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DEVELOPMENT OF A DEOILING PROCESS FOR RECYCLING MILLSCALE

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Luria Brothers and Company
Cleveland, Ohio

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39th Ironmaking Conference
Process Technology Division
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Introduction

The annual production of raw steel in the United States and Canada averaged 134 million tons over the last seven years. In that same period, the generation of iron-bearing waste solids reached a level of roughly 13 million tons,[1]* of which approximately 7 million tons were mill scale. This tonnage of mill scale constitutes 3.7 to 4.7 percent[2]* of the annual raw steel output of an integrated steel plant and is governed by operating practice, the types of steel produced, the availability of continuous casting, and overall mill facilities.

Among the various waste oxides produced in a steel plant, mill scale is the most attractive candidate for reclamation because of its high iron content and its potential for replacing costly purchased iron units.

Several different contaminants in varying quantities accompany the raw mill scale which is generated. Among these are metallic scrap, rubble, moisture, mill lubricants, and rolling oil, which are picked up during the various processing steps. These contaminants are tabulated in Figure I. The scrap and rubble can be removed mechanically, but the moisture and oil must be treated by other means for reduction or elimination. In general, the quantities of both oil and moisture increase with decreasing particle size.

*See references

Until recent years, mill scale under 1/4 inch in size was recycled to the sinter plant and contributed low cost iron units as well as enhanced the quality of the sinter produced.

At the present time however, with the advent of sophisticated air pollution control facilities, oily mill-scale cannot be sintered in large quantities because of mill operating problems and environmental restrictions. Oil contained in the millscale volatilizes during sintering resulting in a carryover of hydrocarbons to the bag house or scrubber. These hydrocarbons present a fire hazard, can blind the filter bags and result in unacceptable stack emissions. Removal of the hydrocarbons before sintering is therefore essential in order to achieve maximum recycling of this material.

The problems imposed by hydrocarbon contamination have caused substantial tonnages of oily mill scale to be stock-piled while significantly less desirable waste oxides have been recycled.

Several methods for oil removal have been investigated and are described in the literature.[(2)*] These processes are shown in Figure II. While each of these systems is attended by varying degrees of success, Luria chose direct incineration as both the simplest and the most likely to provide consistent success in removing oil from scale.

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The selection of direct incineration resulted in the construction of a plant in Gary, Indiana, for de-oiling mill scale generated at Inland Steel Company. This facility began operating in November, 1978.

Process Description

Figure III shows the de-oiling plant layout and the flow path of the mill scale received from the steel plant.

Unprocessed mill scale is delivered to the facility by truck and weighed into the raw material stockpile. A front end loader equipped with a 4 yard bucket transports the material to the grizzly where scrap and rubble over 5" is removed. A pan feeder under the grizzly hopper controls the flow of mill scale to the conveyor travelling to the vibratory screen. Oversize material on the 5/8" x 2" screen passes to the magnetic separation equipment which recovers scrap suitable for direct charge to the blast furnaces. Rubble is collected at the end of the conveyor for disposal. Minus 5/8" x 2" screened mill scale from the vibrating screen moves by conveyor to the kiln feed hopper which holds approximately 20 net tons. Delivery of oily material to the kiln is accomplished with a variable speed feed screw.

The rotary kiln is oil fired, 10' in diameter by 60' long and is lined with 6" of refractory lining. Oily mill scale entering the kiln is agitated by kiln rotation and

GES 884

internal lifters which cause the material to cascade through the hot combustion gases. The kiln rotates at slightly less than 4 RPM's with retention time of approximately 12 minutes.

Dry, oil-free scale is discharged from the kiln and conveyed to a vibrating screen which separates the plus 1/4-inch from the remainder for return to the blast furnace. Four percent water is added to the minus 1/4-inch material for dust suppression and for control purposes at the sinter plant.

Figure IV describes the dry properties of the de-oiled mill scale and demonstrates that the iron-rich material is well within the residual oil limit of 0.01%.

Figure V outlines the particle size distribution of treated scale which is recirculated to the sinter strand. The composition of the scale and its relative fineness result in a bulk density ranging from 190 to 205 pounds per cubic foot.

The oil-free and moistened mill scale is loaded from the product stockpile and transported to the sinter plant at Inland Steel, a distance of roughly 3/4 mile.

Production Figures

Production of sinter plant size material has averaged 27,029 net tons per month for the past year, with a best single

YES 884

month output of 34,618 net tons during April of 1979.

Both delivery of raw scale and shipment of treated scale are normally made on a five-day per week basis. Thus, the average daily shipment of de-oiled material to the sinter plant has been 1,351 net tons.

Environmental Aspects

The hot gases leave the kiln at a temperature of roughly 800°F and pass into an after burner chamber where the temperature is raised to about 1500°F for complete incineration of residual hydrocarbons. Approximately 25,000 cubic feet per minute of hot gases leave the after burner and travel through ductwork into a high intensity wet scrubber before being discharged into the atmosphere. The duct is refractory lined and the internal gas velocity is sufficient to entrain any particulate matter.

The wet scrubbing system is shown in Figure VI. Water is sprayed into the system at a rate of 400 gallons per minute and the pressure drop across the venturi throat is 20 inches of water. After being scrubbed and having particulates removed, the clean gas passes through a mist eliminator and then into the induced draft fan and the stack.

Based upon the fraction of solid matter removed, the scrubber efficiency is above 99%. The data are shown in

GES 884

Figure VII. The system has performed with exceptional efficiency since operation began. The stack emission rate has been consistently under 2 lbs. per hour and is always substantially below the permissible level of 20 lbs. per hour.

The slurry from the scrubber is pumped to a basin where the solids settle quickly, and the water is returned to the scrubber for re-use.

From a performance point of view, the scrubber has operated very well. Excessive abrasion and internal erosion, however, have resulted in relatively high maintenance costs. Consequently, the quencher, venturi inlet, and venturi throat are being replaced with more abrasion-resistant material. Experimental work with refractory coatings has demonstrated satisfactory performance, and this material will be utilized for the internal parts which are subject to abrasion wear.

Production Problems

Aside from normal start-up and operating problems, most troubles have resulted from the high density and abrasive properties of the mill scale being treated. Steps are being taken presently to minimize these problems.

Process costs are most sensitive to fuel costs, and the steady rise of fuel oil prices has imposed an ever heavier

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burden on the cost of de-oiling the mill scale. For this reason, a shift to the use of natural gas as fuel is being made. This change will result in a 58% reduction in fuel costs at today's prices and, together with better handling techniques and the employment of more abrasion-resistant construction materials, will permit de-oiling of mill scale at a significantly lower cost.

Conclusions

Although the process concept is simple and the equipment used for de-oiling mill scale is unsophisticated, the following conclusions may be drawn from Luria's work:

(1) Large quantities of oil-contaminated mill scale can be treated on a steady, high tonnage basis.

(2) The mill scale which is produced by Luria's de-oiling process is highly satisfactory and will permit additions in excess of 20% of sinter plant feed.

(3) The process produces material of consistently high quality and low oil content. These features insure operation of the sinter plant within the environmental standards established.

(4) Optimization of fuel selection, burner placement, and construction materials will provide a low cost source of valuable iron units, and will simultaneously minimize disposal and environmental problems.

Future Plans

It is recognized that the existing scale de-oiling plant is but a first generation facility, and that much can be done to make its operations more attractive.

To this end, studies are presently underway to establish the most suitable materials of construction and optimum methods of handling and transferring a heavy, abrasive material. This work should result in greater than 85% availability of the equipment and reduce maintenance costs to their lowest level.

In addition to the shift from fuel oil to gas, a program to study the effects of burner position within the kiln has been initiated. The placement of the burners within the after burner chamber will also be investigated for optimum results and fuel conservation.

A further program will be undertaken to determine whether the use of recuperators in the waste gas stream can provide an additional cost reduction which will warrant the required capital investment for such a system.

Long range considerations point to steady refinement of the process to achieve lowest possible cost in de-oiling mill scale. At the same time, the incorporation of other steel plant wastes will be examined to ascertain whether these less valuable but important materials can also be treated in the equipment in an acceptable manner.

4ES 884

Agglomeration process studies will also be pursued to establish the response of de-oiled mill scale and to determine whether the agglomerates can be returned to the blast furnace directly, thus saving the cost of sintering.

The work already accomplished, as well as that being planned is vital. The recovery of iron, carbon, calcium and other valuable units is essential considering future availability and cost of these materials. Finally, reclamation and recycling of mill waste materials can eliminate or minimize in-plant handling, storage and environmental problems. We believe these concepts to be a very important support of a strong and prosperous Steel Industry in the United States.

References:

(1) Harris, M. M., The Use Of Steel Mill Waste Solids In Iron And Steelmaking. American Iron and Steel Institute - 86th General Meeting, May 24, 1978.

(2) Balajee, S. R., Deoiling And Utilization Of Millscale. First E.P.A. symposium on the Iron and Steel Pollution Abatement Technology. November 1, 1979.

FIGURE I

RAW MILLSCALE CONTAMINANTS

Scrap	Percent Range
Plus 5" Size	0.3 - 0.5%
+5/8" - 5"	2.0 - 3.5%
Moisture	3.0 - 9.0%
Oil	0.3 - 10.2%
Rubble	0.2 - 0.5%

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FIGURE II

MILLSCALE
DEOILING METHODS (2)*

Washing	Thermal Incineration
1 - Water	1 - Direct Firing
2 - Hot Alkaline	2 - Indirect Firing
3 - Solvent	

BES 884

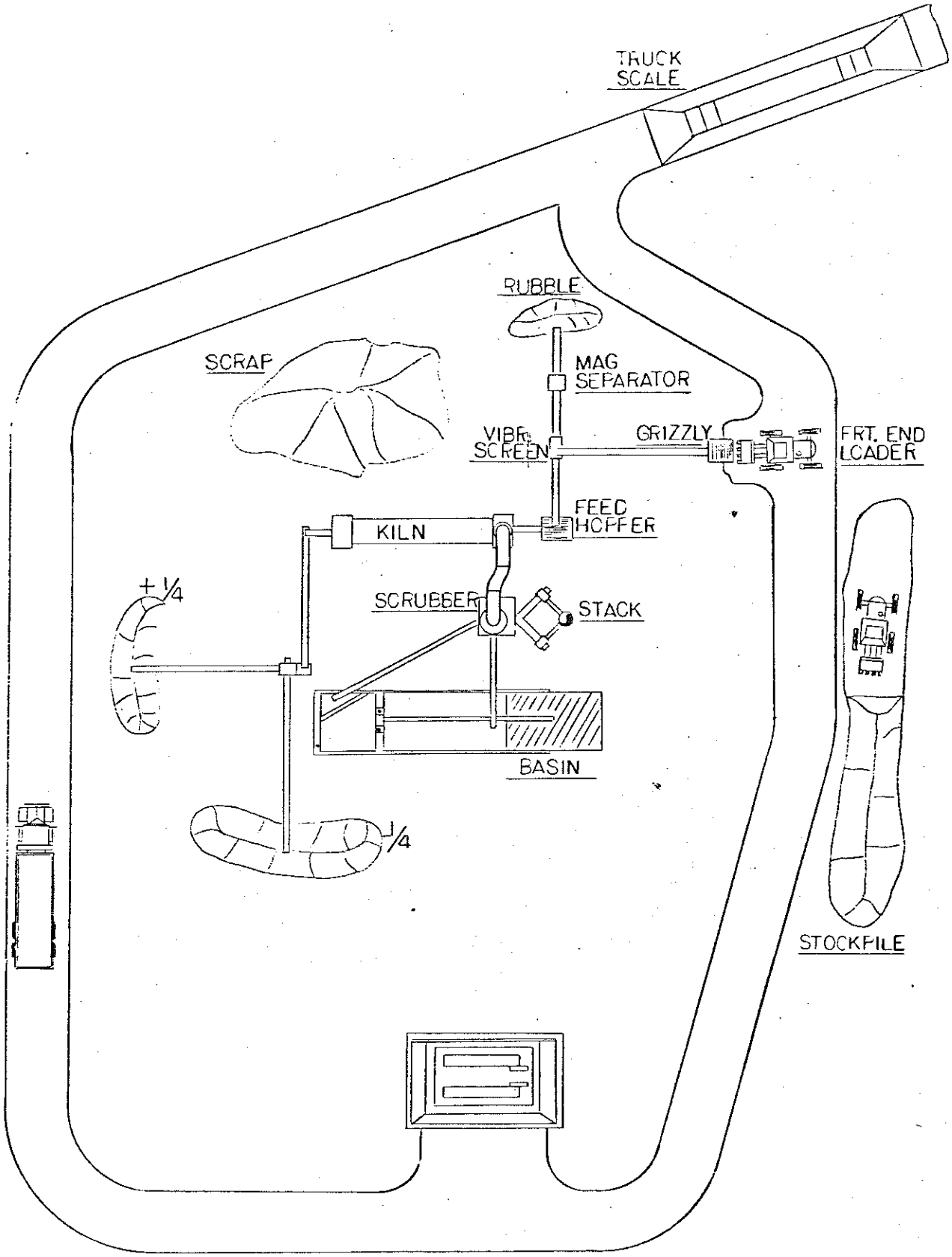

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FIGURE V

PHYSICAL PROPERTIES DEOILED MILLSCALE (2)*
SINTER PLANT SIZE

Screen Size	Wt. %	Cum. Wt. %
Plus ¼"	0.4	0.4
-¼" + 4 Mesh	1.0	1.4
-4 + 6 Mesh	3.0	4.4
-6 + 10 Mesh	8.8	13.2
-10 + 18 Mesh	13.5	26.7
-18 + 32 Mesh	28.4	55.1
-32 + 60 Mesh	18.8	73.9
-60 +100 Mesh	13.8	87.7
-100 Mesh	12.3	100.0

