

PRELIMINARY ASSESSMENT
WADE'S ALUMINUM PRODUCTS
FORT SCOTT , KANSAS
CERCLIS Identification Number
KSD087772372



Kansas Department of Health and Environment
Bureau of Environmental Remediation
Pre-Remedial Unit/Remedial Section
Forbes Field, Building 740
Topeka, Kansas 66620

November, 1995

**Wade's Aluminum Products
Fort Scott, Kansas**

Preliminary Assessment

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November, 1995

Project Manager:
Travis Kogl, Environmental Geologist

**WADES ALUMINUM SITE
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SECTION 1: INTRODUCTION

The Kansas Department of Health and Environment (KDHE) has a continuing cooperative agreement with the U.S. Environmental Protection Agency (EPA) to perform investigations of selected sites which are known or suspected to be contaminated with hazardous substances. These investigations are performed under the requirements of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986 and consistent with the National Oil and Hazardous Substances Contingency Plan (NCP) 40 CFR § 300.420. This Preliminary Assessment (PA) was performed by KDHE Bureau of Environmental Remediation (BER) as part of the cooperative agreement for the federal Fiscal Year (FY) 1996. The purpose of this PA was to collect sufficient information at the Wade's Aluminum Products site to assess the threat posed to human health and the environment and to determine the need for further action under CERCLA/SARA consistent with the NCP. The investigation included the following activities: review of historical file information; a comprehensive target survey; collection and analyses of three samples; evaluation of the site utilizing the Hazard Ranking System (HRS) PA-Score software to determine a site score for the HRS; and collection of non-sampling information. KDHE BER initiated action at the site in response to a request from KDHE Bureau of District Operations (BODO).

SECTION 2: SITE LOCATION, DESCRIPTION, OPERATIONAL HISTORY

2.1 Site Location

The Wade's Aluminum Products site is located in east-central Bourbon County near Fort Scott (Figure 1). Bourbon County is located in southeast Kansas in the Cherokee Lowlands section of the Central Lowlands physiographic province (Reference 1). The geographic coordinates of the facility are 37° 52' 21.74" North latitude and 94° 41' 29.21" West longitude (Reference 2 and Reference 3). The site is located in the northwest quarter of Section 17, Township 25 South, Range 25 East.

2.2 Climate

The climate of Bourbon County is characterized as a continental climate that is typically warm to hot in the summers and cold in the winters with the majority of precipitation events occurring in the spring and early summer. The average annual precipitation in Bourbon County is 39.88 inches per year. The heaviest 24-hour rainfall on record for Bourbon County is 8 inches at Fort Scott in 1911. The average summer temperature is 79.4° Fahrenheit (F) and the average annual temperature is 58.3° F. Prevailing surface winds in Bourbon County are southerly with an average annual speed of 13 miles per hour (Reference 4).

2.3 Site Description

The Wade's Aluminum Products site is an abandoned aluminum reclamation facility located in a rural area (Photo 1 and Figure 2). The facility reclaimed aluminum from dross, which is the waste from primary aluminum plants. The aluminum reclamation building has been removed, leaving only a dross storage shed and a particulate emission filter structure, referred to as a baghouse (Photo 2). The site has several other abandoned buildings that were used during the operation of a cement and concrete block plant. Several drums of processed aluminum dross are stockpiled in some of these buildings (Photo 3). The buildings are in very poor structural condition and one large building has collapsed. Several large piles of processed aluminum dross materials are located throughout the site as well as one area of unprocessed dross. Several rubbish piles are also located throughout the site.

The Bourbon County Landfill is located south of the site, across a county road. The Burlington Northern railroad borders the site on the east, and agricultural land borders the site on the west and north. A few farm residences exist in the area. An abandoned quarry occupies the west side of the site. The quarry is partially filled with processed dross waste material (Photo 4).

The site is located in an area zoned as I2 or Heavy Industrial. Future land use is expected to remain heavy industrial (Reference 5).

2.4 Site History

2.4.1 Operational History

Wade's Aluminum Products began operation in December 1977 with two furnaces for the reclamation of aluminum dross. In 1979, two more furnaces were added: one for the reclamation of aluminum dross and one for alloying aluminum. A fifth furnace was added in 1980 for alloying aluminum. In October, 1984, Wade's Aluminum Products discontinued processing of aluminum dross and began using uncontaminated aluminum scrap materials. Wade's Aluminum Products filed for bankruptcy in November, 1985.

Wade's Aluminum Products operated two types of smelting furnaces: rotary and reverberatory. The rotary furnaces were cement mixers which were used to rotate the material while firing into the center of the mixer. The reverberatory furnaces had two separate chambers for the fuel and ore. A curved roof reflected the heat down onto the ore. The charge material fed into the furnaces for dross reclamation was 66 percent dross, 16 percent potash and 16 percent salt. The mixture was heated so that the aluminum melted at about 1400° F and was separated do to specific gravity. Aluminum alloying charge was composed of aluminum ingots, silicon and copper (Reference 6).

2.4.2 Regulatory History

The Wade's Aluminum Products site has been assigned CERCLIS identification number KSD087772372. The site was first inspected by KDHE Bureau of Air Quality on December 15, 1978. The facility was operating two unpermitted rotary furnaces. The two furnaces were approved and permitted after applications were submitted. Several complaints were received in 1979 by KDHE from area residents concerning emissions from the plant. An emissions control system was installed by the operator to control particulate emission. In 1980, KDHE collected samples from processed dross materials from the facility that were being dumped at the Bourbon County landfill. In 1982, a Resource Conservation and Recovery Act (RCRA) inspection of Wade's Aluminum Products was conducted by KDHE to determine compliance with state and federal regulations concerning hazardous waste. The inspection revealed that the facility did not generate hazardous waste (Reference 6).

SECTION 3: FIELD ACTIVITIES AND ANALYTICAL RESULTS

3.1 Field Activities

On October 18, 1995, Travis Kogl of KDHE/BER conducted a site reconnaissance at the site. On October 24, 1995, KDHE returned to the site to collect samples from the site. Permission to sample at the site was obtained on October 23, 1995 from Gary Cullors, the current owner of the property. Sample locations are shown in Figure 2. Three samples were collected: the first from an unprocessed aluminum dross pile; the second from a processed aluminum dross pile; and the third from soil receiving runoff from the processed dross pile. The samples were analyzed for total metals at the Kansas Health and Environmental Laboratory (KHEL).

3.2 Analytical Results

Analytical results from samples collected at the Wade's Aluminum site are presented in Table 1. The analytical reports are included in Appendix A.

When the *rule of 20* is applied to the analytical results, cadmium, chromium, and lead would appear to exceed the RCRA regulatory level for these constituents. The *rule of 20* is a method of estimating the Toxicity Characteristic Leaching Procedure (TCLP) using total analyses results. The levels of metals detected at the site suggest that waste piles and soil are potentially characteristic RCRA hazardous wastes as defined in 40 CFR § 261. It should be noted however, that the form of chromium is not known and the cadmium levels are only slightly above the regulatory level when the *rule of 20* is applied. Also note that the *rule of 20* is typically a conservative estimate.

When the analytical results are compared to levels listed in the EPA Region IX Preliminary Remediation Goals (PRGs) for industrial soils, aluminum appears to be the only compound above the PRGs. The highest aluminum level detected was 180,320.0 mg/Kg which only exceeded PRG of 100,000 mg/Kg by less than a factor of two. Characteristics of aluminum are included in Appendix C. In general, exposure to low levels of aluminum is not harmful. When analytical results are compared to Kansas State Interim Remedial Goals (IRGs) for industrial soils, antimony and beryllium levels appear to exceed the IRGs. The highest antimony level detected was 736.4 mg/Kg which exceeds the IRG of 135 mg/Kg by 601.4 mg/Kg. The beryllium level detected was 1.0 which exceeds the IRG of 0.67 mg/Kg by 0.33 mg/Kg. The Characteristics of antimony and beryllium are also included in Appendix C. It should be noted that the PRGs and IRGs are guidelines for soils. Samples 1 and 2 were collected from waste piles. Only sample 3 was a soil sample.

