitoring wells downgradient between the ponds and the North Fork New River. The first boring (SA-008-MW) was drilled at the southwest end of the site, outside the perimeter fence. The second (SA-007-MW) was drilled inside the fence, downgradient of the north-central portion of the site (Ref. 4; Fig. 2). The two borings encountered refusal on apparent bedrock or cobbles at depths of 8 feet and 14.5 feet, respectively. The Superfund Section was able to set screens to depths of 8 feet and 11 feet, respectively. However, neither well produced sufficient groundwater for development or sampling. The well screens were subsequently extracted, and the boreholes were abandoned in place (Ref. 4).

The two CSA completed at the UC facility included installation and sampling of several monitoring wells, at locations intermediate between the UC production well and the ESI source area (Refs. 16-18). Other reports indicated that UC had been ordered by the state to conduct quarterly sampling of its production well for metals starting in 1995 (Ref. 3). Metals data for the production well were therefore anticipated to exist on file at the NCDENR Public Water Supply Section, and the UC's production well was not sampled during the ESI. However, subsequent examination of the assessment and Public Water Supply data indicated that the production well had been monitored only for lead and copper. In addition, examination of the CSA indicated that only monitoring wells MW-1 through MW-5, in the northern portion of UC, had been tested for total metals. MW-5, located in proximity to the production well, was non-detect for mercury. However, these samples were collected back in 1993 (Refs. 16-17).

4.4 Groundwater Conclusions

Organic and inorganic groundwater contamination has been detected at the UC facility, adjacent to the site. However, this contamination is being addressed by UC with oversight by the NC Groundwater Section, Winston-Salem Regional Office.

Groundwater sampling attempts during the ESI were unsuccessful, in part due to the water table's anticipated proximity to the bedrock surface. Therefore, groundwater conditions beneath and downgradient of the settling ponds remain unknown. However, a limited number of unaddressed groundwater receptors exist in proximity to the site. Therefore, the anticipated potential impact of groundwater contamination at this site would be primarily upon the adjacent surface water pathway.

Inorganic contaminants are not anticipated to have migrated from the backfilled sludge ponds to UC's production well. However, contrary to previous reports, this drinking water well has not been sampled for mercury, a contaminant potentially attributable to the ESI site. The NC Superfund Section has therefore requested that the WSRO, Groundwater Section arrange to test groundwater from the production well for RCRA metals to address potential human health concerns (Ref. 38)

5.0 SURFACE WATER PATHWAY

5.1 Site Hydrologic Setting

The site is located west of the Eastern US Continental Divide (Ref. 22). The North Fork New River flows northwest, northeast and then southeast around the site, at a mean annual discharge of approximately 259 cfs (Ref. 15; Fig. 2).

The former Sprague Aluminum Co. Facility reportedly used four NPDES discharge points along the river front. One discharge point was used (under a one-time permit) to dispose of pond water during pond closure (Ref. 3). Based on current topography and on-site groundwater measurements, UC's surface runoff and groundwater are anticipated to discharge to the river. However, although shallow runoff channels were observed running northeast across the ESI site's ground surface, no direct discharge pathway was observed leading to the river (Ref. 4).

5.2 Surface Water Targets

No surface water intakes for public supply exist within the 15-mile surface water pathway (Ref. 26). The entire pathway is a fishery and is classified as Class C. Surface water 13 miles upstream from the site is classified as Class C Trout water (Ref. 3; Ref. 30). National Wetland Inventory maps indicate CERCLA-recognized wetland frontage directly downstream from the site (Ref. 31). However, visual inspection of the elevated floodplain, conducted during the September 2001 Reconnaissance and October 2001 ESI, did not support the presence of wetlands (Ref. 4). Approximately 0.3 mile of additional wetland frontage is mapped at intervals within the remainder of the surface water pathway (Ref. 31).

The NC Natural Heritage Program has identified one NC Endangered animal species (Lasmigona subdividis) 14.5 miles downstream from the site. In addition, a plant species (Saxifraga caroliniana) located 0.2 mile downstream from the site is a Candidate for listing as either Threatened or Endangered in NC (Refs. 32- 34).

5.3. Surface Water Sampling and Results

5.3.1 Historical Sampling

During the 1991 SSI, surface water sampling detected elevated copper in the North Fork New River at a location adjacent to UC but upstream from the settling pond. Historical sampling reportedly detected iron (800 ug/l) and manganese (100 ug/l) in the river downstream from the settling ponds. Manganese (120 ug/l), but not iron, was also detected in water from one of the ponds (Ref. 11).

5.3.2 ESI Sample Collection

ESI surface water and sediment sampling locations are described in Table 1 and illustrated in Figure 2. Due to limited upstream access and insufficient fine sediment at the planned sample location, surface water and sediment samples SE-002-SW and SD were relocated to a position 30 feet *downstream* from the SR 1500 Bridge, but still upstream from UC (Ref. 4).

5.3.3 ESI Sample Results

ESI samples were analyzed at an EPA Contract Laboratory for Target Analyte List inorganics. Chromium (4.5 ug/l) was detected in SE-005-SW, located approximately 0.2 mile downstream from the settling pond property. However, no chromium was reported in water sample SE-004-SW, located directly downstream from the ESI site. No other elevated concentrations of inorganic analytes were detected in ESI surface water or sediment samples (Tables 2-3; Appendix A).