Bulk Density
(Dry Basis) 190 - 205 lb./ft.^{3}

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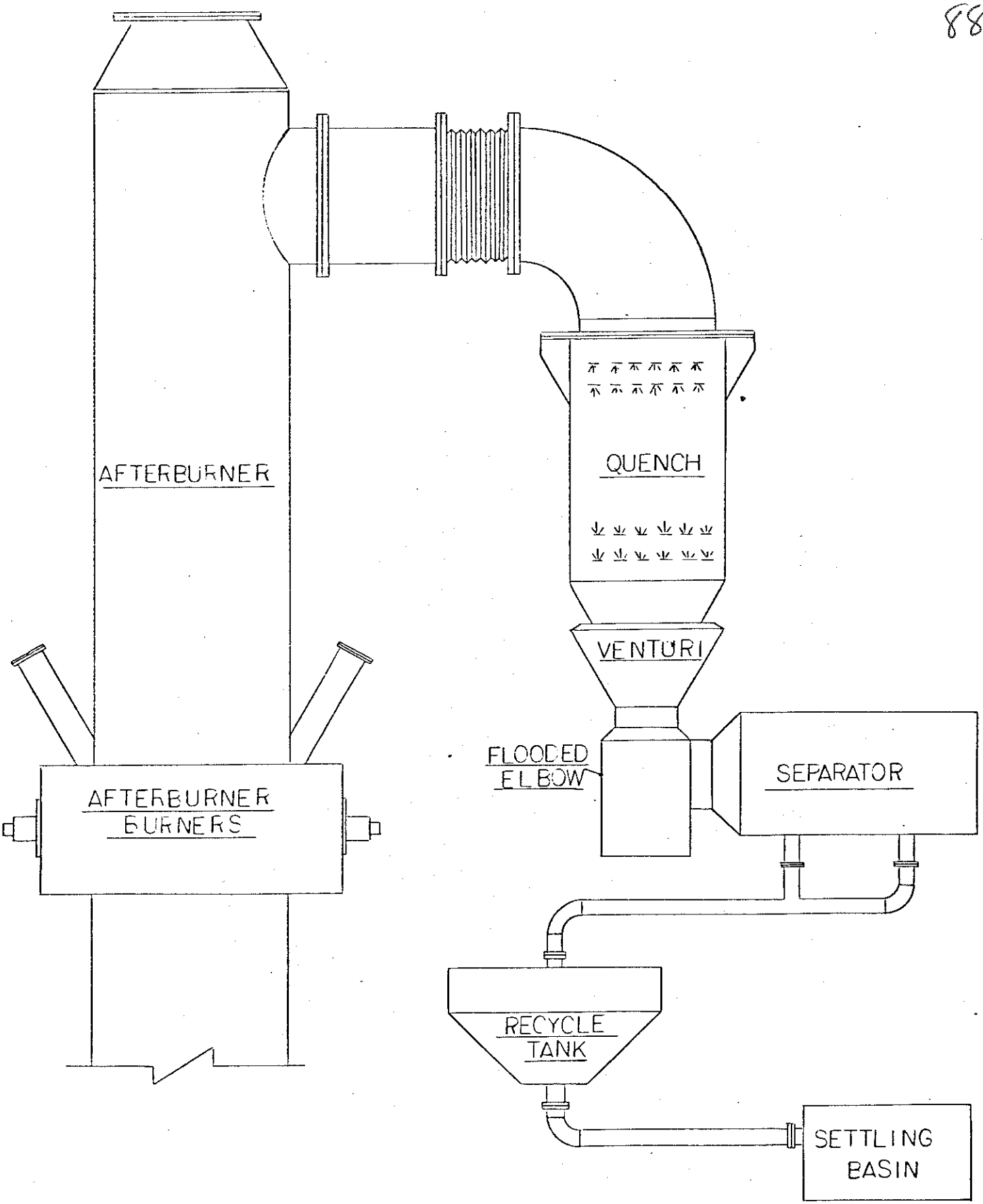
AFTERBURNER
QUENCH
VENTURI
FLOODED ELBOW
SEPARATOR
AFTERBURNER BURNERS
RECYCLE TANK
SETTLING BASIN

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FIGURE VII

WET SCRUBBER EFFICIENCY

Test	Production Rate	Scrubber Inlet Particulate Loading	Stack Particulate Emission Rate	Efficiency
#1	43 NT/Hr.	1280 lb./Hr.	1.8 lb./Hr.	99.8%
#2	43 NT/Hr.	951 lb./Hr.	1.3 lb./Hr.	99.8%

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FIGURE IV

DEOILED MILLSCALE ANALYSIS (2)*
SINTER PLANT SIZE (Dry Basis)

	Percent
Total Fe	76.2
Fe ++	45.9
Fe +++	18.7
Metallic Fe	11.6
Magnetic Fe	26.3
Gangue	4.0
Sul	.029
Oil	.005*

Oil Specification - .01% Max.

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State Form 4336

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

INDIANAPOLIS

Plan Review Permit Section

OFFICE MEMORANDUM

RCRA File

DATE: September 25, 1987

TO: Ted F. Warner
Compliance Monitoring Section

THRU: Dave Berrey DWB

FROM: Scheduled Inspection of Luria Brothers, Inc.
Gary Process Plant (LBC IND 095264818)
Gary, Lake County

SUBJECT:

On July 9, 1987, Mr. James Mattes and I visited the above-referenced facility located at 6633 West Industrial Highway, Gary, Indiana. The purpose of this inspection was to conduct a scheduled land disposal inspection. On the date of this visit, there were no (LBC) representatives on-site.

Prior to this on-site visit, Mr. Mattes and I flew over (LBC) at an altitude of approximately 700 feet and took the attached area photograph. I believe the photograph demonstrates the abandonment of the site.

Prior to our inspection, I reviewed the files for (LPC). My file audit revealed that Mr. Thomas O'Leary previously of this office, inspected this facility on March 10, 1986. We found this site the same as the manner Mr. O'Leary's March 24, 1987, field trip report indicates.

It is clear from our visits on this date, (LBC) is not an active facility. The responsible parties of the (LBC) will need to conduct proper closure proceedings in order to finalize this facility's hazardous waste activities.

TFW/db

cc: Plan Review and Permit Section
U.S. EPA, Region V

PRELIMINARYT REVIEW REPORT (PR)
RCRA FACILITY ASSESSMENT (RFA)

1. Facility Name Luria Bros. & Co.
EPA ID # IND 095264818
Preparer Gregor Weber
Date

2. General Description of Facility and Processes:

A. Description: This facility ceased operation in 1981 and was abandoned. Closure was completed but never certified.

B. Information on Solid Waste Management Units (attach additional sheets as needed):

Unit	Release (yes/no/unknown/suspected)
i. Tank Storage	yes
ii. Container Storage	
iii. Incinerator	
iv. Waste Pile	
v.	
vi.	
vii.	
viii.	
ix.	
x.	

3. Specific Unit Information (prepare one for each unit):

A. Unit Type: Tank Storage
Age:
Capacity:
Period of Operation:
Waste Type:
Volume:
Hazardous Constituents (attach separate sheet):

Regulatory Status:

B. Unit Description:

Additional Information Needed:

3. Specific Unit Information (prepare one for each unit):

A. Unit Type: Container Storage
Age:
Capacity:
Period of Operation:
Waste Type:
Volume:
Hazardous Constituents (attach separate sheet):

Regulatory Status:

B. Unit Description:

Additional Information Needed:

3. Specific Unit Information (prepare one for each unit):

A. Unit Type: Incinerator
Age: _____
Capacity: _____
Period of Operation: _____
Waste Type: _____
Volume: _____

Regulatory Status: _____

Hazardous Constituents (attach separate sheet): _____

B. Unit Description: _____

Additional Information Needed: _____

3. Specific Unit Information (prepare one for each unit):

A. Unit Type: Waste Pile
Age: _____
Capacity: _____
Period of Operation: _____
Waste Type: _____
Volume: _____

Regulatory Status: _____

Hazardous Constituents (attach separate sheet): _____

B. Unit Description: _____

Additional Information Needed: _____

C. Monitoring Description (groundwater, surface water, etc.): _____

Additional Information Needed: _____

D. Environmental Setting: _____

Additional Information Needed: _____

E. Evidence of Suspected Past or Current Releases: _____

Additional Information Needed: _____

4. Visual Site Inspection (VSI)

A. Specific Objectives: _____

SITE INSPECTION MEMO 1

2070 - 13 FORM 2

SITE MAPS 3

SITE PHOTOGRAPHS 4

ANALYTICAL DATA 5

ATTACHMENT 6

INSPECTION REPORT FOR
LURIA BROS.
GARY, INDIANA
F05-8704-012
IND095264818

July 31, 1987

#[redacted]206NB

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ecology and environment, inc.

111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415

International Specialists in the Environment

MEMORANDUM

DATE: July 31, 1987

TO: File

FROM: Steve Anderson SCA

SUBJECT: Indiana/F05-8704-012/FIN0571SI
Gary/Luria Bros.
IND095264818

Luria Bros. is located in northwestern Gary, approximately 2,500 feet east of the Gary/East Chicago city line and 1,000 feet north of the Gary Municipal Airport. The property is bordered by Conservation Chemical on the southeast. During the site inspection, FIT noticed a black oily substance on the ground near the border with Conservation Chemical that appeared to be a seep. The 5-acre site is an inactive plant that was used to deoil mill scale. The site was active from 1979 to 1981. Luria Bros. was tasked to Ecology and Environment, Inc. (FIT) for a site inspection as part of the Calumet River Study by the U.S. EPA.

Ecology and Environment (FIT) inspected Luria Bros. on May 5, 1987. During the site inspection, FIT interviewed the company representative and collected three on-site soil samples and one background soil sample. The site inspection yielded much information about the industrial processes at the site. The plant deoiled mill scale by rotary kiln for Inland Steel. No wastes were generated at Luria Bros. The site was secure at the time of the inspection. There was a fence, a gate with a lock, and a 24-hour guard stationed there by Conservation Chemical. There was evidence of other parties entering the site as shown by an old mattress and other refuse on the facility that the site representative couldn't explain. Past

recycled paper

inspections by the state have noted the physical security of the site was poor.

A biased sampling plan was adopted by FIT with samples preferentially collected at the unprocessed mill scale area and the processed mill scale area. Sample S1 was collected in the processed mill scale area and contained the following target compound list (TCL) pollutants: arsenic (56 ppm), cadmium (36 ppm), copper (351 ppm), iron (635,000 ppm), lead (438 ppm), mercury (919 ppm), and nickel (167 ppm). Sample S2 was collected at the western edge of the processed mill scale area and contained the following TCL pollutants: cadmium (32 ppm), copper (225 ppm), iron (547,000 ppm), lead (170 ppm), mercury (0.18 ppm), and nickel (122 ppm). Sample S3 was collected at the unrefined mill scale area and contained the following TCL pollutants: cadium (25 ppm), copper (280 ppm), iron (342,000 ppm), lead (147 ppm), mercury (0.28 ppm), and nickel (76 ppm). Sample S4, the background sample, was collected at Washington Park in East Chicago, Indiana, and contained the following TCL pollutants: arsenic (10 ppm), copper (28 ppm), iron (15,400 ppm), lead (130 ppm), mercury (1.8 ppm), nickel (27 ppm), selenium (8 ppm), and tin (36 ppm). The high level of cadmium in the on-site samples, the high high level of mercury in S1, and the high level of copper for S1 and S3 are useable for HRS waste characteristics.

According to the site representative, the processed and unprocessed mill scale was piled on the ground with no liner. The potential for groundwater contamination is high at this site due to the permeable sands of the surficial aquifer. Anyone using groundwater down-gradient of the site could be drinking contaminated water. Direct contact is also a threat due to the high levels of heavy metals found in the soil samples and the relative accessibility of the site in the past. The work plan was followed during the site inspection.

2

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
IN	D095264818

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Luria Bros & Co.	6633 N Industrial Highway

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Gary	IN	46406	Lake	89	01

09 COORDINATES LATITUDE	LONGITUDE	10 TYPE OF OWNERSHIP (Check one)
41° 37' 30"	87° 25' 04"	■ A. PRIVATE ☐ B. FEDERAL ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL ☐ F. OTHER ☐ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
5 15 87 (MONTH DAY YEAR)	☐ ACTIVE ■ INACTIVE	1979 (BEGINNING YEAR) 1981 (ENDING YEAR) ___ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)

☐ A. EPA ■ B. EPA CONTRACTOR Ecology & Environment (Name of firm) ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR ___ (Name of firm)
☐ E. STATE ☐ F. STATE CONTRACTOR ___ (Name of firm) ☐ G. OTHER ___ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
Tom Kouris	Engineer	E & E	(312) 663-9415

09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
Tim Mayers	Geographer	"	( ) "
Steve Anderson	Geologist	"	( ) "
Dave Heidlauf	Geologist	C.C. Johnson	(312) 621-3944
			( )
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
Derek S. Harold	Project Manager	20521 Chagrin Blvd Cleveland, OH 44122	(216) 752-7000
			( )
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
■ PERMISSION ☐ WARRANT	10:00 am - 1:00 pm	60° F, Little wind, sunny

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
Don Josif	U.S. EPA	(312) 866-0393

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
Steve Anderson	U.S. EPA	Ecology & Environment	312-663-9415	7 31 87 (MONTH DAY YEAR)

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
IN	D095264818

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- [x] A. SOLID
- [ ] B. POWDER, FINES
- [ ] C. SLUDGE
- [ ] D. OTHER _____ (Specify)
- [ ] E. SLURRY
- [ ] F. LIQUID
- [ ] G. GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS see waste
CUBIC YARDS type section
NO. OF DRUMS _____

03 WASTE CHARACTERISTICS (Check all that apply)

- [x] A. TOXIC
- [ ] B. CORROSIVE
- [ ] C. RADIOACTIVE
- [x] D. PERSISTENT
- [ ] E. SOLUBLE
- [ ] F. INFECTIOUS
- [ ] G. FLAMMABLE
- [ ] H. IGNITABLE
- [ ] I. HIGHLY VOLATILE
- [ ] J. EXPLOSIVE
- [ ] K. REACTIVE
- [ ] L. INCOMPATIBLE
- [ ] M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			The facility recycled mill scale for Inland Steel from 1979 to ~12/81 at the rate of 1,351 net tons/day of treated scale. Samples collected at the old mill scale piles show high concentrations of heavy metals. The mill scale piles were unlined.
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

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

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
MES	Mercury	7439-97-6	found in soil samples	919	ppm
MES	Cadium	7440-43-9	" "	36	ppm
MES	Copper	7440508	" "	351	ppm
MES	Arsenic	7440-38-2	" "	56	ppm
MES	Lead	7439921	" "	438	ppm
MES	Nickel	7440-02-0	" "	167	ppm
IOC	Cyanide	57125	" "	2.9	ppm

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	unrefined mill scale	N/A	FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

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

Analytical data from soil samples collected at site on 5/5/87.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
IN	D095264818

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ■ A. GROUNDWATER CONTAMINATION — 02 ☐ OBSERVED (DATE: ____) ■ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 0-100
04 NARRATIVE DESCRIPTION
A strong potential for groundwater contamination exists due to the highly permeable sands of the Calumet aquifer, a surficial aquifer composed of water and wind-deposited sand. Well logs in the area indicate water levels as shallow as 5'.