SECTION 4: GROUND WATER PATHWAY

4.1 Hydrogeologic Setting

4.1.1 Soils

The soil type within the site boundaries has been identified as the *pits, quarries mapping unit* of the Verdigris-Lanton soil association. This map unit occurs as excavated areas from which soil and limestone bedrock have been removed. Soil cover is typically thin and irregular in such areas. Individual areas are irregular in shape and range in size from 5 to 15 acres. A few are larger than 40 acres (Reference 4). The site reconnaissance conducted by KDHE confirmed that bedrock was present below the dross waste accumulated at the site.

4.1.2 Geology

The site is situated upon the Fort Scott Limestone of the Pennsylvania age. The Fort Scott Limestone Formation consists of the Higginsville Limestone Member, the Little Osage Shale Member, and the Blackjack Creek Limestone Member (Figure 3). The Higginsville Limestone Member has been quarried on the western part of the site. The Little Osage Shale Member appears to be the lower confining unit in the vicinity of the site (Reference 7). No karst conditions occur in the site vicinity because of the limestone and shale sequences of the Blackjack Creek Member and the Little Osage Shale Member.

Four monitoring wells have been drilled 1/4 mile south of the Wade's Aluminum Products site at a former City Dump (Fort Scott Dump #2 Site, KSD980631915). The wells were completed in bedrock. Ground water levels in the monitoring wells ranged between 6.9 and 17.3 feet below the ground surface. Data collected from the monitoring wells during a site closure study at the dump was inconclusive regarding ground water flow direction in the area (Reference 8). Field observations during the site reconnaissance in a quarry situated on the west part of the site suggest that ground water at the site is present within the Pennsylvanian bedrock at an unknown depth greater than 20 feet below surface.

4.2 Ground Water Targets

No municipal wells were identified within the 4-mile target distance limit (TDL) of the site. Area residence obtain water from Bourbon Rural Water District No. 2 (RWD No. 2) (Reference 9). RWD No. 2 purchases water from the City of Fort Scott. KDHE water well records indicate that three domestic water wells exist within the four-mile TDL of the Wade's Aluminum Products site (Reference 10).

4.3 Ground Water Conclusions

The potential for human exposure to contaminants released to the ground water pathway from the Wade's Aluminum Products site is minimal as no municipal wells were identified within the 4-mile TDL. Three domestic water wells were identified within the 4-mile TDL.

SECTION 5: SURFACE WATER PATHWAY

5.1 Hydrologic Setting

The site is located in the Osage River Basin of the Missouri River Basin. Surface drainage from the Wade's Aluminum Products site is to Wolverine Creek. Wolverine Creek is an intermittent stream that flows south-southeast to the Marmaton River, approximately 1/4 mile downstream from the site (Figure 4 and Reference 2). The annual mean discharge of the Marmaton River for the water year 1994 at a gaging station located upstream from the site was 387 cubic feet per second (cfs) (Reference 11). The site lies above the 100 year flood plain of Wolverine Creek (Reference 2). Approximately 9 miles of the in-water surface water segment occurs in Missouri.

5.2 Surface Water Targets

No municipal surface water intakes were identified within the 15-mile downstream TDL. A surface water intake is located approximately three miles upstream from the point where

Wolverine Creek enters the Marmaton River. This water source serves Fort Scott and RWD No. 2 (Reference 7).

The Marmaton River has been designated a critical habitat for the Common Map Turtle. All stands of oak woodlands within Bourbon County have been designated critical habitats for the Broadhead Skink (Reference 12). Several other endangered or threatened species occur in Bourbon County that may be targets at the site:

<u>Species</u>	<u>Status</u>	<u>Occurrence</u>
American Burying Beetle	E	May occur in suitable grasslands and upland woodlands.
Bald Eagle	E	Known to occur as a winter visitant at large impoundments.
Central Newt	E	Known to occur in twilight zones of limestone caves.
Eastern Spotted Skunk	T	Known to occur in suitable habitat. Prefers rocky grasslands.
Eskimo Curlew	E	Formerly occurred as regular transient. Last recorded in 1902.
Gray Myotis	E	May occur occasionally along wooded stream corridors.
Green Frog	T	May occur in suitable backwater areas near streams.
Hornyhead Chub	T	Known to historically occur in the Marmaton River.
Least Tern	E	May occur as occasional visitant.
Northern Redbelly Snake	T	May occur in mature upland woodlands.
Northern Spring Peeper	T	May occur as isolated colonies in suitable habitat.
Peregrine Falcon	E	May occur as occasional winter visitant.
Piping Plover	T	May occur as occasional seasonal transient.
Western Earth Snake	T	May occur in rocky woodlands in moist woodlands.
White-faced Ibis	T	May occur as occasional seasonal transient.

T=Threatened E=Endangered

5.3 Surface Water Conclusions

The potential for human exposure to contaminants released from the Wade's Aluminum Products site is low as no surface water intakes were identified within the 15-mile downstream TDL. Potential surface water pathway targets include the critical habitat of the Common Map Turtle and possibly the critical habitat of the Broadhead Skink. Other potential targets are the habitats of threatened or endangered species in Bourbon County which may coincide with Wolverine Creek or the Marmaton River.

SECTION 6: SOIL EXPOSURE AND AIR PATHWAYS

6.1 Physical Conditions

The site consists of approximately 20 acres located in a rural area. The facility is fenced by a poorly maintained barbed wire fence. The fence is absent in several places. The property is sparsely vegetated with shrubs and grasses with some large trees in areas further from the waste material piles. The waste material piles are barren of vegetation and contain fine dust which could easily become airborne, presenting a fugitive dust emission source.

Prevailing surface winds in Bourbon County are southerly with an average annual speed of 13 miles per hour (Reference 4). The area north of the site (the direction of the prevailing wind) is rural and consequently sparsely populated.

6.2 Soil and Air Targets

The total population within four miles of the site is estimated to be 10,352 persons, based on United States Geological Survey topographic maps of the area and population census statistics for the city and surrounding areas (Reference 2, Reference 13). Distribution of soil and air pathway targets by distance are as follows:

<u>Distance</u>	<u>Estimated Human Targets</u>
0 - 1 mile	85.1
1 - 2 miles	1,007.1
2 - 3 miles	4,997.9
3 - 4 miles	4261.9

6.3 Soil and Air Conclusions

The potential for human exposure to wastes at the site through the soil pathway appears to be minimal because the site is relatively inaccessible. Analysis of a soil sample (soil sample 3) collected at the indicates that only aluminum levels exceeded EPA Region IX PRGs. Antimony and beryllium exceeded Kansas State IRGs. Further sampling would need to be conducted to establish background levels in the site area. The potential for human exposure to wastes from the site through the air exposure pathway does exist because waste piles are a source of fugitive dust emissions. No data is available for ambient air PRGs for aluminum, however no air monitoring has been conducted. Using a conversion factor of 5.45 to compare mg/Kg to mg/m³,

SECTION 7: CONCLUSIONS

The PA conducted at the Wade's Aluminum Products site was designed to gather information to assess the threat to human health and the environment, and to determine the need for additional investigation under CERCLA consistent with the NCP. The scope of the PA included research and review of file information, a comprehensive target survey, collection of three samples and a site reconnaissance to confirm target populations potentially at risk from contamination at the site.

Analytical results of samples collected from the Wade's Aluminum Products site indicate that aluminum dross waste at the site may be potential RCRA characteristic hazardous waste because of levels of cadmium, chromium and lead. The levels are only slightly above regulatory levels using the *rule of 20* which is a method for estimating TCLP results. A TCLP analysis of samples from the site would be required for disposal of the wastes at the site. When compared to EPA Region IX Preliminary Remedial Goals (PRGs) for industrial soils, the analytical results indicate that only aluminum is above the PRGs. Exposure to aluminum is not usually harmful. Antimony and beryllium levels exceed Kansas State Interim Remedial Guidelines for industrial soils.