5.4 Surface Water Pathway Conclusions

Because groundwater samples could not be obtained at the settling pond property, the ESI did not determine whether groundwater contamination exists beneath the site. Groundwater beneath the site is anticipated to discharge to the North Fork New River, which is a fishery and contains wetland frontage and rare species. However, ESI surface water and sediment sampling conducted upriver and down river from the site detected no inorganic contaminants attributable to the source. Therefore, no observed release to surface water has occurred and the hazard to human health or the environment appears to be minimal.

6.0 SOIL AND AIR PATHWAYS

6.1 Physical Conditions

The settling pond sludges are covered with several feet of compacted backfill, which is lightly to moderately vegetated. The source area is surrounded by a 6-foot high locked fence.

6.2 Soil and Air Targets

The settling pond property is vacant. The adjacent UC property is industrial, with approximately 450 employees, none of whom work at the site (Ref. 11; Ref. 25). The nearest school is located one mile south of the site (Ref. 1). The nearest sensitive environment is in the North Fork New River (Refs. 32-34).

6.3 Soil and Air Sampling

Due to the nature and depth of contamination, no surface soil samples were collected during the ESI. No elevated photoionization readings were observed during hand or power augering at the site (Ref. 4).

6.4 Soil and Air Pathway Conclusions

Because the contaminant source areas of the ESI site are covered with several feet of backfill, and due to the limited targets in proximity to the source, the site poses a minimal hazard of soil or air pathway exposure to human health or the environment.

7.0 SUMMARY AND CONCLUSIONS

The Expanded Site Inspection (ESI) site is a portion of the former Sprague Aluminum (a.k.a., Sprague Electric) Co. electric capacitor plant. The ESI site historically contained a series of unlined settling ponds, used by the plant to recover aluminum oxides from wastewater generated during acid etching of aluminum components. The etching process was discontinued in 1991 when United Chemi-con (UC) purchased the facility. The ESI site was not included in that purchase. During the mid-1990s, the ponds at the ESI site were drained of remnant surface water and backfilled, with oversight by the NCDENR Winston-Salem Regional Office (WSRO). The ESI site is now an open, vacant lot surrounded by a locked chain-link fence.

Site assessments conducted by UC in 1999 characterized organic and inorganic soil and groundwater contamination beneath northern portions of their facility. The Winston Salem Regional Office (WSRO), NC Groundwater Section is overseeing remediation at the UC facility.

On the settling pond property, pond sludges were sampled in the mid-1990s. The pond sludges contained various metals, including aluminum and low levels of mercury. No groundwater data were obtained from beneath or downgradient of the property. However, historical water sampling detected elevated iron and manganese concentrations downstream from the site, in the adjacent North Fork New River. Based on the sludge contents and the apparent release to the river, the NC Superfund Section recommended the pond property for the ESI.

The region's unconfined groundwater aquifer consists of fractured metamorphic bedrock and overlying weathered saprolite. However, historical and ESI groundwater measurements indicated that the water table was close to bedrock, and ESI groundwater sampling attempts were unsuccessful.

During the October 2001 ESI, the NC Superfund Section completed two soil borings , collecting sludge samples from depths of 8 feet and 12 feet, respectively, beneath the backfilled sludge ponds. Both samples contained elevated concentrations of aluminum and sodium. The deeper sludge sample also contained elevated concentrations of copper and mercury. No other contaminants were detected.

Groundwater is the principal drinking water source within the study area; approximately 5561 people use groundwater within a 4-mile radius of the site. The nearby UC production well supplies up to 450 plant employees. This well has not been sampled for mercury, an ESI source contaminant. No other community wells operate in proximity to the site. The nearest domestic wells are across the North Fork New River and are therefore unlikely to be affected by UC or the ESI site.

The site's surface water pathway is the primary potential target for site contaminants. The North Fork New River is not used for public water supply for at least 15 miles downstream from the site. Wetlands were mapped directly down river from the site, but their presence was not supported by field observation during the ESI. Scattered frontage is mapped much farther down river. The river is a fishery. Potential release of inorganic site contaminants to the river via groundwater is the primary threat from the ESI site.

Due to groundwater depth, no groundwater samples were collected on site during the ESI. However, surface water and sediment samples were collected at locations upriver from UC, directly upriver from the ESI site, and at two downstream locations. Contract Laboratory Program (CLP) analysis for TCL inorganics detected elevated chromium in the farthest downstream water sample, No chromium was detected in water directly down river from the site. No other inorganic parameters were detected at elevated concentrations in the river. Therefore, the ESI data indicated no observed release to the pathway.

The site is vacant and fenced. Portions of the contaminant source sludge contain elevated mercury concentrations, but are buried beneath several feet of compacted fill. Therefore, the likelihood of soil or air exposure to ESI site contaminants is minimal.

In order to address potential contamination of UC's groundwater production well, the NC Superfund Section has requested that the NC Groundwater Section, Winston-Salem Regional Office arrange for the well to be sampled for RCRA inorganics, including mercury. Based on the lack of an observed release to surface water, the site is recommended for no further remedial action under CERCLA.

Expanded Site Inspection
Sprague Aluminum Co.
NCD 003 167 780
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APPENDIX A

Appendix A: ESI Sample Analytical Results

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4

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Athens, Georgia 30605-2720

NASHVILLE ENVIRONMENTAL ASSISTANCE CENTER RECEIVED
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TENNESSEE DEPT. OF ENVIRONMENTAL & CONSERVATION

MEMORANDUM

Date: 12/21/2001

Subject: Results of METALS Sample Analysis
02-0107 Sprague Aluminum Co.
Lansing, NC

From: Goddard, Denise

To: Wendel, Jennifer

CC: ~~Dan LaMontagne~~ Jim Bateson
NCDENR

Thru: QA Office

Attached are the results of analysis of samples collected as part of the subject project. If you have any questions, please contact me.