01 ■ B. SURFACE WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: ____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 0
04 NARRATIVE DESCRIPTION
Surface water contamination is unlikely. The Grand Calumet River is approximately 1 mile south of the site, and Lake Michigan is approximately 1.1 miles north of the site. There are railroad grades and roads north and south of the site making migration to surface water unlikely.

01 ■ C. CONTAMINATION OF AIR — 02 ☐ OBSERVED (DATE: ____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ~78,000
04 NARRATIVE DESCRIPTION
None reported or observed, though potential exists that on a dry dusty day contaminants could become airborne on dust particles. Population for a 4 mile radius.

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS — 02 ☐ OBSERVED (DATE: ____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 0
04 NARRATIVE DESCRIPTION
None reported or observed, and unlikely due to the nonreactive nature of the contaminants

01 ■ E. DIRECT CONTACT — 02 ☐ OBSERVED (DATE: ____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 800
04 NARRATIVE DESCRIPTION
Soil samples collected on site indicate high concentrations of heavy metals. There is a fence around the site, a locked gate and a 24 hour guard. There is an old mattress and some refuse on the site that the owner couldn't explain, suggesting the site was at some time accessible.

01 ■ F. CONTAMINATION OF SOIL — 02 ■ OBSERVED (DATE: 5/5/87) ☐ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: 5 (Acres)
04 NARRATIVE DESCRIPTION
Concentrations of heavy metals were detected in substantially higher quantities than the background sample. Mercury, Cadium and Copper are at levels high enough for HRS scoring.

01 ■ G. DRINKING WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: ____) ■ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 0-100
04 NARRATIVE DESCRIPTION
Anyone using groundwater could potentially be drinking contaminated water downgradient from this site. The municipality of Gary is on surface water from Lake Michigan

01 ☐ H. WORKER EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: ____) ☐ POTENTIAL ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: 0
04 NARRATIVE DESCRIPTION
The site is inactive, there are no workers at the facility

01 ☐ I. POPULATION EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: ____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 800-900
04 NARRATIVE DESCRIPTION
See Parts "A," "E," and "G."

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
IN	D095264818

II. HAZARDOUS CONDITIONS AND INCIDENTS *(Continued)*

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION
None reported or observed, though vegetative stress be caused by the heavy metals present in the soil samples.

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION *(Include name(s) of species)*
None reported or observed. There are no federally endangered species that are endemic to this area.

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION
There are no important food crops or livestock within 3-miles of the site.

01 ■ M. UNSTABLE CONTAINMENT OF WASTES *(Spills/Runoff/Standing liquids, Leaking drums)* — 02 ■ OBSERVED (DATE: 5/5/87) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 78,000 — 04 NARRATIVE DESCRIPTION
The piles of mill scale, both treated and untreated were unlined. The area around where the piles had been was excavated to a depth of about 2'.

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION None reported or observed, though an apparent seep was noted coming from Conservation Chemical.

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION
No WWTPs in the area. No contamination of sewers or storm drains.

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION Unlikely due to the fence around the site, the 24 hour security guard and locked gate.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS
None reported or observed

III. TOTAL POPULATION POTENTIALLY AFFECTED: ~78,800 - 78,900

IV. COMMENTS

None

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

Site inspection notes, Ecology & Environment, Inc. 5-5-87
US Dept of the Interior, U.S. Fish & Wildlife Service - list of endangered species.
USGS 7.5 minute topographic maps - Whiting, Gary and Highland, IN quads

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
IN	D095264818

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
☐ A. NPDES				
☐ B. UIC				
☐ C. AIR				
☐ D. RCRA				
■ E. RCRA INTERIM STATUS	IND095264818	5/81	11/8/85	
☐ F. SPCC PLAN				
☐ G. STATE (Specify)				
☐ H. LOCAL (Specify)				
☐ I. OTHER (Specify)				
☐ J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
☐ A. SURFACE IMPOUNDMENT		
■ B. PILES	1,351	net tons/day of treated scale
☐ C. DRUMS, ABOVE GROUND		
☐ D. TANK, ABOVE GROUND		
☐ E. TANK, BELOW GROUND		
☐ F. LANDFILL		
☐ G. LANDFARM		
☐ H. OPEN DUMP		
☐ I. OTHER (Specify)		

04 TREATMENT (Check all that apply)

- ☐ A. INCENERATION
- ☐ B. UNDERGROUND INJECTION
- ☐ C. CHEMICAL/PHYSICAL
- ☐ D. BIOLOGICAL
- ☐ E. WASTE OIL PROCESSING
- ☐ F. SOLVENT RECOVERY
- ■ G. OTHER RECYCLING/RECOVERY
- ☐ H. OTHER (Specify)

05 OTHER

■ A. BUILDINGS ON SITE

1 building

06 AREA OF SITE

5 (Acres)

07 COMMENTS All unprocessed mill scale was received by truck from Inland Steel. The unprocessed material was thermally dried in a rotary kiln in order to deoil the mill scale. The processed mill scale was returned by truck to Inland Steel. See Tab E for a technical paper describing the process.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

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

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC. Mill scale received from Inland Steel was weighed and then dumped on the ground with no liner or barrier. The recycled mill scale was also dumped on the ground with no liner or barrier, after treatment in the kiln.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ☐ YES ■ NO

02 COMMENTS At the time of the site inspection the site had a fence, gate and a security guard (24 hrs.). RCRA TSD inspections by the state in the past three years have found the facility lacking any physical security.

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

Site inspection notes, Ecology & Environment, Inc. 5-5-87
Ecology & Environment files.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
IN	D095264818

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one) fine sand

☐ A. $10^{-6} - 10^{-8}$ cm/sec ☐ B. $10^{-4} - 10^{-6}$ cm/sec ■ C. $10^{-4} - 10^{-3}$ cm/sec ☐ D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one) Silurian limestone or dolomite

☐ A. IMPERMEABLE (Less than 10^{-6} cm/sec) ☐ B. RELATIVELY IMPERMEABLE ($10^{-4} - 10^{-6}$ cm/sec) ■ C. RELATIVELY PERMEABLE ($10^{-2} - 10^{-4}$ cm/sec) ☐ D. VERY PERMEABLE (Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH
135 (ft)	unknown (ft)	unknown

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE: SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
4 (in)	2.4 (in)	0 %	N/A	0 %

09 FLOOD POTENTIAL

SITE IS IN UNKNOWN YEAR FLOODPLAIN

10 N/A ☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE A. N/A (mi)

OTHER fresh water swamp B. 1000' ~~(mi)~~

12 DISTANCE TO CRITICAL HABITAT (of endangered species) > 3 (mi)

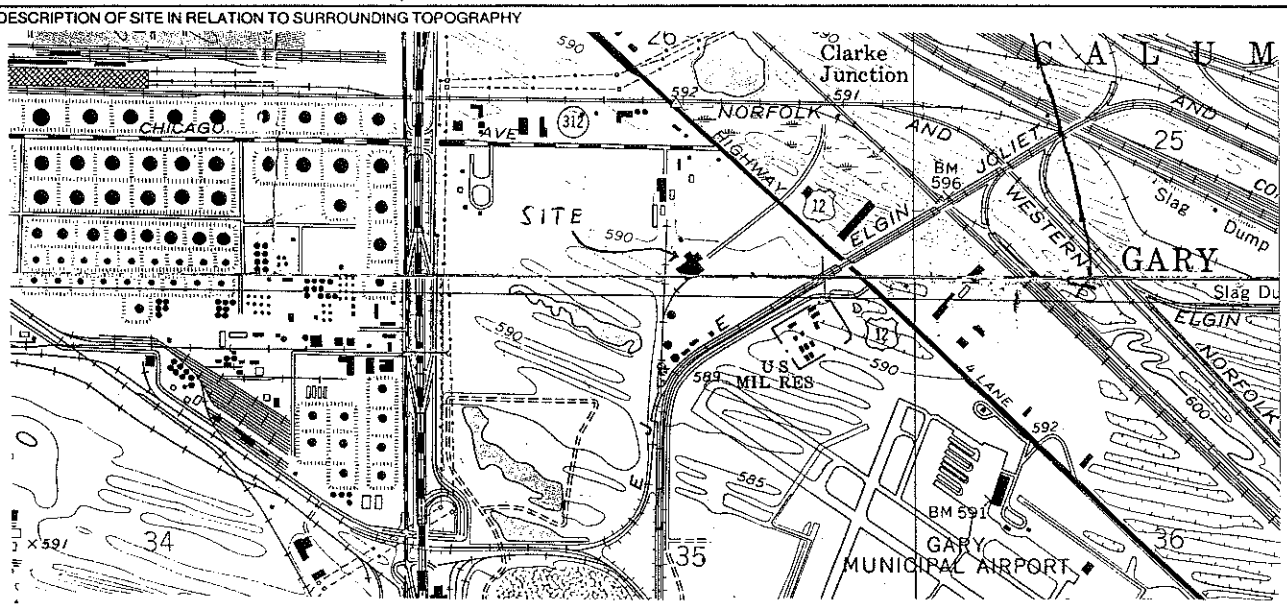
ENDANGERED SPECIES: Myotis sodalis (Indiana bat)

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS: PRIME AG LAND	AGRICULTURAL LANDS: AG LAND
A. 400' ~~(mi)~~	B. 1 (mi)	C. > 3 (mi)	D. > 3 (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY



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

Environmental Geology of Lake and Porter Counties, An Aid to Planning, Special Report #11, 1975
Climatic Atlas of the United States, U.S. Dept. of Commerce, 1979.
U.S. Geological Survey 7.5 minute topographic maps, Whiting, Highland and Gary, IN Quadrangles

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
IN	D095264818

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)

	SURFACE	WELL
COMMUNITY	A. ■	B. ☐
NON-COMMUNITY	C. ☐	D. ■

02 STATUS

ENDANGERED	AFFECTED	MONITORED
A. ☐	B. ☐	C. ■
D. ☐	E. ☐	F. ■

03 DISTANCE TO SITE

A. ~1 (mi)
B. 1½ - 2 (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

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

02 POPULATION SERVED BY GROUND WATER 1-100

03 DISTANCE TO NEAREST DRINKING WATER WELL ~1 3/4 (mi)

04 DEPTH TO GROUNDWATER	05 DIRECTION OF GROUNDWATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
~15 (ft)	generally north, but varies	0-20 (ft)	11 million (gpd)	☐ YES ■ NO

09 DESCRIPTION OF WELLS (Including useage, depth, and location relative to population and buildings)

There are some wells, used by industry and for drinking, that extend into the bedrock. There are allegedly some wells screened in the shallow aquifer, south of the site.

10 RECHARGE AREA ■ YES ☐ NO COMMENTS Recharge through permeable sands of surficial aquifer.

11 DISCHARGE AREA ■ YES ☐ NO COMMENTS Discharge into Lake Michigan and the Grand Calumet River

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

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

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
Lake Michigan	☐	~1 (mi)
Grand Calumet River	☐	~1½ (mi)
	☐	(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE	TWO (2) MILES OF SITE	THREE (3) MILES OF SITE
A. ~800 NO. OF PERSONS	B. ~10,260 NO. OF PERSONS	C. ~34,560 NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION 1 (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE 2,700

04 DISTANCE TO NEAREST OFF-SITE BUILDING 200' ~~(mi)~~

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

The area around the site is very industrial. To the west, northwest and south are densely populated urban areas. About one quarter of the three mile radius is in Lake Michigan.

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
IN	D095264818

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER			
SURFACE WATER			
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL	4	Inorganics: Mack Labs Organics: Spectrex	Data is available
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
hNu	no readings above background
Explosimeter	" " " "
O_2 meter	" " " "
Rad-mini	" " " "
Drager tubes	no color change

IV. PHOTOGRAPHS AND MAPS

01 TYPE ☒ GROUND ☐ AERIAL

02 IN CUSTODY OF Ecology & Environment, Inc files (Name of organization or individual)

03 MAPS ☒ YES ☐ NO

04 LOCATION OF MAPS Ecology & Environment, Inc files

V. OTHER FIELD DATA COLLECTED *(Provide narrative description)*

None

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

Analytical data, Ecology & Environment, Inc files - Sampling date: 5/5/87
Site safety plan & field notes, Ecology & Environment files: 5/5/87

EPA FORM 2070-13 (7-81)

EPA

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

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
IN	D 095264818

II. CURRENT OWNER(S)

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE
Avondale Industries, Inc		20521 Chagrin Boulevard		Cleveland	OH	44122-5396

PARENT COMPANY (If applicable)

08 NAME	09 D+B NUMBER	10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE	12 CITY	13 STATE	14 ZIP CODE
N/A						

III. PREVIOUS OWNER(S) (List most recent first)

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

IV. REALTY OWNER(S) (If applicable; list most recent first)

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

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

Site inspection interview with company representative, 5/5/87

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
IN	0095264818

II. CURRENT OPERATOR (Provide if different from owner) NONE			OPERATOR'S PARENT COMPANY (If applicable)		
01 NAME	02 D+B NUMBER		10 NAME	11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE		12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER				

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)			PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)		
01 NAME	02 D+B NUMBER		10 NAME	11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE		12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD				
01 NAME	02 D+B NUMBER		10 NAME	11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE		12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD				
01 NAME	02 D+B NUMBER		10 NAME	11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE		12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD				

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

ECOLOGY & ENVIRONMENT (FIT) - FILES

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
IN	D095264818

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER
N/A	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
N/A			

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
Inland Steel Co.			