The facility is currently zoned for heavy industrial use by the Fort Scott Zoning Commission. Future land use appears to be for heavy industrial use.

The potential for human exposure to contaminants released from the Wade's Aluminum site through the ground water pathway is low as no municipal drinking water wells were identified within the 4-mile target distance limit (TDL) of the site. Area residence obtain water from Bourbon Rural Water District No. 2 (RWD No. 2). RWD No. 2 purchases water from the City of Fort Scott. KDHE water well records indicate that three domestic water wells exist within the four-mile TDL of the Wade's Aluminum Products site.

The potential for human exposure to contaminants released from the Wade's Aluminum Products site through the surface water pathway is low as no surface water intakes were identified within the 15-mile downstream TDL. A surface water intake is located approximately three miles upstream from the probable point of entry (PPE) to the Marmaton River but is not within the in-water segment of the surface water pathway. This water source serves Fort Scott and RWD No. 2 (Reference 7).

The potential for human exposure to wastes at the site through the soil pathway appears to be minimal because the site is relatively inaccessible. Analysis of a soil sample (soil sample 3) collected at the site indicates that only aluminum levels exceeded EPA Region IX PRGs. Further sampling would need to be conducted to establish background levels in the site area. Antimony and beryllium exceeded Kansas State IRGs. The potential for human exposure to wastes from the site through the air exposure pathway does exist because waste piles are a source of fugitive dust emissions, however no air monitoring has been conducted.

SECTION 8: REFERENCES

1. State Geologic Survey of Kansas, "The Geologic History of Kansas", Bulletin 163, December, 1963.
2. U.S. Geological Survey, 7.5-minute topographic quadrangle maps of Kansas: Fort Scott, Kans., 1958, Photorevised 1978.
3. USEPA, "Standard Operating Procedure to Determine Site Latitude and Longitude Coordinates," 1991. Calculation worksheet for Palmetto Landfill.
4. U.S. Department of Agriculture, "Soil Survey of Bourbon County, Kansas", 1981.
5. Cecilia Greenfield, Fort Scott Zoning Commission, telephone conversation with Travis Kogl, Kansas Department of Health and Environment, November 17, 1995.
6. Kansas Department of Health and Environment, Bureau of Environmental Remediation and Bureau of Air and Radiation files.
7. CDM Federal Programs Corporation, "Site Inspection Prioritization Report For Site Assessment Activity at Fort Scott Dump #2, Fort Scott, Kansas", September 6, 1994.
8. Triad Environmental Services, "Bourbon County Landfill, Site Closure & Post Closure Plan", December, 1994.
9. Kansas Rural Water Association/Kansas Water Office/Kansas Department of Health and Environment, "Rural Water Districts in Kansas", 1994.
10. Kansas Department of Health and Environment, Division of Environment, Bureau Water Well Record Forms WWC-5 KSA 82a-1212.
11. United States Geological Survey, "Water Resource Data, Kansas, Water Year 1994", 1995.
12. Kansas Department of Wildlife and Parks, "Threatened and Endangered Species List", 1991, Bourbon.
13. U.S. Department of Commerce, "Household, Family, and Group Quarters Characteristics," 1990.