RECEIVED
FEB 26 2002
...ON

ATTACHMENT

December 11, 2001

INORGANIC DATA QUALIFIERS REPORT

Case Number: 29923
Project Number: 02-0107
Site: Sprague Aluminum Co., Lansing, NC

Sample No.	Element	Flag	Reason
889	Al	U	Positives in cal, prep, and blind blanks
	Be	U	Baseline instability in cal, prep, and blind blanks
	Zn	U	Positives in cal and blind blanks
890	Be	U	Baseline instability in cal blanks
	K	J	Serial dilution percent difference = 25.3%
891	Al	U	Positives in cal, prep, and blind blanks
	Be	U	Baseline instability in cal, prep, and blind blanks
	Zn	U	Positives in cal and blind blanks
892	Be	U	Baseline instability in cal blanks
	K	J	Serial dilution percent difference = 25.3%
893	Al	U	Positives in cal, prep, and blind blanks
	Be	U	Baseline instability in cal, prep, and blind blanks
	Zn	U	Positives in cal and blind blanks
894	Be	U	Baseline instability in cal blanks
	K	J	Serial dilution percent difference = 25.3%
895	Al	U	Positives in cal, prep, and blind blanks
	Be	U	Baseline instability in cal, prep, and blind blanks
	Zn	U	Positives in cal and blind blanks
896	Be	U	Baseline instability in cal blanks
	K	J	Serial dilution percent difference = 25.3%
897	Be	U	Baseline instability in cal blanks
	K	J	Serial dilution percent difference = 25.3%
898	Be	U	Baseline instability in cal blanks
	K	J	Serial dilution percent difference = 25.3%
899	Be	U	Baseline instability in cal blanks
	K	J	Serial dilution percent difference = 25.3%
900	As	U	% RSD > 20% for ICP multiple exposures and result > IDL, but < CRDL
	Be	U	Baseline instability in cal blanks
	K	J	Serial dilution percent difference = 25.3%
901	As	U	Quantitation limit raised due to lack of sensitivity of instrumentation
	Be	U	Baseline instability in cal blanks
	K	J	Serial dilution percent difference = 25.3%

December 11, 2001

INORGANIC DATA QUALIFIERS REPORT (continued)

Case Number: 29923
Project Number: 02-0107
Site: Sprague Aluminum Co., Lansing, NC

Sample No.	Element	Flag	Reason
902	Al	U	Positives in cal, prep, and blind blanks
	Be	U	Baseline instability in cal, prep, and blind blanks
	Ca	U	Positives in cal and blind blanks
	Zn	U	Positives in cal and blind blanks

METALS SAMPLE ANALYSIS EPA REGION SES THE GA Production Date: 12/21/2001 10:07

Sample 888 FY 2002 Project: 02-0107

METALS SCAN

Facility: Sprague Aluminum Co. Lansing, NC
Program: SF
Id/Station: BB011TBW /
Media: TRIP BLANK - WATER

Case No: 29923
MD No: 12D7
Inorg Contractor: CHEMED

Produced by: Goddard, Denise
Requestor:
Project Leader: JWENDEL
Beginning: 10/29/2001 12:00
Ending:

RESULTS	UNITS	ANALYTE
35	UG/L	ALUMINUM
9.2U	UG/L	ANTIMONY
7.5U	UG/L	ARSENIC
2.5U	UG/L	BARIUM
1.6	UG/L	BERYLLIUM
0.80U	UG/L	CADMIUM
19	UG/L	CALCIUM
1.8U	UG/L	CHROMIUM
3.1U	UG/L	COBALT
2.4U	UG/L	COPPER
40U	UG/L	IRON
2.4U	UG/L	LEAD
28U	UG/L	MAGNESIUM
0.50U	UG/L	MANGANESE
0.20U	UG/L	TOTAL MERCURY
3.5U	UG/L	NICKEL
62U	UG/L	POTASSIUM
5.0U	UG/L	SELENIUM
5.9U	UG/L	SILVER
280U	UG/L	SODIUM
7.2U	UG/L	THALLIUM
2.6U	UG/L	VANADIUM
27	UG/L	ZINC
NA	UG/L	CYANIDE

CYANIDE ANALYSIS NOT REQUESTED

A-average value. NA-not analyzed. NAI-interferences. J-estimated value. N-presumptive evidence of presence of material.
K-actual value is known to be less than value given. L-actual value is known to be greater than value given. U-material was analyzed for but not detected. the number is the minimum quantitation limit.
R-qc indicates that data unusable. compound may or may not be present. resampling and reanalysis is necessary for verification.