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
East Chicago	IN				

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

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

Site inspection notes, Ecology & Environment, Inc 5/5/87.

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
IN	D 095264818

II. PAST RESPONSE ACTIVITIES

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

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
IN	D 0 9 5 2 6 4 8 1 8

II PAST RESPONSE ACTIVITIES *(Continued)*

01 ☐ R. BARRIER WALLS CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ☐ S. CAPPING/COVERING — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ☐ T. BULK TANKAGE REPAIRED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ☐ U. GROUT CURTAIN CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ☐ V. BOTTOM SEALED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ☐ W. GAS CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ☐ X. FIRE CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ☐ Y. LEACHATE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ☐ Z. AREA EVACUATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ☐ 1. ACCESS TO SITE RESTRICTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION NA

01 ☐ 2. POPULATION RELOCATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ☐ 3. OTHER REMEDIAL ACTIVITIES — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

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

Site inspection interview with Derek Harold 5/5/87.

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
IN	D095264818

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☒ YES ☐ NO

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

In May 1981, Luria Bros. applied for a hazardous waste processing permit to drill mill scale by rotary kiln. In December 1981, the facility ceased operations and vacated the property. Luria Bros. submitted a closure plan to the US EPA, Region V on April, 1982. The closure plan was modified and public noticed by the USEPA.

The Indiana State Board of Health (ISBH) made a post closure inspection of the site on July 18, 1984. On November 8, 1985 the RCRA interim permit terminated when the owner failed to submit the second part of the closure plan to the US EPA. The ISBH conducted a RCRA TSD land disposal compliance inspection of Luria Bros. on March 10, 1986. No enforcement action has taken place at the site to date.

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

Site inspection interview with Derek Harold, 5/5/87
Ecology & Environment files.

EPA FORM 2070-13 (7-81)

Immediate Removal Action Check Sheet

	High	Moderate	Low
Fire and Explosion Hazard			
Flammable Materials			✓
Explosives			✓
Incompatable Chemicals			✓
Direct Contact with Acutely Toxic Chemicals			
Site Security			✓
Leaking Drums or Tanks			✓
Open Lagoons or pits			✓
Materials on Surface heavy metals: Mercury, Cadium and Copper		✓	
Proximity of Population			✓
Evidence of Casual Site Use		✓	
Contaminated Water Supply			
Exceeds 10 Day Snarl			✓
Gross Taste or Odors			✓
Alternate Water Available			✓
Potential Contamination			✓

Is the site abandoned or active? Inactive

Comments There is some evidence of casual site use at the Luria Bros. facility. During the site inspection, F.I.T noticed a mattress and other refuse on the facility that the site representative couldn't explain. The debris on-site would seem to indicate the site was at one time accessible to the public. The site is currently fenced, with a locked gate, and a 24 hour security guard.

Previous RCRA TSD inspections by the state of Indiana have indicated the site had no physical security.

3

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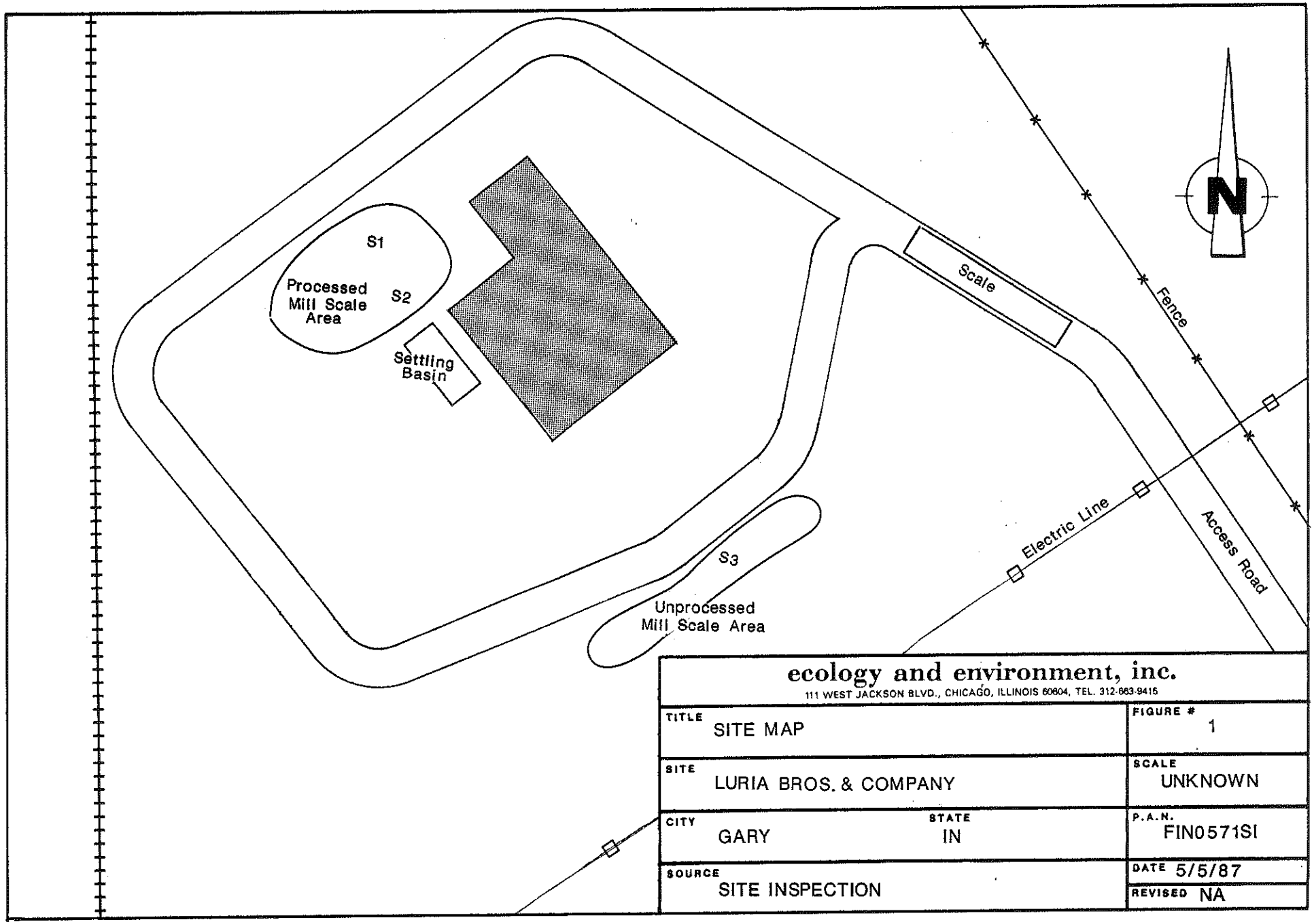
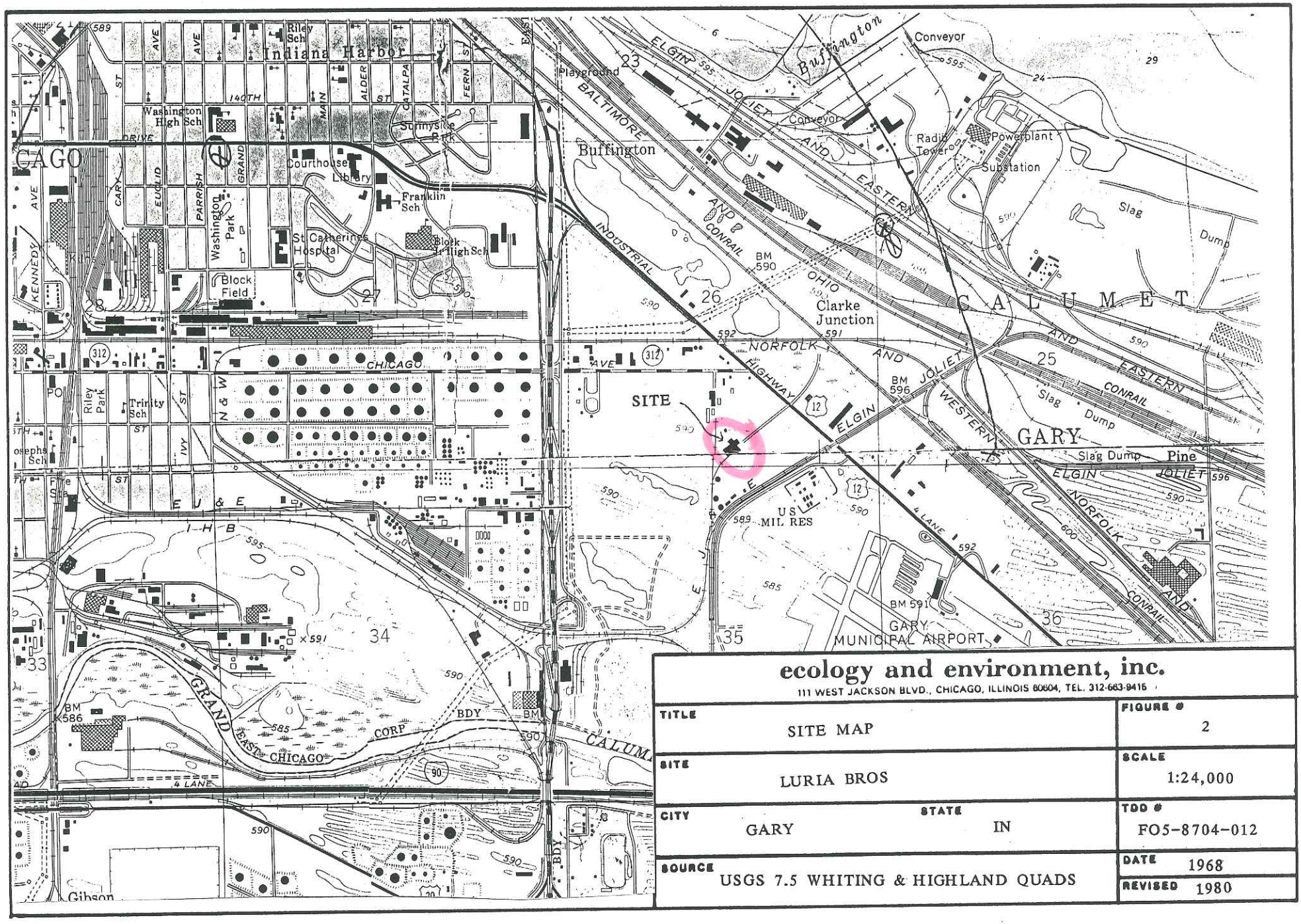


ecology and environment, inc.
111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415

TITLE SITE MAP	FIGURE # 1
SITE LURIA BROS. & COMPANY	SCALE UNKNOWN
CITY GARY STATE IN	P.A.N. FIN0571SI
SOURCE SITE INSPECTION	DATE 5/5/87
	REVISED NA



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TITLE: SITE MAP	FIGURE #: 2
SITE: LURIA BROS	SCALE: 1:24,000
CITY: GARY STATE: IN	TDD #: FO5-8704-012
SOURCE: USGS 7.5 WHITING & HIGHLAND QUADS	DATE: 1968 REVISED: 1980

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International Specialists in the Environment

M E M O R A N D U M

DATE: July 31, 1987

TO: File

FROM: Steve Anderson

SUBJECT: Indiana/F05-8704-012/FIN0571SI
Gary/Luria Bros.
IND095264818

An undetected problem with the camera resulted in site pictures being blurred. Facility photos are somewhat distinquishable but those of the sample ID sheets are not legible. These are on file at Ecology & Environment, Chicago, Illinois. The camera used was a 35mm Canon 1, ID Letter B.

07W:2F

recycled paper

FIELD PHOTOGRAPHY LOG SHEET

DATE 5/5/87

TIME 11:00 (A.M.) P.M.

DIRECTION: N NNE NE ENE
E ESE SE SSE
S SSW (SW) WSW
W WNW NW NNW

WEATHER 60°F, little wind, sunny

SITE Luria Bros

TDD# F05-8704-012

PHOTOGRAPHED BY: Steve Anderson

SAMPLE ID# (if applicable) N/A

DESCRIPTION: View of main building.

DATE 5/5/87

TIME 11:10 (A.M.) P.M.

DIRECTION: N NNE NE ENE
(E) ESE SE SSE
S SSW SW WSW
W WNW NW NNW

WEATHER 60°F, little wind, sunny

SITE Luria Bros

TDD# F05-8704-012

PHOTOGRAPHED BY: Steve Anderson

SAMPLE ID# (if applicable) N/A

DESCRIPTION: View of settling basin

FIELD PHOTOGRAPHY LOG SHEET

DATE 5/5/87

TIME 11:10 (A.M.) P.M.

DIRECTION: N NNE NE ENE
(E) ESE SE SSE
S SSW SW WSW
W WNW NW NNW

WEATHER 60°F, little wind, sunny

SITE Luria Bros

TDD# F05-8704-012

PHOTOGRAPHED BY: Steve Anderson

SAMPLE ID# (if applicable) S2

DESCRIPTION: Recycled mill scale area WSW of main building

DATE 5/5/87

TIME 11:40 (A.M.) P.M.

DIRECTION: N NNE (NE) ENE
E ESE SE SSE
S SSW SW WSW
W WNW NW NNW

WEATHER 60°F, little wind, sunny

SITE Luria Bros

TDD# F05-8704-012

PHOTOGRAPHED BY: Steve Anderson

SAMPLE ID# (if applicable) S2

DESCRIPTION: View of SW end of building

FIELD PHOTOGRAPHY LOG SHEET

DATE 5/5/87

TIME 11:40 (A.M.) P.M.