SECTION 9: FIGURES

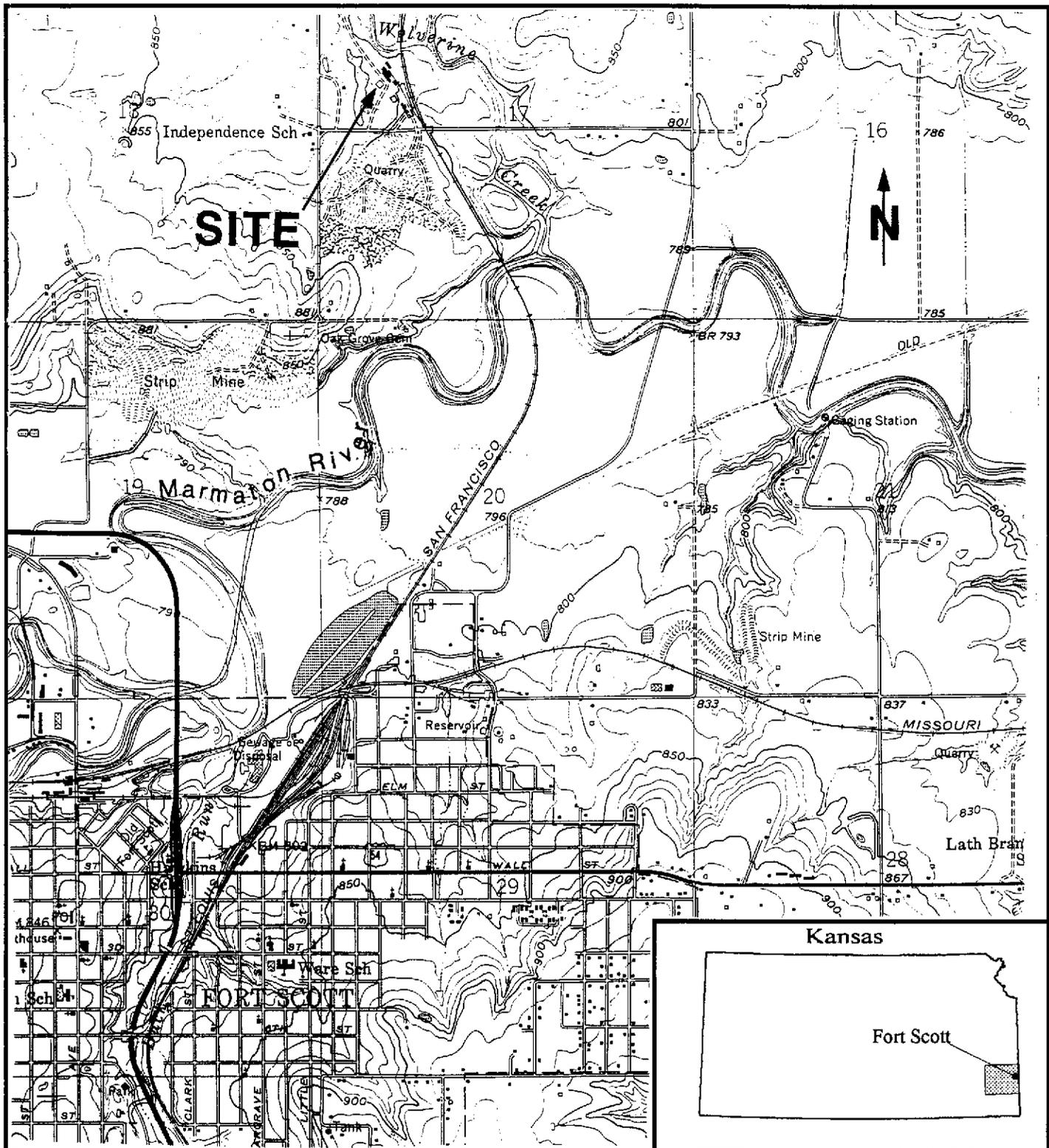


Figure 1
 Site Location Map
 Wade's Aluminum Products
 Preliminary Assessment

660 0 1320
 Scale in Feet

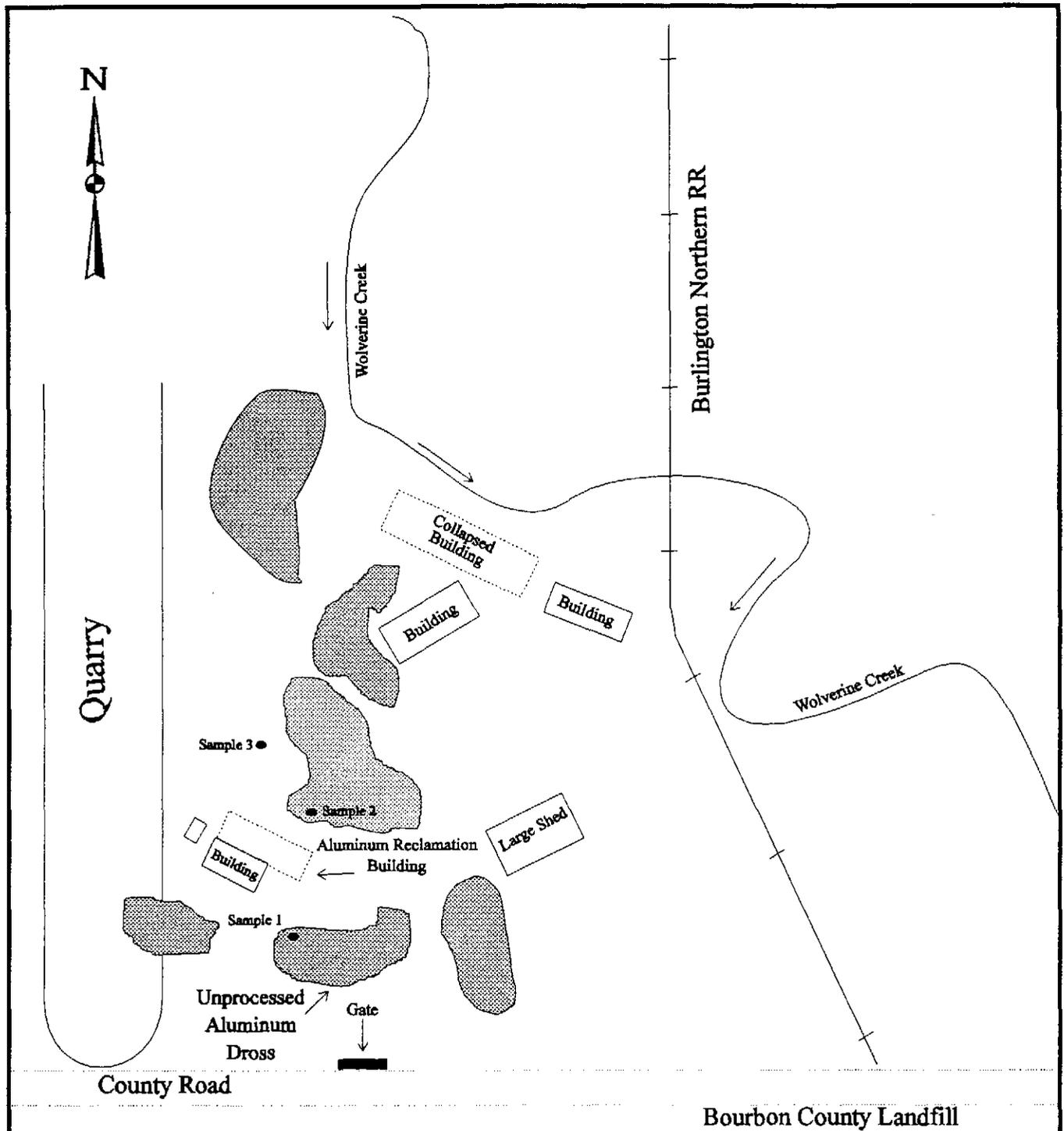
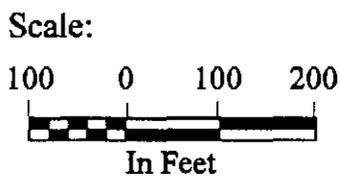


Figure 2
 Site Map
 Wade's Aluminum Products
 Preliminary Assessment



Source: KDHE Site Reconnaissance

Processed Dross Waste Pile



System Series	Graphic Legend	Formations and Members		Map Symbol	Thickness	General Description	Construction Materials
Pennsylvanian Middle Pennsylvanian	Marmaton Group 	Fort Scott Limestone Formation	Higginsville Ls. Mbr.	Rf	10-17'	The upper 0-4' is massive, lower part is even-bedded. The unit is gray to light brownish gray. Chaetetes colonies abundant upper part.	Concrete and bituminous aggregate, light-type surfacing, riprap.
			Little Osage Sh. Mbr.		4-8'	A massive to medium-bedded light-gray limestone. Often includes chaetetes colonies.	Light-type surfacing.
			Blackjack Creek Ls. Mbr.		0-9'		
	Cherokee Group 	Cabaniss Formation	Mulky Coal Bed				
			Breezy Hill Ls. Mbr.				
			Bevier Coal Bed				

Figure 3
Generalized Stratigraphic Section of Bourbon County, Kansas
Wade's Aluminum Products, Inc. Site
Preliminary Assessment

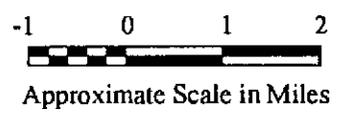
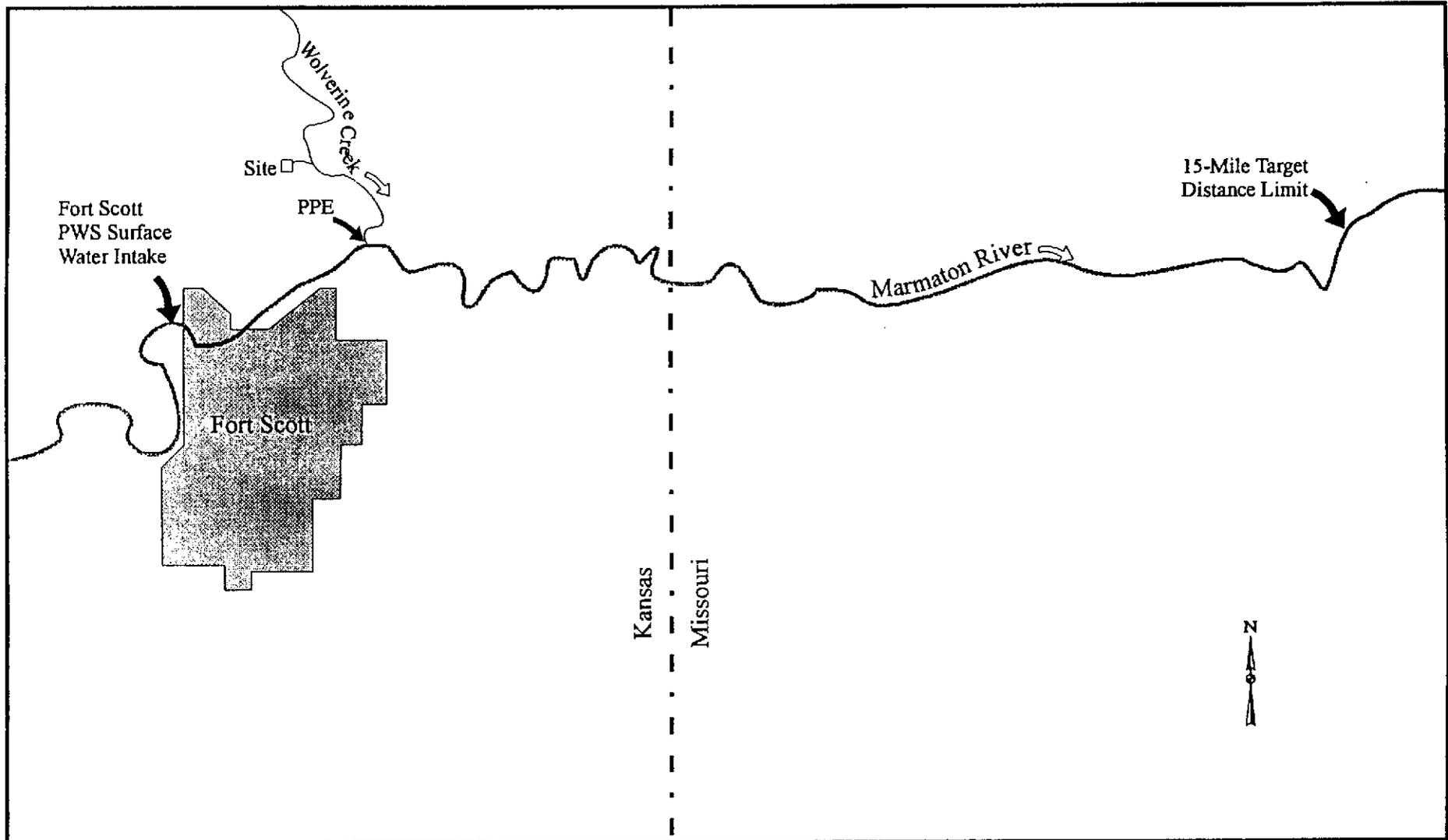