METALS SAMPLE ANALYSIS EPA GIO SES THE GA Production Date: 12/21/2001 10:07

Sample 889 FY 2002 Project: 02-0107

METALS SCAN

Facility: Sprague Aluminum Co. Lansing, NC
Program: SF
Id/Station: SA005SW /
Media: SURFACE WATER

Case No: 29923
MD No: 12D8
Inorg Contractor: CHEMED

Produced by: Goddard, Denise
Requestor:
Project Leader: JWENDEL
Beginning: 10/29/2001 14:02
Ending:

RESULTS	UNITS	ANALYTE
55U	UG/L	ALUMINUM
9.2U	UG/L	ANTIMONY
7.5U	UG/L	ARSENIC
24	UG/L	BARIUM
1.6U	UG/L	BERYLLIUM
0.80U	UG/L	CADMIUM
5400	UG/L	CALCIUM
4.7	UG/L	CHROMIUM
3.1U	UG/L	COBALT
2.4U	UG/L	COPPER
170	UG/L	IRON
2.4U	UG/L	LEAD
2000	UG/L	MAGNESIUM
8.6	UG/L	MANGANESE
0.20U	UG/L	TOTAL MERCURY
3.5U	UG/L	NICKEL
960	UG/L	POTASSIUM
5.0U	UG/L	SELENIUM
5.9U	UG/L	SILVER
2600	UG/L	SODIUM
7.2U	UG/L	THALLIUM
2.6U	UG/L	VANADIUM
25U	UG/L	ZINC
NA	UG/L	CYANIDE

DATA REPORTED AS IDENTIFIED BY CLP LAB - IDS NOT VERIFIED

A-average value. NA-not analyzed. NAI-interferences. J-estimated value. N-presumptive evidence of presence of material.
K-actual value is known to be less than value given. L-actual value is known to be greater than value given. U-material was analyzed for but not detected. the number is the minimum quantitation limit.
R-qc indicates that data unusable. compound may or may not be present. resampling and reanalysis is necessary for verification.

METALS SAMPLE ANALYSIS EPA GIO SES THE GA Production Date: 12/21/2001 10:07

Sample 890 FY 2002 Project: 02-0107

METALS SCAN

Facility: Sprague Aluminum Co. Lansing, NC
Program: SF
Id/Station: SA005SD /
Media: SEDIMENT

Case No: 29923
MD No: 12D9
Inorg Contractor: CHEMED

Produced by: Goddard, Denise
Requestor:
Project Leader: JWENDEL
Beginning: 10/29/2001 14:12
Ending:

DATA REPORTED ON DRY WEIGHT BASIS

RESULTS	UNITS	ANALYTE
14000	MG/KG	ALUMINUM
3.5U	MG/KG	ANTIMONY
2.8U	MG/KG	ARSENIC
200	MG/KG	BARIUM
0.69U	MG/KG	BERYLLIUM
0.30U	MG/KG	CADMIUM
2300	MG/KG	CALCIUM
41	MG/KG	CHROMIUM
19	MG/KG	COBALT
42	MG/KG	COPPER
26000	MG/KG	IRON
13	MG/KG	LEAD
4600	MG/KG	MAGNESIUM
430	MG/KG	MANGANESE
0.18U	MG/KG	TOTAL MERCURY
19	MG/KG	NICKEL
2300J	MG/KG	POTASSIUM
1.9U	MG/KG	SELENIUM
2.2U	MG/KG	SILVER
500	MG/KG	SODIUM
2.7U	MG/KG	THALLIUM
68	MG/KG	VANADIUM
95	MG/KG	ZINC
NA	MG/KG	CYANIDE
48	%	% MOISTURE

CYANIDE ANALYSIS NOT REQUESTED

A-average value. NA-not analyzed. NAI-interferences. J-estimated value. N-presumptive evidence of presence of material.
K-actual value is known to be less than value given. L-actual value is known to be greater than value given. U-material was analyzed for but not detected. the number is the minimum quantitation limit.
R-qc indicates that data unusable. compound may or may not be present. resampling and reanalysis is necessary for verification.

Sample 891 FY 2002 Project: 02-0107

METALS SCAN

Facility: Sprague Aluminum Co. Lansing, NC
Program: SF
Id/Station: SA004SW /
Media: SURFACE WATER

Case No: 29923
MD No: 12E0

Inorg Contractor: CHEMED

Produced by: Goddard, Denise
Requestor:
Project Leader: JWENDEL
Beginning: 10/29/2001 14:28
Ending:

RESULTS	UNITS	ANALYTE
76U	UG/L	ALUMINUM
9.2U	UG/L	ANTIMONY
7.5U	UG/L	ARSENIC
26	UG/L	BARIUM
1.7U	UG/L	BERYLLIUM
0.80U	UG/L	CADMIUM
5800	UG/L	CALCIUM
1.8U	UG/L	CHROMIUM
3.1U	UG/L	COBALT
2.4U	UG/L	COPPER
180	UG/L	IRON
2.4U	UG/L	LEAD
2200	UG/L	MAGNESIUM
13	UG/L	MANGANESE
0.20U	UG/L	TOTAL MERCURY
3.5U	UG/L	NICKEL
1100	UG/L	POTASSIUM
5.0U	UG/L	SELENIUM
5.9U	UG/L	SILVER
3000	UG/L	SODIUM
7.2U	UG/L	THALLIUM
2.6U	UG/L	VANADIUM
34U	UG/L	ZINC
NA	UG/L	CYANIDE

YANIDE ANALYSIS NOT REQUESTED

-average value. NA-not analyzed. NAI-interferences. J-estimated value. N-presumptive evidence of presence of material.
-actual value is known to be less than value given. L-actual value is known to be greater than value given. U-material was analyzed for but not detected. the number is the minimum quantitation limit.
R-qc indicates that data unusable. compound may or may not be present. resampling and reanalysis is necessary for verification.