DIRECTION: N NNE (NE) ENE
E ESE SE SSE
S SSW SW WSW
W WNW NW NNW

WEATHER 60°F, little wind, sunny

SITE Luria Bros

TDD# F05-8704-012

PHOTOGRAPHED BY: Steve Anderson

SAMPLE ID# (if applicable) S2

DESCRIPTION: View of SW end of building

DATE 5/5/87

TIME 11:40 (A.M.) P.M.

DIRECTION: N NNE (NE) ENE
E ESE SE SSE
S SSW SW WSW
W WNW NW NNW

WEATHER 60°F, little wind sunny

SITE Luria Bros

TDD# F05-8704-012

PHOTOGRAPHED BY: Steve Anderson

SAMPLE ID# (if applicable) S2

DESCRIPTION: View of SW end of building

FIELD PHOTOGRAPHY LOG SHEET

DATE 5/5/87

TIME 12:00 A.M. P.M.

DIRECTION: N NNE NE ENE
E ESE SE SSE
S SSW SW WSW
W WNW NW NNW

WEATHER 60°F, little wind, sunny

SITE Luria Bros

TDD# F05-8704-012

PHOTOGRAPHED BY: Steve Anderson

SAMPLE ID# (if applicable) N/A

DESCRIPTION: Main building

DATE 5/5/87

TIME 12:00 A.M. P.M.

DIRECTION: N NNE NE ENE
E ESE SE SSE
S SSW SW WSW
W WNW NW NNW

WEATHER 60°F, little wind, sunny

SITE Luria Bros

TDD# F05-8704-012

PHOTOGRAPHED BY: Steve Anderson

SAMPLE ID# (if applicable) N/A

DESCRIPTION: View of Conservatio Chemical which is adjacent to the property

FIELD PHOTOGRAPHY LOG SHEET

DATE 5/5/87

TIME 12:00 A.M. P.M.

DIRECTION: N NNE NE ENE
E ESE SE SSE
S SSW SW WSW
W WNW NW NNW

WEATHER 60°F, little wind, sunny

SITE Luria Bros

TDD# F05-8704-012

PHOTOGRAPHED BY: Steve Anderson

SAMPLE ID# (if applicable) N/A

DESCRIPTION: Main building and kiln

DATE 5/5/87

TIME 12:00 A.M. P.M.

DIRECTION: N NNE NE ENE
E ESE SE SSE
S SSW SW WSW
W WNW NW NNW

WEATHER 60°F, little wind, sunny

SITE Luria Bros

TDD# F05-8704-012

PHOTOGRAPHED BY: Steve Anderson

SAMPLE ID# (if applicable) N/A

DESCRIPTION: 55 Gallon drums containing oil in the east end of the building

FIELD PHOTOGRAPHY LOG SHEET

DATE 5/7/87

TIME 12:10 A.M. P.M.

DIRECTION: N NNE NE ENE
E ESE SE SSE
S SSW SW WSW
W WNW NW NNW

WEATHER 60°F, little wind sunny

SITE Luria Bros

TDD# F05-8704-012

PHOTOGRAPHED BY: Steve Anderson

SAMPLE ID# (if applicable) N/A

DESCRIPTION: Mattress in NE corner of building. Owner doesn't know origin

SURVEY OF THE ANALYTICAL RESULTS FOR SAMPLES WHICH WERE TAKEN DURING FIELD ACTIVITIES CAN BE FOUND IN THE FOLLOWING ABLES. ONLY DETECTABLE CONCENTRATIONS ARE REPORTED. HOWEVER, IF THE COMPOUND HAS A FOOTNOTE FOLLOWING THE VALUE, CONSULT THE DEFINITION OF THE FOOTNOTE PROVIDED BELOW. ADDITIONAL QA/QC INFORMATION IS PROVIDED IN THE ATTACHED DATA SHEETS.

REPORTING UNITS

A. Organics

1. Water Samples - ug/L or ppb (parts per billion)
2. Soils or Sediments - ug/kg or ppb (parts per billion)

B. Metals

1. Water Samples - ug/L or ppb
2. Soils or Sediments - mg/kg or ppm

II. DEFINITION OF FOOTNOTES TO ANALYTICAL DATA

A. Organics

FOOTNOTE	DEFINITION	INTERPRETATION
UJ	Detection Limit (DL) is estimated because of a Quality Control (QC) protocol. DL is possibly above or below Contract Required Detection Limit (CRDL).	Compound was not detected
UB	Compound found in laboratory blank. No value above CRDL.	Compound was not detected
UJB	Compound found in laboratory blank, but not detected in sample. CRDL is estimated because of a QC protocol.	Compound was not detected
B	Compound found in blank. Two interpretations are possible:	
	a. If sample value is equivalent to DL to 5x blank concentration;	Compound value is semi-quantitative
	b. If sample value is greater than 5x the blank concentration.	Compound value is quantitative
JB	Compound found in blank, value is estimated because of QC protocol.	Compound value is semi-quantitative
R	Do Not Use Value. Major Violation of QC Protocol.	Compound value is not usable
C	Value adjusted for blank (an unacceptable procedure).	Compound value is semi-quantitative
J	Value is above CRDL and is an estimated value because of a QC protocol.	Compound value is semi-quantitative
Q	No Analytical Result.	Compound was not detected
N	Presumptive evidence for the presence of a compound as used for a Tentatively Identified Compound (TIC).	Compound value is semi-quantitative

B. Metals

FOOTNOTE	DEFINITION	INTERPRETATION
E	Estimated or not reported due to interference. See laboratory narrative.	Compound or element was not detected or value is semi-quantitative
s	Analysis by Method of Standard Additions (Look for a "+" footnote).	Value is quantitative
R	Spike recoveries outside QC protocols which indicates a possible matrix problem. Data may be biased high or low See spike results and laboratory narrative.	Value may be quantitative or semi-quantitative
*	Duplicate value outside QC protocols which indicates a possible matrix problem.	Value is semi-quantitative
+	Correlation coefficient for standard additions is less than 0.995. See review and laboratory narrative.	Data value is biased
[ ]	Value is real, but is above instrument DL and below CRDL.	Value may be quantitative or semi-quantitative
UJ	DL is estimated because of a QC protocol. DL is possibly above or below CRDL.	Compound or element was not detected
J	Value is above CRDL and is an estimated value because of a QC Protocol.	Value is semi-quantitative

	ITC	MEM 040	MEM 039	MEM 038	MEM 037							
	OTC	EL 312	EL 311	EL 310	EL 309							
	SAMPLE	S1 - W of settling basin	S2 - NW of settling basin	S3 Unrefined mill scale area	S4 Background @ Washington Park							
COMPOUND												
chloromethane												
bromomethane												
vinyl chloride												
chloroethane												
methylene chloride		10. J	7.1 J	6.5 J	4.6 J							
acetone												
carbon disulfide												
1,1-dichloroethene												
1,1-dichloroethane												
trans-1,2,-dichloroethene												
chloroform												
1,2-dichloroethane												
2-butanone												
1,1,1-trichloroethane												
carbon tetrachloride												
vinyl acetate												
bromodichloromethane												
1,1,2,2-tetrachloroethane												
1,2-dichloropropane												
trans-1,3-dichloropropene												
trichloroethene												
dibromochloromethane												
1,1,2-trichloroethane												
benzene			1.7 J									
cis-1,3-dichloropropene												
2-chloroethylvinylether												
bromoform												
2-hexanone												
4-methyl-2-pentanone												
tetrachloroethene												
toluene												
chlorobenzene												
ethylbenzene												
styrene												
total xylenes												
N-nitrosodimethylamine												
phenol												
aniline												
bis(2-chloroethyl)ether												
2-chlorophenol												
1,3-dichlorobenzene												
1,4-dichlorobenzene												
benzyl alcohol												
1,2-dichlorobenzene												
2-methylphenol												
bis(2-chloroisopropyl)ether												
4-methylphenol												
N-nitroso-di-n-propylamine												
hexachloroethane												
nitrobenzene												
isophrone												
2-nitrophenol												
2,4-dimethylphenol												
benzoic acid												
bis(2-chloroethoxy)methane												
2,4-dichlorophenol												
1,2,4-trichlorobenzene												
napthalene			31 J									
4-chloroaniline												
hexachlorobutadiene												
4-chloro-3-methylphenol												
2-methylnapthalene												
hexachlorocyclopentadiene												
2,4,6-trichlorophenol												
2,4,5-trichlorophenol												
2-chloronaphthalene												
2-nitroaniline												
dimethyl phthalate												
acenapthylene												
3-nitroaniline												
acenaphthene												
2,4-dinitrophenol												
4-nitrophenol												
dibenzofuran												
2,4-dinitrotoluene												
2,6-dinitrotoluene												
diethylphthalate												
4-chlorophenyl-phenylether												
flourene												
4-nitroaniline												
4,6-dinitro-2-methylphenol												
N-nitrosodiphenylamine												
4-bromophenyl-phenylether												
hexachlorobenzene												

STATE Indiana SITE Luria Bros. & Co. TDD F05-8704-012 PAGE 1 OF 2, SET # ____

COMPOUND											
IIC	MEM 040	MEM 039	MEM 038	MEM 037							
OTC	EL 312	EL 311	EL 310	EL 309							
SAMPLE	S1-W of settling basin	S2-NW of settling basin	S3 Unrefined mill scale area	S4 Background @ Washington Pk.							
pentachlorophenol											
phenanthrene		66 J	87 J	110 J							
anthracene											
di-n-butylphthalate											
fluoranthene		120 J	160 J	200 J							
benzidine											
pyrene	49 J	120 J	160 J	150 J							
butylbenzylphthalate											
3,3'-dichlorobenzidine											
benzo(a)anthracene											
bis(2-ethylhexyl)phthlate	330 J			130 J							
chrysene		57 J	120 J								
di-n-octyl phthlate											
benzo(b&k)fluoranthene		52 J	220 J								
benzo(a)pyrene			120 J								
indeno(1,2,3-cd)pyrene			120 J								
dibenzo(a,h)anthracene											
benzo(g,h,i)perylene			110 J								
alpha-BHC											
beta-BHC											
delta-BHC											
gamma-BHC(lindane)											
heptachlor											
aldrin											
heptachlor epoxide											
endosulfan I											
dieldrin											
4,4'-DDE											
endrin											
endosulfan II											
4,4'-DDD											
endrin aldehyde											
endosulfan sulfate											
4,4'-DDT											
methoxychlor											
endrin ketone											
chlorodane											
toxaphene											
Aroclor-1016											
Aroclor-1221											
Aroclor-1232											
Aroclor-1242											
Aroclor-1248											
Aroclor-1254											
Aroclor-1260											
ELEMENT											
aluminum											
antimony											
arsenic	56			10							
barium											
beryllium											
cadmium	36	32	25								
calcium											
chromium											
cobalt											
copper	351	225	280	28							
iron	635,000	547,000	342,000	15,400							
lead	438	170	147	130							
magnesium											
manganese											
mercury	919	0.18	0.28	1.8							
nickel	167	122	76	27							
potassium											
selenium				8							
silver											
sodium											
thallium											
tin				36							
vanadium											
zinc											
cyanide CHECK IF ANALYZED ( )											
TENTATIVELY IDENTIFIED ORGANICS											
Tetrahydrofuran	7 J	22 J	20 J	22 J							
Acetic acid, 1-methylethyl ester			5,600 J	3,200 J							
heptane, 3,5-dimethyl				380 J							
hexanedioic acid, mono (2-ethylhexyl) ester				3,700 J							
heptane, 2,3,6-trimethyl-	750 J	910 J	330 J								
phenol, 3-(1,1-dimethylethyl)-			290 J								
methane, trichlorofluoro-		5 J									
2-pentanol, 2,4-dimethyl	170 J										

STATE Indiana SITE Luria Bros & Co TDD F05-8704-012 PAGE 2 OF 2, SET # ____

SAMPLE DESCRIPTION

SITE NAME/LOC. CURA Bizos. / ~~F05-8702-041~~ F05 8704-012

CASE NUMBER 7226

SAMPLE #/STATION LOCATION S1

SAMPLING DATE 5-5-87 SAMPLING TIME 1110

ORGANIC TRAFFIC NUMBER EL 312

INORGANIC TRAFFIC NUMBER MEM 040

BOTTLE	ANALYSIS	TAG NUMBERS	LOT NUMBER
8 oz. x1	M/C	5-27801	F7058052
8 oz. x1	Extractable	5-27803, 5-27802	~~F63~~ F7058052
120 ml. x2	VOA	5-27804	D7086091
			D7086091

PHYSICAL DESCRIPTION AT TIME OF COLLECTION: Reddish Brown in color sample is a sludge

PHYSICAL CHANGES FROM TIME OF COLLECTION UNTIL SHIPMENT: none

INSTRUMENT READINGS N/A

pH N/A

CONDUCTIVITY N/A

TEMPERATURE N/A

ORGANICS WENT TO Spectrex

INORGANICS WENT to MACKLABS

SAMPLE DESCRIPTION

SITE NAME/NO. Luria Bros. / FOS-8702-041

CASE NUMBER 7226

SAMPLE #/STATION LOCATION S2

SAMPLING DATE 5-5-87 SAMPLING TIME 1130

ORGANIC TRAFFIC NUMBER EL 311

INORGANIC TRAFFIC NUMBER MEM 039

BOTTLE	ANALYSIS	TAG NUMBERS	LOT NUMBER
8 oz. x1	m/c	5-27809	F7058052
8 oz. x1	Extractable	5-27812	F7058052
120 ml. x2	VOA	5-27811, 5-27810	D7086091
			D7086091

PHYSICAL DESCRIPTION AT TIME OF COLLECTION: Black, well aerated, some moisture present

PHYSICAL CHANGES FROM TIME OF COLLECTION UNTIL SHIPMENT: none

INSTRUMENT READINGS N/A

pH N/A

CONDUCTIVITY N/A

TEMPERATURE N/A

SAMPLE DESCRIPTION

SITE NAME Curia Bros. / F05-8702-041

CASE NUMBER 7226

SAMPLE #/STATION LOCATION S3

SAMPLING DATE 5-5-87 SAMPLING TIME 1200

ORGANIC TRAFFIC NUMBER EL 310

INORGANIC TRAFFIC NUMBER MEM 038

BOTTLE	ANALYSIS	TAG NUMBERS	LOT NUMBER
8oz. x1	M/C	5-27805	F7058052
8oz. x1	Extractable	5-27808	F7058052
120ml. x2	VOA	5-27806, 5-27807	D7086091
			D7086091

PHYSICAL DESCRIPTION AT TIME OF COLLECTION: Black, well aerated, some moisture present

PHYSICAL CHANGES FROM TIME OF COLLECTION UNTIL SHIPMENT: none

INSTRUMENT READINGS N/A

pH N/A

CONDUCTIVITY N/A

TEMPERATURE N/A

SAMPLE DESCRIPTION

SITE NAME/NO. Luria Bros. / F05-8702-041

CASE NUMBER 7226

SAMPLE P/STATION LOCATION S4 (BACKGROUND)

SAMPLING DATE 5-5-87 SAMPLING TIME 1300

ORGANIC TRAFFIC NUMBER EL 309

INORGANIC TRAFFIC NUMBER MEM 037

BOTTLE	ANALYSIS	TAG NUMBERS	LOT NUMBER
8 oz. x1	M/C	5-27816	F7058052
8 oz. x1	Extractable	5-27813	F7058052
120 ml. x2	VOA	5-27815, 5-27814	D7086091, D7086091

PHYSICAL DESCRIPTION AT TIME OF COLLECTION: BLACK, WELL AERATED

PHYSICAL CHANGES FROM TIME OF COLLECTION UNTIL SHIPMENT: NONE

INSTRUMENT READINGS N/A

pH N/A

CONDUCTIVITY N/A

TEMPERATURE N/A

RECEIVED JUN 2 5 1987

ecology and environment, inc.