Figure 4
Surface Water Pathway
Wade's Aluminum Products
Preliminary Assessment

Table 1
Analytical Results - Total Metals
Wade's Aluminum Products Preliminary Assessment
October 1995

Compounds	Sample 1 (mg/Kg)	Sample 2 (mg/Kg)	Sample 3 (mg/Kg)	KDHE IRGs* (mg/Kg)
Aluminum	180,320.0	142,735.4	114,892.6	Not estab
Antimony	736.4	571.8	489.0	135.0
Arsenic	< 5.0	45.9	51.7	100.0
Barium	53.8	18.3	99.9	24,000.0
Beryllium	1.0	0.7	0.9	0.67
Cadmium	27.2	< 0.5	3.0	170.0
Chromium	194.7	36.5	260.3	1,700.0
Copper	3,126.3	2,694.4	3,512.3	12,500.0
Lead	314	184.1	836.1	1,000.0
Manganese	607	196.7	570.1	1,700.0
Nickel	131.3	30.4	188.7	6,800.0
Silver	57.5	< 1.0	< 1.0	1,700.0
Vanadium	< 5.0	< 5.0	0.7	2,390.0
Zinc	5,646.3	1,394.6	4,907.7	100,000.0

RSK
Res. Ind.

— —
31 220
11 38
5500 140,000
160 4,100
39 1,000
390 4,000
2,900 76,000
400 1,000
3,600 95,000
1,600 41,000
390 10,000
550 14,000
23,000 619,000

Sample 1 - unprocessed aluminum dross waste pile.
Sample 2 - processed aluminum dross waste pile.
Sample 3 - soil receiving runoff from processed dross waste pile.

* Kansas Department of Health and Environment Interim Remedial Guidelines for industrial soils.

Bold concentrations exceed IRGs

Samples collected 10/24/95 by KDHE/BER.

Only selected total metals are presented. See Appendix A for complete Analytical Report.

APPENDIX A
ANALYTICAL REPORTS

KANSAS HEALTH AND ENVIRONMENTAL LABORATORIES
 Inorganic Chemistry Laboratory
 Forbes Building #740
 Topeka, Kansas 66620-0001
 (913) 296-1657

ANALYTICAL REPORT

Report To: Travis Kogl-BER

Lab Number: 600828PT
 Account Number:

Site ID:
 Account Code: EP

Collection Location: Sample 1-Wades Aluminum

Collector: Kogl

Matrix: Soil

Collect Depth: 0

Date/Time Collected: 10/24/1995 11:40

Date/Time Received: 10/25/1995 10:31

Sample Comments:

Parameter	Analytical Result	Units	Analysis Date	Analytical Method
Aluminum (Total)	180320.0	mg/Kg	10/26/1995	EPA 6010
Antimony (Total)	736.4	mg/Kg	10/26/1995	EPA 6010
Arsenic (Total)	< 5.0	mg/Kg	10/26/1995	EPA 6010
Barium (Total)	53.8	mg/Kg	10/26/1995	EPA 6010
Beryllium (Total)	1.0	mg/Kg	10/26/1995	EPA 6010
Boron (Total)	9.9	mg/Kg	10/26/1995	EPA 6010
Cadmium (Total)	27.2	mg/Kg	10/26/1995	EPA 6010
Calcium (Total)	49577.9	mg/Kg	10/26/1995	EPA 6010
Chromium (Total)	194.7	mg/Kg	10/26/1995	EPA 6010
Cobalt (Total)	7.1	mg/Kg	10/26/1995	EPA 6010
Copper (Total)	3126.3	mg/Kg	10/26/1995	EPA 6010
Iron (Total)	5473.9	mg/Kg	10/26/1995	EPA 6010
Lead (Total)	314.0	mg/Kg	10/26/1995	EPA 6010
Magnesium (Total)	3265.8	mg/Kg	10/26/1995	EPA 6010
Manganese (Total)	607.9	mg/Kg	10/26/1995	EPA 6010
Molybdenum (Total)	8.4	mg/Kg	10/26/1995	EPA 6010
Nickel (Total)	131.3	mg/Kg	10/26/1995	EPA 6010
Potassium (Total)	273.3	mg/Kg	10/26/1995	EPA 6010
Selenium (Total)	< 5.0	mg/Kg	10/26/1995	EPA 6010
Silica (Total)	2373.0	mg/Kg	10/26/1995	EPA 6010
Silver (Total)	57.5	mg/Kg	10/26/1995	EPA 6010
Sodium (Total)	152.6	mg/Kg	10/26/1995	EPA 6010
Thallium (Total)	< 5.0	mg/Kg	10/26/1995	EPA 6010
Vanadium (Total)	< 0.5	mg/Kg	10/26/1995	EPA 6010
Zinc (Total)	5646.3	mg/Kg	10/26/1995	EPA 6010

Analytical Comments:

Reporting Analyst: JKR
 Date Reported: 10/29/1995

< - Not Detected at Indicated Level
 * - Holding Time Exceeded

Copies To: File

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KANSAS HEALTH AND ENVIRONMENTAL LABORATORIES
 Inorganic Chemistry Laboratory
 Forbes Building #740
 Topeka, Kansas 66620-0001
 (913) 296-1657

ANALYTICAL REPORT

Report To: Travis Kogl-BER

Lab Number: 600829PT
 Account Number:

Site ID:
 Account Code: EP

Collection Location: Sample 2-Wades Aluminum

Collector: Kogl

Matrix: Soil

Collect Depth: 0

Date/Time Collected: 10/24/1995 11:48

Date/Time Received: 10/25/1995 10:33

Sample Comments:

Parameter	Analytical Result	Units	Analysis Date	Analytical Method
Aluminum (Total)	142735.4	mg/Kg	10/26/1995	EPA 6010
Antimony (Total)	571.8	mg/Kg	10/26/1995	EPA 6010
Arsenic (Total)	45.9	mg/Kg	10/26/1995	EPA 6010
Barium (Total)	18.3	mg/Kg	10/26/1995	EPA 6010
Beryllium (Total)	0.7	mg/Kg	10/26/1995	EPA 6010
Boron (Total)	25.1	mg/Kg	10/26/1995	EPA 6010
Cadmium (Total)	< 0.5	mg/Kg	10/26/1995	EPA 6010
Calcium (Total)	7384.3	mg/Kg	10/26/1995	EPA 6010
Chromium (Total)	36.5	mg/Kg	10/26/1995	EPA 6010
Cobalt (Total)	4.0	mg/Kg	10/26/1995	EPA 6010
Copper (Total)	2694.4	mg/Kg	10/26/1995	EPA 6010
Iron (Total)	1559.1	mg/Kg	10/26/1995	EPA 6010
Lead (Total)	184.1	mg/Kg	10/26/1995	EPA 6010
Magnesium (Total)	968.4	mg/Kg	10/26/1995	EPA 6010
Manganese (Total)	196.7	mg/Kg	10/26/1995	EPA 6010
Molybdenum (Total)	< 1.0	mg/Kg	10/26/1995	EPA 6010
Nickel (Total)	30.4	mg/Kg	10/26/1995	EPA 6010
Potassium (Total)	68.3	mg/Kg	10/26/1995	EPA 6010
Selenium (Total)	< 5.0	mg/Kg	10/26/1995	EPA 6010
Silica (Total)	1881.7	mg/Kg	10/26/1995	EPA 6010
Silver (Total)	< 1.0	mg/Kg	10/26/1995	EPA 6010
Sodium (Total)	405.0	mg/Kg	10/26/1995	EPA 6010
Thallium (Total)	< 5.0	mg/Kg	10/26/1995	EPA 6010
Vanadium (Total)	< 0.5	mg/Kg	10/26/1995	EPA 6010
Zinc (Total)	1394.6	mg/Kg	10/26/1995	EPA 6010