Sample 892 FY 2002 Project: 02-0107

METALS SCAN

Facility: Sprague Aluminum Co. Lansing, NC
Program: SF Case No: 29923
Id/Station: SA004SD / MD No: 12E1 Inorg Contractor: CHEMED
Media: SEDIMENT

Produced by: Goddard, Denise
Requestor:
Project Leader: JWENDEL
Beginning: 10/29/2001 14:37
Ending:

DATA REPORTED ON DRY WEIGHT BASIS

RESULTS	UNITS	ANALYTE
5400	MG/KG	ALUMINUM
2.4U	MG/KG	ANTIMONY
2.0U	MG/KG	ARSENIC
73	MG/KG	BARIUM
0.29U	MG/KG	BERYLLIUM
0.21U	MG/KG	CADMIUM
1300	MG/KG	CALCIUM
16	MG/KG	CHROMIUM
7.8	MG/KG	COBALT
16	MG/KG	COPPER
11000	MG/KG	IRON
5.5	MG/KG	LEAD
2000	MG/KG	MAGNESIUM
210	MG/KG	MANGANESE
0.13U	MG/KG	TOTAL MERCURY
6.9	MG/KG	NICKEL
1000J	MG/KG	POTASSIUM
1.3U	MG/KG	SELENIUM
1.5U	MG/KG	SILVER
440	MG/KG	SODIUM
1.9U	MG/KG	THALLIUM
27	MG/KG	VANADIUM
35	MG/KG	ZINC
NA	MG/KG	CYANIDE
25	%	% MOISTURE

CYANIDE ANALYSIS NOT REQUESTED

A-average value. NA-not analyzed. NAI-interferences. J-estimated value. N-presumptive evidence of presence of material.
K-actual value is known to be less than value given. L-actual value is known to be greater than value given. U-material was analyzed for but not detected. the number is the minimum quantitation limit.
R-qc indicates that data unusable. compound may or may not be present. resampling and reanalysis is necessary for verification.

Sample 893 FY 2002 Project: 02-0107

METALS SCAN

Facility: Sprague Aluminum Co. Lansing, NC
Program: SF Case No: 29923
Id/Station: SA003SW / MD No: 12E2 Inorg Contractor: CHEMED
Media: SURFACE WATER

Produced by: Goddard, Denise
Requestor:
Project Leader: JWENDEL
Beginning: 10/29/2001 15:01
Ending:

RESULTS	UNITS	ANALYTE
71U	UG/L	ALUMINUM
9.2U	UG/L	ANTIMONY
7.5U	UG/L	ARSENIC
26	UG/L	BARIUM
1.7U	UG/L	BERYLLIUM
0.80U	UG/L	CADMIUM
5800	UG/L	CALCIUM
1.8U	UG/L	CHROMIUM
3.1U	UG/L	COBALT
2.4U	UG/L	COPPER
150	UG/L	IRON
2.4U	UG/L	LEAD
2200	UG/L	MAGNESIUM
9.1	UG/L	MANGANESE
0.20U	UG/L	TOTAL MERCURY
3.5U	UG/L	NICKEL
1100	UG/L	POTASSIUM
5.0U	UG/L	SELENIUM
5.9U	UG/L	SILVER
2700	UG/L	SODIUM
7.2U	UG/L	THALLIUM
2.6U	UG/L	VANADIUM
22U	UG/L	ZINC
NA	UG/L	CYANIDE

CYANIDE ANALYSIS NOT REQUESTED

A-average value. NA-not analyzed. NAI-interferences. J-estimated value. N-presumptive evidence of presence of material.
K-actual value is known to be less than value given. L-actual value is known to be greater than value given. U-material was analyzed for but not detected. the number is the minimum quantitation limit.
R-qc indicates that data unusable. compound may or may not be present. resampling and reanalysis is necessary for verification.

MET LS SAMPLE ANALYSIS EPA GIO SES THE GA Production Date: 12/21/2001 10:07

Sample 894 FY 2002 Project: 02-0107

METALS SCAN

Facility: Sprague Aluminum Co. Lansing, NC
Program: SF
Id/Station: SA003SD /
Media: SEDIMENT

Case No: 29923
MD No: 12E3
Inorg Contractor: CHEMED

Produced by: Goddard, Denise
Requestor:
Project Leader: JWENDEL
Beginning: 10/29/2001 15:04
Ending:

DATA REPORTED ON DRY WEIGHT BASIS

RESULTS	UNITS	ANALYTE
4600	MG/KG	ALUMINUM
2.2U	MG/KG	ANTIMONY
1.8U	MG/KG	ARSENIC
67	MG/KG	BARIUM
0.32U	MG/KG	BERYLLIUM
0.20U	MG/KG	CADMIUM
980	MG/KG	CALCIUM
16	MG/KG	CHROMIUM
7.5	MG/KG	COBALT
12	MG/KG	COPPER
11000	MG/KG	IRON
5.9	MG/KG	LEAD
1600	MG/KG	MAGNESIUM
250	MG/KG	MANGANESE
0.12U	MG/KG	TOTAL MERCURY
6.3	MG/KG	NICKEL
900J	MG/KG	POTASSIUM
1.2U	MG/KG	SELENIUM
1.4U	MG/KG	SILVER
360	MG/KG	SODIUM
1.8U	MG/KG	THALLIUM
26	MG/KG	VANADIUM
35	MG/KG	ZINC
NA	MG/KG	CYANIDE
18	%	% MOISTURE

CYANIDE ANALYSIS NOT REQUESTED

A-average value. NA-not analyzed. NAI-interferences. J-estimated value. N-presumptive evidence of presence of material.
K-actual value is known to be less than value given. L-actual value is known to be greater than value given. U-material was analyzed for but not detected. the number is the minimum quantitation limit.
R-qc indicates that data unusable. compound may or may not be present. resampling and reanalysis is necessary for verification.