111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415
International Specialists in the Environment

Date Received for Review 6/24 Date Review Completed 6/25

To:

From: Zena Gold-Kaufman ZGK

Subject: Luria Bros

PAN: IN0571 Case # 7226

Sample Description

Organics (VOA, ABN, Pest/PCB)		Inorganics (Metals, Cyanide)	
# 4	Low Soil	#	Low Soil
	Low Water		Low Water
	Drinking Water		Drinking Water
	Other		Other

Project Data Status _____ Completed!!

_____ Incomplete, awaiting: 4 soils inorganic

FIT Data Review Findings:

no compounds detected above CRDL. Several PAHs detected below CRDL - these are circled on OADS forms.

_____ Compounds were detected in sample(s); see enclosed Chemical Evaluation Form.

Book No. 6 Page No. 90

sampled 5/05

recycled paper

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

RECEIVED JUN 24 1987

DATE: 6/23/87

SUBJECT: Review of Region V CLP Data
Received for Review on 6/16/87

FROM: Curtis Ross, Director (5SCRL) Patrick J. Chuille
Central Regional Laboratory

TO: Data User: Fit

We have reviewed the data for the following case(s).

SITE NAME: Luria Bros & Co. SMO case No. 7226

EPA Data Set No. 5F3968 No. of Samples: 4 D.U./Activity Numbers V905 / C72100

CRL No. 87FK06526 - 87FK06529

SMO Traffic No. EL309 - EL312

CLP Laboratory: Spectrix Hrs. Required for Review: 8

Following are our findings: This review covers a total of 4 soil sample. Samples were submitted for full organic analysis. Holding times were met for all sample extractions, according to contract requirements. Intrument tuning fell within specified ranges. There were a few calibration outliers, but none that would seriously affect the integrity of the overall calibration. The method blanks for VOA & PCB/PEST were clean. There were a few high concentration unknown compounds in the semi-VOA

(X) Data are acceptable for use.
( ) Data are acceptable for use with qualifications noted above.
( ) Data are preliminary - pending verification by Contractor Laboratory.
( ) Data are unacceptable.

cc: Duane Geuder, Quality Assurance Officer, EPA Support Services
James Petty, Chief Quality Assurance Research, EMSL, Las Vegas

EPA FORM 1320-6 (Rev. 5/87)

Contractor: Spectrix D.C.

Case 7226

Below is a summary of the out of control audits and the possible effect on the data for this case:

analysis, but only a few showed up in the samples as indicated on the TIC data sheets. Surrogate recovery was good. all % recoveries were within contract ranges. Overall MS/MSD % recoveries were also within specified ranges. The data contained within appears to be sound. Therefore, in my opinion, the data is acceptable for use.

RECEIVED JUN 24 1987

Reviewed by: Diane Dennis-Flagler

Phone: 353-9079

Date: 6-22-87

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION V
CALIBRATION OUTLIERS
VOLATILE HSL COMPOUNDS

CASE# 7226

CONTRACTOR Spectrix Inc.

RECEIVED JUN 24 1987

	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:	5/12			5/16 11:12											
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
Chloromethane					31.1	J									
Bromomethane															
Vinyl Chloride															
Chloroethane															
Methylene Chloride					33.4	J									
Acetone		31.9	J												
Carbon Disulfide															
1,1-Dichloroethane															
1,1-Dichloroethene															
Trans-1,2-Dichloroethene															
Chloroform															
2-Butanone															
1,2-Dichloroethane					32.7	J									
1,1,1-Trichloroethane															
Carbon Tetrachloride															
Vinyl Acetate															
Bromodichloromethane															
1,2-Dichloropropane															
Trans-1,3-Dichloropropene															
Trichloroethene															
Dibromochloromethane															
1,1,2-Trichloroethane															
Benzene															
cis-1,3-Dichloropropene															
2-Chloroethylvinylether															
Bromoform		32.0	J												
4-Methyl-2-Pentanone															
2-Hexanone															
Tetrachloroethene															
1,1,2,2-Tetrachloroethane															
Toluene															
Chlorobenzene															
Ethylbenzene					31.9	J									
Styrene															
m-Xylene															
o/p-Xylene															

AFFECTED SAMPLES:

EL 309
EL 310
EL 311
EL 312

* These flags should be applied to the analytes on the sample data sheets.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION V
CALIBRATION OUTLIERS
SEMIVOLATILE HSL COMPOUNDS
(Page 1)

CASE# 7226 CONTRACTOR Spectrix

RECEIVED

	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:	5/11			5/11 10:40											
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
Phenol															
bis(-2-Chloroethyl)Ether															
2-Chlorophenol															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
Benzyl Alcohol															
1,2-Dichlorobenzene															
2-Methylphenol															
bis(2-chloroisopropyl)Ether															
4-Methylphenol															
N-Nitroso-Di-n-Propylamine															
Hexachloroethane															
Nitrobenzene															
Isophorone															
2-Nitrophenol															
2,4-Dimethylphenol															
Benzoic Acid															
bis(2-Chloroethoxy)Methane															
2,4-Dichlorophenol															
1,2,4-Trichlorobenzene															
Naphthalene															
4-Chloroaniline		46.8	J		52.8	J									
Hexachlorobutadiene															
4-Chloro-3-Methylphenol															
2-Methylnaphthalene															
Hexachlorocyclopentadiene															
2,4,6-Trichlorophenol															
2,4,5-Trichlorophenol					25.3										
2-Chloronaphthalene															
2-Nitroaniline															
Dimethyl Phthalate															
Acenaphthylene															
3-Nitroaniline		46.6	J												
Acenaphthene															
2,4-Dinitrophenol					93.0										
4-Nitrophenol															
Dibenzofuran															

AFFECTED SAMPLES:

EL 309
EL310
EL 311
EL 312

* These flags should be applied to the analytes on the sample data sheets.

RECEIVED JUN 2 1987

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION V
CALIBRATION OUTLIERS
SEMIVOLATILE HSL COMPOUNDS
Page 2

CASE# 7226 CONTRACTOR Spectrix D.C.

	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:	5/11			5/19 10:40											
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
2,4-Dinitrotoluene															
2,6-Dinitrotoluene															
Diethylphthalate															
4-Chlorophenyl-phenylether					721.6	J									
Fluorene															
4-Nitroaniline															
4,6-Dinitro-2-Methylphenol					33.9	J									
N-Nitrosodiphenylamine															
4-Bromophenyl-phenylether															
Hexachlorobenzene															
Pentachlorophenol															
Phenanthrene															
Anthracene															
Di-n-Butylphthalate															
Fluoranthene															
Pyrene															
Butylbenzylphthalate															
Benzo(a)Anthracene															
bis(2-Ethylhexyl)Phthalate															
Chrysene															
Di-n-Octyl Phthalate															
Benzo(b)Fluoranthene															
Benzo(k)Fluoranthene					59.0										
Benzo(a)Pyrene															
Indeno(1,2,3-cd)Pyrene															
Dibenz(a,h)Anthracene															
Benzo(g,h,i) Perylene															

SEE PAGE 1 FOR AFFECTED SAMPLES.

* These flags should be applied to the analytes on the sample data sheets.

SECTION I NARRATIVE

LABORATORY: SPECTRIX - HOUSTON DOC CONT NO: 7226- 5 -21

CASE NO: 7226 QC REPORT NO: 22

LAB NO: 8705013 CONTRACT NO: 68-01-7449

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I. RECEIPT

A. DATE: 5-6-87

B. NO. OF SAMPLES: 4 + QC

C. SMO NUMBERS: EL309, EL310, EL311, EL312

D. SAMPLE TYPE: SOIL

E. ANALYSIS REQUESTED: Full Organic Following CLP Protocol.

F. SHIPPING PROBLEMS: none

G. DOCUMENTATION PROBLEMS: Sample tags not listed on COC.

H. QC DISTRIBUTION:

LEVEL	MATRIX	VOA	SV	PEST
LOW	WATER	NA	NA	NA
	SOIL	EL310	EL310	EL309
MEDIUM	WATER	NA	NA	NA
	SOIL	NA	NA	NA

II. PREPARATION

A. ANALYTICAL LEVELS: All soil samples in this case are low level.

B. EXTRACTION PROBLEMS: none

DOC CONT NO: 7226-5 -21

III. ANALYSIS

A. ANALYSIS PROBLEMS: CCC ethylbenzene for KOA standard analyzed on 5/16/87 was 31.9%. The choice at the time was miss holding times or go with ethylbenzene the only QC problem.

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B. SURROGATE RECOVERIES: Surrogate recoveries are within Contract required limits.

IV. COMMENTS: None

Thomas Alterman
Project Manager

000003

SPECTRIX D.C. #7226-5-8

RECEIVED JUN 24 1991

SOIL SURROGATE PERCENT RECOVERY SUMMARY
(Page 1)

Case No. 7226 Contract Laboratory SPECTRIX CORP. Contract No. 68-01-714
Low XXX Medium

	VOLATILE			SEMI-VOLATILE						PEST
	Toluene-d8	BFB	1,2-Dichloroethane-d4	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14	Phenol-d5	2-Fluorophenol	2,4,6-Tribromophenol	Dibutylchlorendate*
SMO TRAFFIC NO.	81 117	74 121	70 121	23 120	30 115	18 137	24 113	25 121	19 122	2 15
EL309	105	82	89	44	54	55	48	50	30	116
EL310	106	84	91	42	57	58	47	51	36	106
EL310MS	104	87	89	71	89	67	78	74	77	NR
EL310MSD	102	82	85	65	79	42	64	62	75	NR
EL311	100	93	94	65	71	77	71	79	55	123
EL312	100	95	95	59	66	76	62	67	41	111
MB1	97	98	94	74	83	80	71	75	62	100
EL309MS	NR	NR	NR	NR	NR	NR	NR	NR	NR	116
EL309MSD	NR	NR	NR	NR	NR	NR	NR	NR	NR	13

* VALUES ARE OUTSIDE OF CONTRACT REQUIRED QC LIMITS
** ADVISORY LIMITS ONLY

Volatiles: 0 out of 21; outside of QC lim
Semi-Volatiles: 0 out of 42; outside of QC lim
Pesticides: 0 out of 7; outside of QC lim

Comments:

NR- NOT REQUIRED

FORM II

RECEIVED JUN 2

SOIL MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

Case No. 7226 Contractor SPECTRIX CORP. Contract No. 68-01-7149
Low Level XXX Medium Level

FRACTION	COMPOUND	CONC. SPIKE ADDED (ug/Kg)	SAMPLE RESULT	CONC. MS	% REC	CONC. MSD	% REC	RPD	QC LIMITS* RPD	REC-REC
VOA	1,1-Dichloroethene	55	0.	51	93	47	85	9	22	59-172
SMO	Trichloroethene		0.	36	65	32	58*	11	24	62-137
SAMPLE NO.	Chlorobenzene		0.	56	102	49	89	14	21	60-133
EL310	Toluene		0.	49	89	47	85	5	21	59-139
	Benzene		0.	47	85	44	80	7	21	66-142
B/N	1,2,4-Trichlorobenzene	1830	0	1099	60	1030	56	7	23	38-107
SMO	Acenaphthene		0	1509	82	1398	76	8	19	31-137
SAMPLE NO.	2,4-Dinitrotoluene		0	1326	72	1199	66	9	47	28-89
EL310	Pyrene		159	1514	74	850	38	64*	36	35-142
	N-Nitroso-Di-n-Propylamine		0	1104	60	876	48	22	38	41-126
	1,4-Dichlorobenzene	3660	0	971	27*	810	22*	20	27	28-104
ACID	Pentachlorophenol		0	1799	49	1791	49	0	47	17-109
SMO	Phenol		0	2547	70	2028	55	24	35	26-90
SAMPLE NO.	2-Chlorophenol		0	2227	61	1895	52	16	50	25-102
EL310	4-Chloro-3-Methylphenol		0	3425	94	2889	79	17	33	26-103
	4-Nitrophenol		0	4453	122	3792	104	16	50	11-114
PEST	Lindane	34	0	35	103	38	112	8	50	46-127
SMO	Heptachlor	34	0	35	103	38	112	8	31	35-130
SAMPLE NO.	Aldrin	34	0	3	109	41	121	10	43	34-132
EL309	Dieldrin	85	0	100	118	111	131	10	38	31-134
	Endrin	85	0	96	113	105	124	9	45	42-139
	4,4'-DDT	85	0	113	133	128	151*	13	50	23-134