Analytical Comments:

Reporting Analyst: JKR
 Date Reported: 10/29/1995

< - Not Detected at Indicated Level
 * - Holding Time Exceeded

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KANSAS HEALTH AND ENVIRONMENTAL LABORATORIES
 Inorganic Chemistry Laboratory
 Forbes Building #740
 Topeka, Kansas 66620-0001
 (913) 296-1657

ANALYTICAL REPORT

Report To: Travis Kogl-BER

Lab Number: 600830PT
 Account Number:

Site ID:
 Account Code: EP

Collection Location: Sample 3-Wades Aluminum

Collector: Kogl

Matrix: Soil

Collect Depth: 0

Date/Time Collected: 10/24/1995 11:50

Date/Time Received: 10/25/1995 10:34

Sample Comments:

Parameter	Analytical Result	Units	Analysis Date	Analytical Method
Aluminum (Total)	114892.6	mg/Kg	10/26/1995	EPA 6010
Antimony (Total)	489.0	mg/Kg	10/26/1995	EPA 6010
Arsenic (Total)	51.7	mg/Kg	10/26/1995	EPA 6010
Barium (Total)	99.9	mg/Kg	10/26/1995	EPA 6010
Beryllium (Total)	0.9	mg/Kg	10/26/1995	EPA 6010
Boron (Total)	21.1	mg/Kg	10/26/1995	EPA 6010
Cadmium (Total)	3.0	mg/Kg	10/26/1995	EPA 6010
Calcium (Total)	70677.8	mg/Kg	10/26/1995	EPA 6010
Chromium (Total)	260.3	mg/Kg	10/26/1995	EPA 6010
Cobalt (Total)	7.5	mg/Kg	10/26/1995	EPA 6010
Copper (Total)	3512.3	mg/Kg	10/26/1995	EPA 6010
Iron (Total)	13060.6	mg/Kg	10/26/1995	EPA 6010
Lead (Total)	836.1	mg/Kg	10/26/1995	EPA 6010
Magnesium (Total)	3677.3	mg/Kg	10/26/1995	EPA 6010
Manganese (Total)	570.1	mg/Kg	10/26/1995	EPA 6010
Molybdenum (Total)	11.9	mg/Kg	10/26/1995	EPA 6010
Nickel (Total)	188.7	mg/Kg	10/26/1995	EPA 6010
Potassium (Total)	387.2	mg/Kg	10/26/1995	EPA 6010
Selenium (Total)	< 5.0	mg/Kg	10/26/1995	EPA 6010
Silica (Total)	2064.2	mg/Kg	10/26/1995	EPA 6010
Silver (Total)	< 1.0	mg/Kg	10/26/1995	EPA 6010
Sodium (Total)	292.2	mg/Kg	10/26/1995	EPA 6010
Thallium (Total)	< 5.0	mg/Kg	10/26/1995	EPA 6010
Vanadium (Total)	0.7	mg/Kg	10/26/1995	EPA 6010
Zinc (Total)	4907.7	mg/Kg	10/26/1995	EPA 6010

Analytical Comments:

Reporting Analyst: JKR
 Date Reported: 10/29/1995

< - Not Detected at Indicated Level
 * - Holding Time Exceeded

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APPENDIX B
PHOTOGRAPHIC RECORD

PHOTO #1

Date: October 24, 1995
Location: Wade's Aluminum Site,
Ft. Scott, Kansas
Direction: Viewing Northwest
Photographer: Travis Kogl, KDHE/BER



Comments: Former aluminum reclamation facility. Dross storage shed on left. Former process building location in center. Former cement plant building on right. Waste piles in center background.

PHOTO #2

Date: October 24, 1995
Location: Wade's Aluminum Site
Ft. Scott, Kansas
Direction: Viewing west
Photographer: Travis Kogl, KDHE

Comments: "Baghouse" particulate
emission control structure.



PHOTO #3



Date: October 24, 1995
Location: Wade's Aluminum Site
Ft. Scott, Kansas
Direction: Viewing north
Photographer: Travis Kogl, KDHE

Comments: Waste dross
stockpiled in former cement plant
building.

PHOTO #4

Date: October 24, 1995
Location: Wade's Aluminum Site
Ft. Scott, Kansas
Direction: Viewing north
Photographer: Travis Kogl, KDHE

Comments: Quarry partially filled
with waste material. This quarry is
located on the west part of the site.



PHOTO #5



Date: October 24, 1995
Location: Wade's Aluminum Site
Ft. Scott, Kansas
Direction: Viewing northwest
Photographer: Travis Kogl, KDHE

Comments: Waste piles of
process dross.

APPENDIX C
WASTE CHARACTERISTICS

Appendix C
Hazardous Waste Characteristics
Wade's Aluminum Products PA
December, 1995

Antimony

Antimony is a silvery white metal of medium hardness that breaks easily and is found in the earth's crust in small amounts. The ores of antimony are mined and are either combined with oxygen to form antimony oxide, or are changed into antimony metal. Antimony oxide is a white powder that does not evaporate and is added to textiles and plastics to prevent them from catching on fire. Once antimony enters the environment, it can never be destroyed. However, it can change its form or become attached to or separated from particles. Most antimony will end up in the soil or sediment, where it attaches strongly to particles that contain iron, manganese, or aluminum.

It is unknown whether antimony causes cancer or birth defects. Breathing antimony at a concentration of 2 milligrams per cubic meter of air for a long time can cause problems with the lungs (pneumoconiosis), heart problems (altered electrocardiograms), diarrhea, stomach pain and ulcers, and vomiting. In one study, people vomited when they drank over 19 ppm of antimony just once.

It has not been determined if antimony can enter the body when placed on the skin. Antimony will enter the body when you eat or drink anything containing antimony and will enter your body when you inhale air or dust containing antimony. There is little known about the adsorption of antimony to soil. Antimony's behavior in the environment and availability to biota is dependent on the speciation and physicochemical state of antimony. The form of antimony may not be distinguished with most analytical methods. It is important to distinguish the background levels of antimony because it is naturally present in the earth's crust. Antimony can have beneficial effects when it is used for medicine. It is commonly used in medicine to treat people that are infected with parasites.

Beryllium

Beryllium is a grayish, hard element that occurs as a chemical component of certain rocks, coal and oil, soil, and volcanic dust. Beryllium does not occur naturally. Bertrandite and beryl are mined commercially for the recovery of beryllium. Beryllium does not have a particular smell and is present in a variety of compounds. There are two types of beryllium compounds, those that dissolve in water and those that do not. Mined beryllium ore is converted into alloys and used in making electrical and electronic parts or as construction materials for machinery and molds for plastics.

Everyone is exposed to small amounts of beryllium in air, in many foods, and in some water. Most beryllium that is inhaled is released into the air by burning coal or fuel oil. Beryllium occurs naturally in many tobaccos and is inhaled during smoking. People who smoke cigarettes may breathe considerably more beryllium than those who do not smoke.

Beryllium can be harmful, depending upon the amount and length of exposure. Not all of the effects that beryllium and its compounds have on humans are well understood, and not all forms of beryllium are equally toxic. The primary organ affected by beryllium are the lungs. Short term exposure to soluble beryllium compounds can lead to development of inflammation or reddening of the lungs. This condition is known as Acute Beryllium Disease, which is similar to pneumonia. Long term exposure at lower levels has reportedly caused Chronic Beryllium Disease in sensitive individuals. No studies, in animals or humans, provide convincing evidence that beryllium causes cancer.