Sample 895 FY 2002 Project: 02-0107

METALS SCAN

Facility: Sprague Aluminum Co. Lansing, NC
Program: SF
Id/Station: SA001SW /
Media: SURFACE WATER

Case No: 29923
MD No: 12E4
Inorg Contractor: CHEMED

Produced by: Goddard, Denise
Requestor:
Project Leader: JWENDEL
Beginning: 10/29/2001 15:40
Ending:

RESULTS	UNITS	ANALYTE
57U	UG/L	ALUMINUM
9.2U	UG/L	ANTIMONY
7.5U	UG/L	ARSENIC
21	UG/L	BARIUM
1.8U	UG/L	BERYLLIUM
0.80U	UG/L	CADMIUM
4900	UG/L	CALCIUM
1.8U	UG/L	CHROMIUM
3.1U	UG/L	COBALT
2.4U	UG/L	COPPER
130	UG/L	IRON
2.4U	UG/L	LEAD
1800	UG/L	MAGNESIUM
8.0	UG/L	MANGANESE
0.20U	UG/L	TOTAL MERCURY
3.5U	UG/L	NICKEL
870	UG/L	POTASSIUM
5.0U	UG/L	SELENIUM
5.9U	UG/L	SILVER
2200	UG/L	SODIUM
7.2U	UG/L	THALLIUM
2.6U	UG/L	VANADIUM
26U	UG/L	ZINC
NA	UG/L	CYANIDE

CYANIDE ANALYSIS NOT REQUESTED

A-average value. NA-not analyzed. NAI-interferences. J-estimated value. N-presumptive evidence of presence of material.
K-actual value is known to be less than value given. L-actual value is known to be greater than value given. U-material was analyzed for but not detected. the number is the minimum quantitation limit.
R-qc indicates that data unusable. compound may or may not be present. resampling and reanalysis is necessary for verification.

Sample 896 FY 2002 Project: 02-0107

METALS SCAN

Facility: Sprague Aluminum Co. Lansing, NC
Program: SF
Id/Station: SA001SD /
Media: SEDIMENT

Case No: 29923
MD No: 12E5
Inorg Contractor: CHEMED

Produced by: Goddard, Denise
Requestor:
Project Leader: JWENDEL
Beginning: 10/29/2001 15:59
Ending:

DATA REPORTED ON DRY WEIGHT BASIS

RESULTS	UNITS	ANALYTE
12000	MG/KG	ALUMINUM
2.8U	MG/KG	ANTIMONY
2.2U	MG/KG	ARSENIC
200	MG/KG	BARIUM
0.68U	MG/KG	BERYLLIUM
0.24U	MG/KG	CADMIUM
2400	MG/KG	CALCIUM
36	MG/KG	CHROMIUM
18	MG/KG	COBALT
28	MG/KG	COPPER
25000	MG/KG	IRON
13	MG/KG	LEAD
4400	MG/KG	MAGNESIUM
510	MG/KG	MANGANESE
0.15U	MG/KG	TOTAL MERCURY
17	MG/KG	NICKEL
2600J	MG/KG	POTASSIUM
1.5U	MG/KG	SELENIUM
1.8U	MG/KG	SILVER
370	MG/KG	SODIUM
2.2U	MG/KG	THALLIUM
73	MG/KG	VANADIUM
79	MG/KG	ZINC
NA	MG/KG	CYANIDE
34	%	% MOISTURE

CYANIDE ANALYSIS NOT REQUESTED

A-average value. NA-not analyzed. NAI-interferences. J-estimated value. N-presumptive evidence of presence of material.
K-actual value is known to be less than value given. L-actual value is known to be greater than value given. U-material was analyzed for but not detected. the number is the minimum quantitation limit.
R-qc indicates that data unusable. compound may or may not be present. resampling and reanalysis is necessary for verification.

Sample 897 FY 2002 Project: 02-0107

METALS SCAN

Facility: Sprague Aluminum Co. Lansing, NC
Program: SF
Case No: 29923
Id/Station: SA002SD /
MD No: 12E6 Inorg Contractor: CHEMED
Media: SEDIMENT

Produced by: Goddard, Denise
Requestor:
Project Leader: JWENDEL
Beginning: 10/29/2001 16:12
Ending:

DATA REPORTED ON DRY WEIGHT BASIS

RESULTS	UNITS	ANALYTE
11000	MG/KG	ALUMINUM
2.6U	MG/KG	ANTIMONY
2.1U	MG/KG	ARSENIC
160	MG/KG	BARIUM
0.49U	MG/KG	BERYLLIUM
0.22U	MG/KG	CADMIUM
2300	MG/KG	CALCIUM
29	MG/KG	CHROMIUM
15	MG/KG	COBALT
26	MG/KG	COPPER
22000	MG/KG	IRON
8.1	MG/KG	LEAD
4200	MG/KG	MAGNESIUM
340	MG/KG	MANGANESE
0.14U	MG/KG	TOTAL MERCURY
13	MG/KG	NICKEL
2400J	MG/KG	POTASSIUM
1.4U	MG/KG	SELENIUM
1.6U	MG/KG	SILVER
540	MG/KG	SODIUM
2.0U	MG/KG	THALLIUM
59	MG/KG	VANADIUM
66	MG/KG	ZINC
NA	MG/KG	CYANIDE
29	%	% MOISTURE

CYANIDE ANALYSIS NOT REQUESTED

A-average value. NA-not analyzed. NAI-interferences. J-estimated value. N-presumptive evidence of presence of material.
K-actual value is known to be less than value given. L-actual value is known to be greater than value given. U-material was analyzed for but not detected. the number is the minimum quantitation limit.
R-qc indicates that data unusable. compound may or may not be present. resampling and reanalysis is necessary for verification.