* ASTERISKED VALUES ARE OUTSIDE QC LIMITS

RPD: VOAs 0 out of 5; outside QC limits
B/N 1 out of 6; outside QC limits
ACID 0 out of 5; outside QC limits
PEST 0 out of 6; outside QC limits

RECOVERY: VOAs 1 out of 10; outside QC limits
B/N 2 out of 12; outside QC limits
ACID 0 out of 10; outside QC limits
PEST 1 out of 12; outside QC limits

Comments:

FORM III

METHOD BLANK SUMMARY

SPECTRIX D.C. #7226

Case No. 7226 Region 5 Contractor SPECTRIX Contract No. 68-01-6798, 6065, 7010, 7149

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FILE ID	DATE OF ANALYSIS	FRACTION	MATRIX	CONC. LEVEL	INST. ID	CAS NUMBER	COMPOUND (HSL, TIC OR UNKNOWN)	CONC.	UNITS	CRQL
870501301	5/16/87	VOA	SOIL	LOW	5100EF	67-64-1	ACETONE	5	ug/kg	10 ug/kg
						78-93-3	2-BUTANONE	3	ug/kg	10ug/kg
						—	UNKNOWN	16J	ug/kg	—
						109-99-9	FURAN, TETRAHYDRO-	7J	ug/kg	—
						1779-19-7	1,3,6-TRIOXOCANE	220J	ug/kg	—
870501301	5/29/87	SV	SOIL	LOW	4530	—	UNKNOWN	1700J	ug/kg	—
						20278-85-7	HEPTANE, 2,3,5-TRIMETHYL	470J	ug/kg	—
						—	UNKNOWN	79000J	ug/kg	—
						—	UNKNOWN	2000000J	ug/kg	—
						—	UNKNOWN	3300J	ug/kg	—
						—	UNKNOWN	210J	ug/kg	—
						—	UNKNOWN	320J	ug/kg	—
						—	UNKNOWN	480J	ug/kg	—
87-05-013-01A	6/12/87	Pest	Soil	LOW	6000	—	NONE DETECTED	—	—	—

Comments:

FORM IV

7/85

000007

SPECTRIX D[illegible] #7226-5-8

RECEIVED JUN 24 1987

Sample Number
EL909

ORGANICS ANALYSIS DATA SHEET

(Page 1)

Laboratory Name: SPECTRIX CORP.
Lab Sample ID No: 870501306
Sample Matrix: SOIL
Data Release Authorized By: TJD

Case No: 7226
QC Report No: 221
Contract No: 68-01-7149
Date Sample Received: 05/06/87

VOLATILE COMPOUNDS

Concentration: LOW
Date Extracted/Prepared: 05/16/87
Date Analyzed: 05/16/87
Conc/Dil Factor: 1. pH 7.69
Percent Moisture: (Not Decanted) 22.0

CAS Number		ug/kg	CAS Number		ug/kg
74-87-3	Chloromethane	13. UJ	78-87-5	1,2-Dichloropropane	6.4U
74-83-9	Bromomethane	13. U	10061-02-6	Trans-1,3-Dichloroproene	6.4U
75-01-4	Vinyl Chloride	13. U	79-01-6	Trichloroethene	6.4U
75-00-3	Chloroethane	13. U	124-48-1	Dibromochloromethane	6.4U
75-09-2	Methylene Chloride	4.6J	79-00-5	1,1,2-Trichloroethane	6.4U
67-64-1	Acetone	7.9~~BJ~~UJ	71-43-2	Benzene	6.4U
[illegible]15-0	Carbon Disulfide	6.4U	10061-01-5	cis-1,3-Dichloropropene	6.4U
[illegible]35-4	1,1-Dichloroethene	6.4U	110-75-8	2-Chloroethylvinylether	13. U
75-35-3	1,1-Dichloroethane	6.4U	75-25-2	Bromoform	6.4U
156-60-5	Trans-1,2-Dichloroethene	6.4U	108-10-1	4-Methyl-2-Pentanone	13. U
67-66-3	Chloroform	6.4U	591-78-6	2-Hexanone	13. U
107-06-2	1,2-Dichloroethane	6.4UJ	127-18-4	Tetrachloroethene	6.4U
78-93-3	2-Butanone	7.9~~BJ~~UJ	79-34-5	1,1,2,2-Tetrachloroethane	6.4U
71-55-6	1,1,1-Trichloroethane	6.4U	108-88-3	Toluene	6.4U
56-23-5	Carbon Tetrachloride	6.4U	108-90-7	Chlorobenzene	6.4U
108-05-4	Vinyl Acetate	13. U	100-41-4	Ethylbenzene	6.4UJ
75-27-4	Bromodichloromethane	6.4U	100-42-5	Styrene	6.4U
				Total Xylenes	6.4U

B - Compound was detected in the QC blank.
J - Reported value is less than the detection limit. (UJ) df 6-22-87
U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

See page 1A for complete definitions of the data reporting qualifiers.

Form I

SPECTRIX D.C. #7226-5-8

RECEIVED JUN 24 1987

Sample Number
EL309

oratory Name: SPECTRIX CORP.
ase No: 7226

ORGANICS ANALYSIS DATA SHEET
(Page 2)

SEMIVOLATILE COMPOUNDS

Concentration: LOW
Date Extracted/Prepared: 05/06/87
Date Analyzed: 05/29/87
Conc/Dil Factor: 1.
Percent Moisture: (Decanted) 22

GPC Cleanup ___ Yes _X_ No
Separatory Funnel Extraction ___ Yes
Continuous Liquid-Liquid Extraction ___ Yes

CAS Number		ug/kg	CAS Number		ug/kg
108-95-2	Phenol	420. U	83-32-9	Acenaphthene	420. U
111-44-4	bis(2-Chloroethyl)Ether	420. U	51-28-5	2,4-Dinitrophenol	2100. UJ
95-57-8	2-Chlorophenol	420. U	100-02-7	4-Nitrophenol	2100. U
541-73-1	1,3-Dichlorobenzene	420. U	132-64-9	Dibenzofuran	420. U
106-46-7	1,4-Dichlorobenzene	420. U	121-14-2	2,4-Dinitrotoluene	420. U
100-51-6	Benzyl Alcohol	420. U	606-20-2	2,6-Dinitrotoluene	420. U
95-50-1	1,2-Dichlorobenzene	420. U	84-66-2	Diethylphthalate	420. U
95-48-7	2-Methylphenol	420. U	7005-72-3	4-Chlorophenyl-phenylether	420. UJ
39638-32-9	bis(2-Chloroisopropyl)Ether	420. U	86-73-7	Fluorene	420. U
-44-5	4-Methylphenol	420. U	100-10-6	4-Nitroaniline	2100. U
621-64-7	N-Nitroso-Di-n-Propylamine	420. U	534-52-1	4,6-Dinitro-2-Methylphenol	2100. UJ
67-72-1	Hexachloroethane	420. U	86-30-6	N-Nitrosodiphenylamine (1)	420. U
98-95-3	Nitrobenzene	420. U	101-55-3	4-Bromophenyl-phenylether	420. U
78-59-1	Isophorone	420. U	118-74-1	Hexachlorobenzene	420. U
88-75-5	2-Nitrophenol	420. U	87-86-5	Pentachlorophenol	2100. U
105-67-9	2,4-Dimethylphenol	420. U	85-01-8	Phenanthrene	110. J
65-85-0	Benzoic Acid	2100. U	120-12-7	Anthracene	420. U
111-91-1	bis(2-Chloroethoxy)Methane	420. U	84-74-2	Di-n-Butylphthalate	420. U
120-83-2	2,4-Dichlorophenol	420. U	206-44-0	Fluoranthene	200. J
120-82-1	1,2,4-Trichlorobenzene	420. U	129-00-0	Pyrene	150. J
91-20-3	Naphthalene	420. U	85-68-7	Butylbenzylphthalate	420. U
106-47-8	4-Chloroaniline	420. UJ	91-94-1	3,3'-Dichlorobenzidine	850. U
87-68-3	Hexachlorobutadiene	420. U	56-55-3	Benzo(a)Anthracene	420. U
59-50-7	4-Chloro-3-Methylphenol	420. U	117-81-7	bis(2-Ethylhexyl)Phthalate	130. J
91-57-6	2-Methylnaphthalene	420. U	218-01-9	Chrysene	420. U
77-47-4	Hexachlorocyclopentadiene	420. U	117-84-0	Di-n-Octyl Phthalate	420. U
88-06-2	2,4,6-Trichlorophenol	420. U	205-99-2	Benzo(b)Fluoranthene	420. U
95-95-4	2,4,5-Trichlorophenol	2100. U	207-08-9	Benzo(k)Fluoranthene	420. UJ
91-58-7	2-Chloronaphthalene	420. U	50-32-8	Benzo(a)Pyrene	420. U
88-74-4	2-Nitroaniline	2100. U	193-39-5	Indeno(1,2,3-cd)Pyrene	420. U
131-11-3	Dimethyl Phthalate	420. U	53-70-3	Dibenz(a,h)Anthracene	420. U
208-96-8	Acenaphthylene	420. U	191-24-2	Benzo(g,h,i)Perylene	420. U
99-09-2	3-Nitroaniline	2100. U			

(1) - Cannot be separated from diphenylamine

(US) ddf 6-22-87

Form I

Lab Name: Spectrix
Case No: 7226
Lab No.: 87-05-013-06A

DC No: 7226-5-8
SMO No: E1309

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ORGANICS ANALYSIS DATA SHEET
(page 3)

Pesticide/PCBs

Conc: Low
Date Extracted: 05/08/87
Date Analyzed: 06/12/87
Dilution Factor: 1
Percent Moisture(Decanted): 22

GPC Cleanup _Yes ✓No
Sep. Funnel Ext. _Yes ✓
Cont. Liquid Ext. ✓Yes

CAS #	Compound	ug/Kg
319-84-6	ALPHA-BHC	10 U
319-85-7	BETA-BHC	10 U
319-86-8	DELTA-BHC	10 U
58-89-9	GAMMA-BHC (LINDANE)	10 U
76-44-8	HEPTACHLOR	10 U
309-00-2	ALDRIN	10 U
1024-57-3	HEPTACHLOR EPOXIDE	10 U
959-98-8	ENDOSULFAN I	10 U
60-57-1	DIELDRIN	20 U
72-55-9	4,4'-DDE	20 U
72-20-8	ENDRIN	20 U
33213-65-9	ENDOSULFAN II	20 U
72-54-8	4,4'-DDD	20 U
7421-93-4	ENDRIN ALDEHYDE	20 U
1031-07-8	ENDOSULFAN SULFATE	20 U
50-29-3	4,4'-DDT	20 U
72-43-5	METHOXYCHLOR	100 U
53494-70-5	ENDRIN KETONE	20 U
57-74-9	CHLORDANE	100 U
8001-35-2	TOXAPHENE	200 U
12674-11-2	AROCLOR-1016	100 U
11104-28-2	AROCLOR-1221	100 U
11141-16-5	AROCLOR-1232	100 U
53469-21-9	AROCLOR-1242	100 U
12672-29-6	AROCLOR-1248	100 U
11097-69-1	AROCLOR-1254	200 U
11096-82-5	AROCLOR-1260	200 U

Ws = 30 = Weight of soil extracted (gr)
Vt = 1000 = Volume of total extract (ul)
Vi = 1 = Volume of extract injected(ul)
1st Column Inst. : 6000 PAA
2nd Column Inst. : 3400

U=UNDETECTED AT THE LISTED DETECTION LIMIT.
J=COMPOUND IS PRESENT, BUT BELOW THE LISTED DETECTION LIMIT.
B=COMPOUND ALSO FOUND IN BLANK.

Form 1

SAMPLE NUMBER: EL309

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ORGANICS ANALYSIS DATA SHEET - PAGE 4

LABORATORY NAME: SPECTRIX CORPORATION CASE NO.: 7226

QC REPORT NO.: 221 ANALYST: CKT DATAFILE: EU05013V06

B. TENTATIVELY IDENTIFIED COMPOUNDS

CAS #	VOLATILE COMPOUND NAMES	SCAN#	PURITY	AMOUNT
				UG/L
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	34		8 J
109-99-9	FURAN, TETRAHYDRO-	158	987	22 J

J = ESTIMATED VALUE - A 1:1 RESPONSE FACTOR IS ASSUMED

B = COMPOUND DETECTED IN QC BLANK

: IST ID: 4530 SPECTRIX DC # 7226-5- 8

SAMPLE: EL309

RECEIVED JUN 24 1987

ORGANICS ANALYSIS DATA SHEET - PAGE 5

LABORATORY NAME: SPECTRIX CORPORATION CASE NO.: 7226

GC REPORT NO.: 221 ANALYST: CEB DATAFILE: EU05013C06

B. TENTATIVELY IDENTIFIED COMPOUNDS

AS #	SEMIVOLATILE COMPOUND NAMES	SCAN#	PURITY	AMOUNT
				UG/KG
108-21-4	ACETIC ACID, 1-METHYLETHYL ESTER	264	760	3200 J
625-06-9	2-PENTANOL, 2,4-DIMETHYL-	306	765	190000 J
926-82-9	HEPTANE, 3,5-DIMETHYL-	322	903	380 J
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	386		2200 J
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	716		400 J
3. -65-9	HEXANEDIOIC ACID, MONO(2-ETHYLHEXYL)ESTER	1626	817	3700 J
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	1682		340 J
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	1786		450 J
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	1854		190 J
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	1888		1100 J
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	1976		990 J
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	2069		860 J
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	2088		540 J
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	2121		450 J
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	2154		260 J
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	2218		210 J

B = COMPOUND DETECTED IN QC BLANK

J = ESTIMATED VALUE - A 1:1 RESPONSE FACTOR IS ASSUMED

SPECTRIX C. #7226-5-8

Sample Number
EL310

RECEIVED JUN 24 1987

ORGANICS ANALYSIS DATA SHEET

(Page 1)

Laboratory Name: SPECTRIX CORP.
Lab Sample ID No: 870501307
Sample Matrix: SOIL
Data Release Authorized By: TTD