References

U.S. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry, "Toxicological Profile for Antimony, Draft for Public Comment", October 1990.

U.S. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry, "Toxicological Profile for Beryllium", December 1988.

APPENDIX D
OWNERSHIP RECORDS

QUIT CLAIM DEED (following Kansas Statutory Form)

Entered in Transfer Record in my office this
9th day of September, A. D., 1978
Robert E. Buchanan
County Clerk.

R. W. Cullor and Doris M. Cullor, husband and wife,

QUIT CLAIM TO R. W. Cullor, an undivided one-half interest,
and Gary W. Cullor, an undivided one-half
interest,

all the following described REAL ESTATE in the County of Bourbon
and the State of Kansas, to-wit:

South Half (S $\frac{1}{2}$) of Northwest Quarter (NW $\frac{1}{4}$)
of Section 17, Township 25 South of Range 25, East of
the 6th P.M., except those parts thereof previously
deeded to St. Louis and San Francisco Railway
Company, a Missouri corporation,

AND

North Half (N $\frac{1}{2}$) of Southwest Quarter (SW $\frac{1}{4}$)
of Section 17, Township 25 South of Range 25,
East of the 6th P.M.,

for the sum of One (\$1.00) Dollar and other good and valuable consideration.

Dated September 15, 1978

R. W. Cullor
(R. W. Cullor)

STATE OF KANSAS, BOURBON COUNTY, ss

BE IT REMEMBERED, That on this 15 day of September

xx Doris M. Cullor
(Doris M. Cullor)

A. D. 1978, before me, the undersigned, a
Notary Public

in and for the County and State aforesaid, came

R. W. Cullor and
Doris M. Cullor, husband
and wife,

STATE OF Kansas } 90
Bourbon County, } ss.
This instrument was filed for record on the
9 day of September, A. D., 1978,
at 3:00 o'clock P. M., and duly recorded
in book 206 of _____
at page 423.
Os Ann Dalton
Register of Deeds.
Deputy.
Fees, \$ _____

who are personally known to me to be the same person \S who
executed the within instrument of writing and such person \S duly
acknowledged the execution of the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed
my seal, the day and year first above written.

Eugene George
Notary Public.

Term expires April 21, 1982.

APPENDIX E

Latitude and Longitude Calculations Worksheets

LATITUDE AND LONGITUDE CALCULATION WORKSHEET #1
LI USING ENGINEER'S SCALE (1/60)

SITE NAME: Wade's Aluminum Products CERCLIS #: KSD087772372

AKA: _____ SSID: _____

ADDRESS: R.R. #2

CITY: Fort Scott STATE: KS ZIP: 66701

SITE REFERENCE POINT: Southeast corner of largest building.

USGS QUAD MAP NAME: Fort Scott, Kans. TOWNSHIP: 25S RANGE: 25E

SCALE: 1:24,000 MAP DATE: 1958 SECTION: 17 SE 1/4 SW 1/4 NW 1/4

MAP DATUM: 1929 PHOTOREVISED: 1978 MERIDIAN: 6TH PRIME

COORDINATES FROM LOWER RIGHT (SOUTHEAST) CORNER OF 7.5' MAP (attach photocopy):

LONGITUDE: 094° 37' 30" LATITUDE: 37° 45' 00"

COORDINATES FROM LOWER RIGHT (SOUTHEAST) CORNER OF 2.5' GRID CELL:

LONGITUDE: 094° 40' 00" LATITUDE: 37° 50' 00"

CALCULATIONS: LATITUDE (7.5' QUADRANGLE MAP)

A) NUMBER OF RULER GRADUATIONS FROM LATITUDE GRID LINE TO SITE REFERENCE POINT: 429

B) MULTIPLY (A) BY 0.3304 TO CONVERT TO SECONDS:
 $A \times 0.3304 = \underline{141.74''}$

C) EXPRESS IN MINUTES AND SECONDS (1' = 60''): 02' 21 . 74''

D) ADD TO STARTING LATITUDE: 37° 50' 00 . 00'' + 02' 21 . 74'' =

SITE LATITUDE: 37° 52' 21 . 74''

CALCULATIONS: LONGITUDE (7.5' QUADRANGLE MAP)

A) NUMBER OF RULER GRADUATIONS FROM LONGITUDE GRID LINE TO SITE REFERENCE POINT: 270

B) MULTIPLY (A) BY 0.3304 TO CONVERT TO SECONDS:
 $A \times 0.3304 = \underline{89.21''}$

C) EXPRESS IN MINUTES AND SECONDS (1' = 60''): 01' 29 . 21''

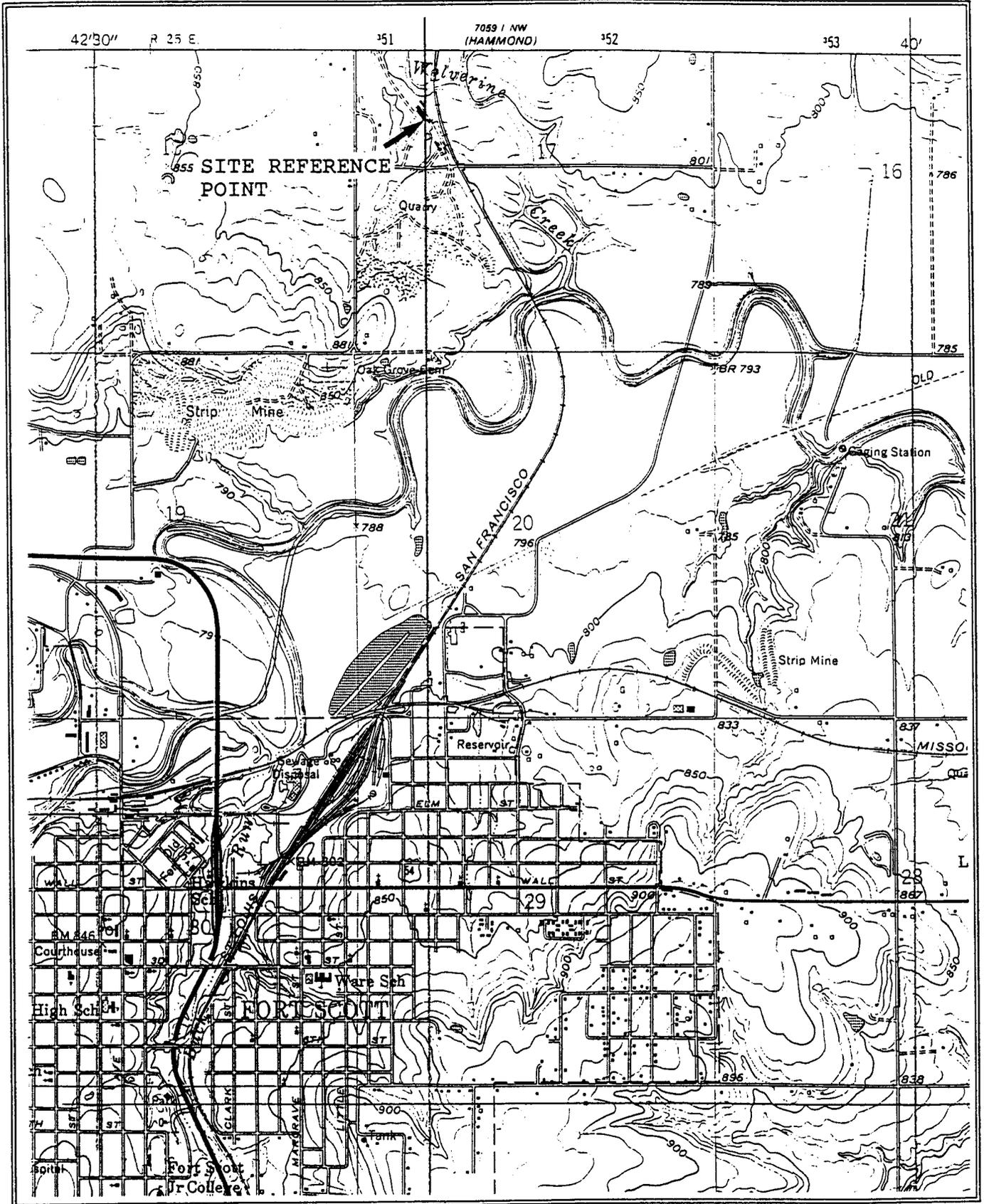
D) ADD TO STARTING LONGITUDE: 094° 40' 00 . 00'' + 01' 29 . 21'' =