METALS SAMPLE ANALYSIS [redacted] EPA [redacted] EGI [redacted] SE [redacted] ATH [redacted] GA [redacted] Production Date: 12/21/2001 10:07

Sample 898 FY 2002 Project: 02-0107

METALS SCAN

Facility: Sprague Aluminum Co. Lansing, NC

Program: SF Case No: 29923

Id/Station: SA102SD / MD No: 12E7 Inorg Contractor: CHEMED

Media: SEDIMENT

Produced by: Goddard, Denise

Requestor:

Project Leader: JWENDEL

Beginning: 10/29/2001 16:12

Ending:

DATA REPORTED ON DRY WEIGHT BASIS

RESULTS	UNITS	ANALYTE
11000	MG/KG	ALUMINUM
2.7U	MG/KG	ANTIMONY
2.2U	MG/KG	ARSENIC
160	MG/KG	BARIUM
0.55U	MG/KG	BERYLLIUM
0.23U	MG/KG	CADMIUM
2000	MG/KG	CALCIUM
29	MG/KG	CHROMIUM
14	MG/KG	COBALT
23	MG/KG	COPPER
21000	MG/KG	IRON
9.3	MG/KG	LEAD
3800	MG/KG	MAGNESIUM
300	MG/KG	MANGANESE
0.15U	MG/KG	TOTAL MERCURY
13	MG/KG	NICKEL
2400J	MG/KG	POTASSIUM
1.5U	MG/KG	SELENIUM
1.7U	MG/KG	SILVER
470	MG/KG	SODIUM
2.1U	MG/KG	THALLIUM
60	MG/KG	VANADIUM
62	MG/KG	ZINC
NA	MG/KG	CYANIDE
32	%	% MOISTURE

CYANIDE ANALYSIS NOT REQUESTED

A-average value. NA-not analyzed. NAI-interferences. J-estimated value. N-presumptive evidence of presence of material.
K-actual value is known to be less than value given. L-actual value is known to be greater than value given. U-material was analyzed for but not detected. the number is the minimum quantitation limit.
R-qc indicates that data unusable. compound may or may not be present. resampling and reanalysis is necessary for verification.

AMPLE ANALYSIS EP EGI / SE ATH , GA Production Date: 12/21/2001 10:07

Sample 899 FY 2002 Project: 02-0107

METALS SCAN

Facility: Sprague Aluminum Co. Lansing, NC
Program: SF Case No: 29923
Id/Station: SA010SL / MD No: 12E8 Inorg Contractor: CHEMED
Media: SURFACE SOIL (0" - 12")

Produced by: Goddard, Denise
Requestor:
Project Leader: JWENDEL
Beginning: 10/29/2001 17:50
Ending:

DATA REPORTED ON DRY WEIGHT BASIS

RESULTS	UNITS	ANALYTE
200000	MG/KG	ALUMINUM
4.9U	MG/KG	ANTIMONY
4.0U	MG/KG	ARSENIC
60	MG/KG	BARIUM
0.53U	MG/KG	BERYLLIUM
0.42U	MG/KG	CADMIUM
1300	MG/KG	CALCIUM
13	MG/KG	CHROMIUM
3.5	MG/KG	COBALT
88	MG/KG	COPPER
4800	MG/KG	IRON
6.1U	MG/KG	LEAD
940	MG/KG	MAGNESIUM
220	MG/KG	MANGANESE
0.26U	MG/KG	TOTAL MERCURY
15	MG/KG	NICKEL
880J	MG/KG	POTASSIUM
2.7U	MG/KG	SELENIUM
3.1U	MG/KG	SILVER
2100	MG/KG	SODIUM
3.8U	MG/KG	THALLIUM
12	MG/KG	VANADIUM
32	MG/KG	ZINC
NA	MG/KG	CYANIDE
63	%	% MOISTURE

CYANIDE ANALYSIS NOT REQUESTED

A-average value. NA-not analyzed. NAI-interferences. J-estimated value. N-presumptive evidence of presence of material.
K-actual value is known to be less than value given. L-actual value is known to be greater than value given. U-material was analyzed for but not detected. the number is the minimum quantitation limit.
R-qc indicates that data unusable. compound may or may not be present. resampling and reanalysis is necessary for verification.

Sample 900 FY 2002 Project: 02-0107

METALS SCAN

Facility: Sprague Aluminum Co. Lansing, NC
Program: SF Case No: 29923
Id/Station: SA011SL / MD No: 12E9 Inorg Contractor: CHEMED
Media: SURFACE SOIL (0" - 12")

Produced by: Goddard, Denise
Requestor:
Project Leader: JWENDEL
Beginning: 10/30/2001 10:00
Ending:

DATA REPORTED ON DRY WEIGHT BASIS

RESULTS	UNITS	ANALYTE
65000	MG/KG	ALUMINUM
3.8U	MG/KG	ANTIMONY
3.9U	MG/KG	ARSENIC
220	MG/KG	BARIUM
1.1U	MG/KG	BERYLLIUM
0.33U	MG/KG	CADMIUM
2600	MG/KG	CALCIUM
89	MG/KG	CHROMIUM
18	MG/KG	COBALT
120	MG/KG	COPPER
37000	MG/KG	IRON
15	MG/KG	LEAD
2700	MG/KG	MAGNESIUM
460	MG/KG	MANGANESE
26	MG/KG	TOTAL MERCURY
20	MG/KG	NICKEL
2000J	MG/KG	POTASSIUM
2.1U	MG/KG	SELENIUM
2.4U	MG/KG	SILVER
1600	MG/KG	SODIUM
3.0U	MG/KG	THALLIUM
120	MG/KG	VANADIUM
55	MG/KG	ZINC
NA	MG/KG	CYANIDE
52	%	% MOISTURE

A-average value. NA-not analyzed. NAI-interferences. J-estimated value. N-presumptive evidence of presence of material.
K-actual value is known to be less than value given. L-actual value is known to be greater than value given. U-material was analyzed for but not detected. the number is the minimum quantitation limit.
R-qc indicates that data unusable. compound may or may not be present. resampling and reanalysis is necessary for verification.

METALS SAMPLE ANALYSIS [redacted] EP[redacted]EG[redacted]V SE[redacted], ATH[redacted]S, GA [redacted] Production Date: 12/21/2001 10:07

Sample 901 FY 2002 Project: 02-0107

METALS SCAN

Facility: Sprague Aluminum Co. Lansing, NC

Program: SF Case No: 29923

Id/Station: SA009SB / MD No: 12F0 Inorg Contractor: CHEMED

Media: SUBSURFACE SOIL (> 12")

Produced by: Goddard, Denise

Requestor:

Project Leader: JWENDEL

Beginning: 10/30/2001 10:00

Ending:

DATA REPORTED ON DRY WEIGHT BASIS

RESULTS	UNITS	ANALYTE
22000	MG/KG	ALUMINUM
2.1U	MG/KG	ANTIMONY
4.3U	MG/KG	ARSENIC
470	MG/KG	BARIUM
0.97U	MG/KG	BERYLLIUM
0.18U	MG/KG	CADMIUM
2000	MG/KG	CALCIUM
72	MG/KG	CHROMIUM
26	MG/KG	COBALT
34	MG/KG	COPPER
37000	MG/KG	IRON
10	MG/KG	LEAD
10000	MG/KG	MAGNESIUM
790	MG/KG	MANGANESE
0.12U	MG/KG	TOTAL MERCURY
23	MG/KG	NICKEL
7200J	MG/KG	POTASSIUM
1.1U	MG/KG	SELENIUM
1.3U	MG/KG	SILVER
220	MG/KG	SODIUM
1.6U	MG/KG	THALLIUM
87	MG/KG	VANADIUM
85	MG/KG	ZINC
NA	MG/KG	CYANIDE
14	%	% MOISTURE

CYANIDE ANALYSIS NOT REQUESTED

A-average value. NA-not analyzed. NAI-interferences. J-estimated value. N-presumptive evidence of presence of material.
K-actual value is known to be less than value given. L-actual value is known to be greater than value given. U-material was analyzed for but not detected. the number is the minimum quantitation limit.
R-qc indicates that data unusable. compound may or may not be present. resampling and reanalysis is necessary for verification.

METALS SAMPLE ANALYSIS [redacted] EPA [redacted] REGION IV SE[redacted]ATH[redacted], GA[redacted] [redacted] Production Date: 12/[redacted]/2001 [redacted]

Sample 902 FY 2002 Project: 02-0107

METALS SCAN

Facility: Sprague Aluminum Co. Lansing, NC
Program: SF Case No: 29923
Id/Station: SA007PB / MD No: 12F1 Inorg Contractor: CHEMED
Media: PRESERVATIVE BLANK

Produced by: Goddard, Denise
Requestor:
Project Leader: JWENDEL
Beginning: 10/31/2001 12:00
Ending:

RESULTS	UNITS	ANALYTE
47U	UG/L	ALUMINUM
9.2U	UG/L	ANTIMONY
7.5U	UG/L	ARSENIC
2.5U	UG/L	BARIUM
1.9U	UG/L	BERYLLIUM
0.80U	UG/L	CADMIUM
20U	UG/L	CALCIUM
1.8U	UG/L	CHROMIUM
3.1U	UG/L	COBALT
2.4U	UG/L	COPPER
40U	UG/L	IRON
2.4U	UG/L	LEAD
28U	UG/L	MAGNESIUM
0.50U	UG/L	MANGANESE
0.20U	UG/L	TOTAL MERCURY
3.5U	UG/L	NICKEL
62U	UG/L	POTASSIUM
5.0U	UG/L	SELENIUM
5.9U	UG/L	SILVER
280U	UG/L	SODIUM
7.2U	UG/L	THALLIUM
2.6U	UG/L	VANADIUM
26U	UG/L	ZINC
NA	UG/L	CYANIDE

CYANIDE ANALYSIS NOT REQUESTED

A-average value. NA-not analyzed. NAI-interferences. J-estimated value. N-presumptive evidence of presence of material.
K-actual value is known to be less than value given. L-actual value is known to be greater than value given. U-material was analyzed for but not detected. the number is the minimum quantitation limit.
R-qc indicates that data unusable. compound may or may not be present. resampling and reanalysis is necessary for verification.