SITE LONGITUDE: 094° 41' 29 . 21''

INVESTIGATOR: Angela M. Babbit DATE: October 11, 1995

LATITUDE/LONGITUDE DOCUMENT RECORD FORM

SITE NAME: Wade's Aluminum Products, Inc. CERCLIS #: KSD08772372



TOPOGRAPHIC MAP QUADRANGLE NAME Fort Scott, Kansas SCALE: 1:24,000
COORDINATES OF LOWER RIGHT-HAND CORNER OF 2.5 MINUTE GRID:
LATITUDE: 37° 50' 00" LONGITUDE: 094° 40' 00"

APPENDIX F

POTENTIAL HAZARDOUS WASTE PRELIMINARY ASSESSMENT FORM

PA-Score 2.1 Scoresheets
Wade's Aluminum Products, Inc. - 11/15/95

OMB Approval Number: 2050-0095
 Approved for Use Through: 4/95

POTENTIAL HAZARDOUS		IDENTIFICATION			
WASTE SITE		State:	CERCLIS Number:		
PRELIMINARY ASSESSMENT FORM		KS	D087772372		
		CERCLIS Discovery Date:			
1. General Site Information					
Name:		Street Address:			
Wade's Aluminum Products, Inc.		R. R. #2			
City:	State:	Zip Code:	County:	Co.	Cong.
Fort Scott	KS	66701	Bourbon	Code:	Dist:
				006	2
Latitude:	Longitude:	Approx. Area of Site:	Status of Site:		
37 52' 21.7"	94 41' 29.2"	20 acres	Inactive		
2. Owner/Operator Information					
Owner:		Operator:			
Gary Cullers					
Street Address:		Street Address:			
City:		City:			
State:	Zip Code:	Telephone:	State:	Zip Code:	Telephone:
Type of Ownership:		How Initially Identified:			
Private		State/Local Program			

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM	IDENTIFICATION	
	State: KS	CERCLIS Number: D087772372
	CERCLIS Discovery Date:	

3. Site Evaluator Information

Name of Evaluator: Travis Kogl	Agency/Organization: KDHE/BER	Date Prepared: Nov. 1995
-----------------------------------	----------------------------------	-----------------------------

Street Address: Forbes Field, Building 740	City: Topeka	State: KS
---	-----------------	--------------

Name of EPA or State Agency Contact: KDHE	Telephone: (913) 296-8064
--	------------------------------

Street Address: Forbes Field, Building 740	City: Topeka	State: KS
---	-----------------	--------------

4. Site Disposition (for EPA use only)

Emergency Response/Removal Assessment Recommendation: No	CERCLIS Recommendation: NFRAP	Signature:
Date:	Date:	Name:
		Position:

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM	IDENTIFICATION	
	State:	CERCLIS Number:
	KS	D087772372
		CERCLIS Discovery Date:

5. General Site Characteristics

Predominant Land Uses Within 1 Mile of Site: Agricultural	Site Setting: Rural	Years of Operation: Beginning Year: 1977 Ending Year: 1985
---	----------------------------	--

Type of Site Operations: Manufacturing Primary Metals	Waste Generated: Onsite
	Waste Deposition Authorized By: Former Owner
	Waste Accessible to the Public No
	Distance to Nearest Dwelling, School, or Workplace: 2200 Feet

6. Waste Characteristics Information

Source Type Pile	Quantity 1.00e+00 lbs	Tier C	General Types of Waste: Metals
Tier Legend C = Constituent W = Wastestream V = Volume A = Area			Physical State of Waste as Deposited Solid Powder

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM	IDENTIFICATION	
	State:	CERCLIS Number:
	KS	D087772372
	CERCLIS Discovery Date:	

7. Ground Water Pathway

Is Ground Water Used for Drinking Water Within 4 Miles: No	Is There a Suspected Release to Ground Water: No	List Secondary Target Population Served by Ground Water Withdrawn From:
Type of Ground Water Wells Within 4 Miles: Private	Have Primary Target Drinking Water Wells Been Identified: No	0 - 1/4 Mile 0 >1/4 - 1/2 Mile 0 >1/2 - 1 Mile 0 >1 - 2 Miles 2 >2 - 3 Miles 2 >3 - 4 Miles 2 Total 6
Depth to Shallowest Aquifer: 7 Feet	Nearest Designated Wellhead Protection Area: None within 4 Miles	
Karst Terrain/Aquifer Present: No		

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM	IDENTIFICATION
	State: CERCLIS Number: KS D087772372
	CERCLIS Discovery Date:

8. Surface Water Pathway

Part 1 of 4

Type of Surface Water Draining
Site and 15 Miles Downstream:
Stream

Shortest Overland Distance From Any
Source to Surface Water:

1445 Feet
0.3 Miles

Is there a Suspected Release to
Surface Water: No

Site is Located in:
>10 yr - 100 yr floodplai

8. Surface Water Pathway

Part 2 of 4

Drinking Water Intakes Along the Surface Water Migration Path: No

Have Primary Target Drinking Water Intakes Been Identified: No

Secondary Target Drinking Water Intakes:
None

POTENTIAL HAZARDOUS
WASTE SITE
PRELIMINARY ASSESSMENT FORM

IDENTIFICATION

State: | CERCLIS Number:
KS | D087772372
CERCLIS Discovery Date:

8. Surface Water Pathway

Part 3 of 4

Fisheries Located Along the Surface Water Migration Path: No

Have Primary Target Fisheries Been Identified: No

Secondary Target Fisheries:
None

8. Surface Water Pathway

Part 4 of 4

Wetlands Located Along the Surface Water Migration Path? (y/n) No

Have Primary Target Wetlands Been Identified? (y/n) No

Secondary Target Wetlands:
None

Other Sensitive Environments Along the Surface Water Migration Path: Yes

Have Primary Target Sensitive Environments Been Identified: No

Secondary Target Sensitive Environments:

Water Body/Flow(cfs)	Sensitive Environment Type
moderate-large stream/ >100-1000	Habitat for Federally designated endanger

POTENTIAL HAZARDOUS
 WASTE SITE
 PRELIMINARY ASSESSMENT FORM

IDENTIFICATION

State: | CERCLIS Number:
 KS | D087772372
 CERCLIS Discovery Date:

9. Soil Exposure Pathway

Are People Occupying Residences or
 Attending School or Daycare on or
 Within 200 Feet of Areas of Known
 or Suspected Contamination: No

Number of Workers Onsite: None

Have Terrestrial Sensitive Environments Been Identified on or Within
 200 Feet of Areas of Known or Suspected Contamination: No

10. Air Pathway

Total Population on or Within:	Is There a Suspected Release to Air:	Yes
Onsite	0	
0 - 1/4 Mile	0	Wetlands Located
>1/4 - 1/2 Mile	43	Within 4 Miles of the Site: No
>1/2 - 1 Mile	43	
>1 - 2 Miles	1007	
>2 - 3 Miles	4998	Other Sensitive Environments Located
>3 - 4 Miles	4261	Within 4 Miles of the Site: Yes
Total	10352	

Sensitive Environments Within 1/2 Mile of the Site:

Distance	Sensitive Environment Type/Wetlands Area(acres)
0 - 1/4	Habitat used by Fed. des.species