Case No: 7226
QC Report No: 221
Contract No: 68-01-7149
Date Sample Received: 05/06/87

VOLATILE COMPOUNDS

Concentration: LOW
Date Extracted/Prepared: 05/16/87
Date Analyzed: 05/16/87
Conc/Dil Factor: 1. pH 8.01
Percent Moisture: (Not Decanted) 9.0

CAS Number		ug/kg	CAS Number		ug/kg
74-87-3	Chloromethane	11. UJ	78-87-5	1,2-Dichloropropane	5.5U
74-83-9	Bromomethane	11. U	10061-02-6	Trans-1,3-Dichloroproene	5.5U
75-01-4	Vinyl Chloride	11. U	79-01-6	Trichloroethene	5.5U
75-00-3	Chloroethane	11. U	124-48-1	Dibromochloromethane	5.5U
75-09-2	Methylene Chloride	6.5 J	79-00-5	1,1,2-Trichloroethane	5.5U
67-64-1	Acetone	5.5~~BJ~~UJ	71-43-2	Benzene	5.5U
15-0	Carbon Disulfide	5.5U	10061-01-5	cis-1,3-Dichloropropene	5.5U
35-4	1,1-Dichloroethene	5.5U	110-75-8	2-Chloroethylvinylether	11. U
75-35-3	1,1-Dichloroethane	5.5U	75-25-2	Bromoform	5.5U
156-60-5	Trans-1,2-Dichloroethene	5.5U	108-10-1	4-Methyl-2-Pentanone	11. U
67-66-3	Chloroform	5.5U	591-78-6	2-Hexanone	11. U
107-06-2	1,2-Dichloroethane	5.5UJ	127-18-4	Tetrachloroethene	5.5U
78-93-3	2-Butanone	7.3~~BJ~~UJ	79-34-5	1,1,2,2-Tetrachloroethane	5.5U
71-55-6	1,1,1-Trichloroethane	5.5U	108-88-3	Toluene	5.5U
56-23-5	Carbon Tetrachloride	5.5U	108-90-7	Chlorobenzene	5.5U
108-05-4	Vinyl Acetate	11. U	100-41-4	Ethylbenzene	5.5UJ
75-27-4	Bromodichloromethane	5.5U	100-42-5	Styrene	5.5U
				Total Xylenes	5.5U

B - Compound was detected in the QC blank.
J - Reported value is less than the detection limit.
U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

(UJ) dlf 6-22-87

See page 1A for complete definitions of the data reporting qualifiers.

Form I

SPECTRIX D.C. #7226-5-8

ɔratory Name: SPECTRIX CORP.
Case No: 7226

Sample Number
EA310

ORGANICS ANALYSIS DATA SHEET
(Page 2)

SEMIVOLATILE COMPOUNDS

Concentration: LOW
Date Extracted/Prepared: 05/06/87
Date Analyzed: 05/29/87
Conc/Dil Factor: 1.
Percent Moisture: (Decanted) 9

GPC Cleanup ___ Yes X No
Separatory Funnel Extraction ___ Yes
Continuous Liquid-Liquid Extraction ___ Yes

CAS Number		ug/kg	CAS Number		ug/kg
108-95-2	Phenol	360. U	83-32-9	Acenaphthene	360. U
111-44-4	bis(2-Chloroethyl)Ether	360. U	51-28-5	2,4-Dinitrophenol	1800. UJ
95-57-8	2-Chlorophenol	360. U	100-02-7	4-Nitrophenol	1800. U
541-73-1	1,3-Dichlorobenzene	360. U	132-64-9	Dibenzofuran	360. U
106-46-7	1,4-Dichlorobenzene	360. U	121-14-2	2,4-Dinitrotoluene	360. U
100-51-6	Benzyl Alcohol	360. U	606-20-2	2,6-Dinitrotoluene	360. U
95-50-1	1,2-Dichlorobenzene	360. U	84-66-2	Diethylphthalate	360. U
95-48-7	2-Methylphenol	360. U	7005-72-3	4-Chlorophenyl-phenylether	360. UJ
39638-32-9	bis(2-Chloroisopropyl)Ether	360. U	86-73-7	Fluorene	360. U
-44-5	4-Methylphenol	360. U	100-10-6	4-Nitroaniline	1800. U
-64-7	N-Nitroso-Di-n-Propylamine	360. U	534-52-1	4,6-Dinitro-2-Methylphenol	1800. UJ
67-72-1	Hexachloroethane	360. U	86-30-6	N-Nitrosodiphenylamine (1)	360. U
98-95-3	Nitrobenzene	360. U	101-55-3	4-Bromophenyl-phenylether	360. U
78-59-1	Isophorone	360. U	118-74-1	Hexachlorobenzene	360. U
88-75-5	2-Nitrophenol	360. U	87-86-5	Pentachlorophenol	1800. U
105-67-9	2,4-Dimethylphenol	360. U	85-01-8	Phenanthrene	87. J
65-85-0	Benzoic Acid	1800. U	120-12-7	Anthracene	360. U
111-91-1	bis(2-Chloroethoxy)Methane	360. U	84-74-2	Di-n-Butylphthalate	360. U
120-83-2	2,4-Dichlorophenol	360. U	206-44-0	Fluoranthene	160. J
120-82-1	1,2,4-Trichlorobenzene	360. U	129-00-0	Pyrene	160. J
91-20-3	Naphthalene	31. J	85-68-7	Butylbenzylphthalate	360. U
106-47-8	4-Chloroaniline	360. UJ	91-94-1	3,3'-Dichlorobenzidine	730. U
87-68-3	Hexachlorobutadiene	360. U	56-55-3	Benzo(a)Anthracene	360. U
59-50-7	4-Chloro-3-Methylphenol	360. U	117-81-7	bis(2-Ethylhexyl)Phthalate	460. J
91-57-6	2-Methylnaphthalene	360. U	218-01-9	Chrysene	120. J
77-47-4	Hexachlorocyclopentadiene	360. U	117-84-0	Di-n-Octyl Phthalate	360. U
88-06-2	2,4,6-Trichlorophenol	360. U	205-99-2	Benzo(b)Fluoranthene	220. J
95-95-4	2,4,5-Trichlorophenol	1800. U	207-08-9	Benzo(k)Fluoranthene	360. UJ
91-58-7	2-Chloronaphthalene	360. U	50-32-8	Benzo(a)Pyrene	120. J
88-74-4	2-Nitroaniline	1800. U	193-39-5	Indeno(1,2,3-cd)Pyrene	120. J
131-11-3	Dimethyl Phthalate	360. U	53-70-3	Dibenz(a,h)Anthracene	360. U
208-96-8	Acenaphthylene	360. U	191-24-2	Benzo(g,h,i)Perylene	110. J
99-09-2	3-Nitroaniline	1800. U			

(UJ) 6-22-87

1) - Cannot be separated from diphenylamine

Form I

Lab Name: Spectrix
Case No:7226
Lab No.:87-05-013-07A

DC No: 7226[illegible]8
SMO No: E1310

RECEIVED JUN 24 1987

ORGANICS ANALYSIS DATA SHEET
(page 3)

Pesticide/PCBs

Conc: Low
Date Extracted: 05/08/87
Date Analyzed: 06/12/87
Dilution Factor: 1
Percent Moisture(Decanted): _

GPC Cleanup _Yes ✓No
Sep. Funnel Ext. _Yes
Cont. Liquid Ext. ✓Yes

CAS #	Compound	ug/Kg
319-84-6	ALPHA-BHC	9 U
319-85-7	BETA-BHC	9 U
319-86-8	DELTA-BHC	9 U
58-89-9	GAMMA-BHC (LINDANE)	9 U
76-44-8	HEPTACHLOR	9 U
309-00-2	ALDRIN	9 U
1024-57-3	HEPTACHLOR EPOXIDE	9 U
959-98-8	ENDOSULFAN I	9 U
60-57-1	DIELDRIN	18 U
72-55-9	4,4'-DDE	18 U
72-20-8	ENDRIN	18 U
33213-65-9	ENDOSULFAN II	18 U
72-54-8	4,4'-DDD	18 U
7421-93-4	ENDRIN ALDEHYDE	18 U
1031-07-8	ENDOSULFAN SULFATE	18 U
50-29-3	4,4'-DDT	18 U
72-43-5	METHOXYCHLOR	88 U
53494-70-5	ENDRIN KETONE	18 U
57-74-9	CHLORDANE	88 U
8001-35-2	TOXAPHENE	180 U
12674-11-2	AROCLOR-1016	88 U
11104-28-2	AROCLOR-1221	88 U
11141-16-5	AROCLOR-1232	88 U
53469-21-9	AROCLOR-1242	88 U
12672-29-6	AROCLOR-1248	88 U
11097-69-1	AROCLOR-1254	180 U
11096-82-5	AROCLOR-1260	180 U

Ws = 30 = Weight of soil extracted (gr)
Vt = 1000 = Volume of total extract (ul)
Vi = 1 = Volume of extract injected(ul)
1st Column Inst. : 6000 PAA
2nd Column Inst. : 3400

U=UNDETECTED AT THE LISTED DETECTION LIMIT.
J=COMPOUND IS PRESENT,BUT BELOW THE LISTED DETECTION LIMIT.
B=COMPOUND ALSO FOUND IN BLANK.

Form 1

INST ID: 5100 SPECTRIX DC # 7226-5- 8

RECEIVED JUN 4 1996

SAMPLE NUMBER: EL310

ORGANICS ANALYSIS DATA SHEET - PAGE 4

LABORATORY NAME: SPECTRIX CORPORATION CASE NO.: 7226

QC REPORT NO.: 221 ANALYST: CKT DATAFILE: EU05013V07

B. TENTATIVELY IDENTIFIED COMPOUNDS

CAS #	VOLATILE COMPOUND NAMES	SCAN#	PURITY	AMOUNT
				UG/L
109-99-9	FURAN, TETRAHYDRO-	161	987	20 J
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	582		11 J
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	589		390 J

J = ESTIMATED VALUE - A 1:1 RESPONSE FACTOR IS ASSUMED

B = COMPOUND DETECTED IN QC BLANK

SPECTRIX D.C. #7226-5-8

SAMPLE: EL310

RECEIVED JUN 2 1987

ORGANICS ANALYSIS DATA SHEET - PAGE 5

LABORATORY NAME: SPECTRIX CORPORATION CASE NO.: 7226

QC REPORT NO.: 221 ANALYST: CEB DATAFILE: EU05013C07

B. TENTATIVELY IDENTIFIED COMPOUNDS

CAS #	SEMIVOLATILE COMPOUND NAMES	SCAN#	PURITY	AMOUNT
				UG/KG
08-21-4	ACETIC ACID, 1-METHYLETHYL ESTER	251	754	5600 J
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	295		150000 J
4032-93-3	HEPTANE, 2,3,6-TRIMETHYL-	314	925	330 J
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	380		2000 J
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	714		340 J
25-34-2	PHENOL, 3-(1,1-DIMETHYLETHYL)-	821	888	290 J
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	1835		370 J
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	1934		1600 J
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	1944		1800 J
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	1946		1600 J
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	1968		1400 J
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	1975		1300 J
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	2012		350 J
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	2127		570 J
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	2160		920 J
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	2241		480 J

B = COMPOUND DETECTED IN QC BLANK

J = ESTIMATED VALUE - A 1:1 RESPONSE FACTOR IS ASSUMED

SPECTRIX D.C. #7226-5-8

RECEIVED JUN 24 1987

Sample Number
EL811

ORGANICS ANALYSIS DATA SHEET

(Page 1)

Laboratory Name: SPECTRIX CORP.
Lab Sample ID No: 870501308
Sample Matrix: SOIL
Data Release Authorized By: [illegible]

Case No: 7226
QC Report No: 221
Contract No: 68-01-7149
Date Sample Received: 05/06/87

VOLATILE COMPOUNDS

Concentration: LOW
Date Extracted/Prepared: 05/16/87
Date Analyzed: 05/16/87
Conc/Dil Factor: 1. pH 9.51
Percent Moisture: (Not Decanted) 4.0

CAS Number		ug/kg	CAS Number		ug/kg
74-87-3	Chloromethane	10. UJ	78-87-5	1,2-Dichloropropane	5.2U
74-83-9	Bromomethane	10. U	10061-02-6	Trans-1,3-Dichloroproene	5.2U
75-01-4	Vinyl Chloride	10. U	79-01-6	Trichloroethene	5.2U
75-00-3	Chloroethane	10. U	124-48-1	Dibromochloromethane	5.2U
75-09-2	Methylene Chloride	7.1 J	79-00-5	1,1,2-Trichloroethane	5.2U
67-64-1	Acetone	99. B	71-43-2	Benzene	1.7J
75-15-0	Carbon Disulfide	5.2U	10061-01-5	cis-1,3-Dichloropropene	5.2U
75-35-4	1,1-Dichloroethene	5.2U	110-75-8	2-Chloroethylvinylether	10. U
75-35-3	1,1-Dichloroethane	5.2U	75-25-2	Bromoform	5.2U
156-60-5	Trans-1,2-Dichloroethene	5.2U	108-10-1	4-Methyl-2-Pentanone	10. U
67-66-3	Chloroform	5.2U	591-78-6	2-Hexanone	10. U
107-06-2	1,2-Dichloroethane	5.2UJ	127-18-4	Tetrachloroethene	5.2U
78-93-3	2-Butanone	6.7BJ	79-34-5	1,1,2,2-Tetrachloroethane	5.2U
71-55-6	1,1,1-Trichloroethane	5.2U	108-88-3	Toluene	5.2U
56-23-5	Carbon Tetrachloride	5.2U	108-90-7	Chlorobenzene	5.2U
108-05-4	Vinyl Acetate	10. U	100-41-4	Ethylbenzene	5.2UJ
75-27-4	Bromodichloromethane	5.2U	100-42-5	Styrene	5.2U
				Total Xylenes	5.2U

B - Compound was detected in the QC blank.
J - Reported value is less than the detection limit.
U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

(W) [illegible] 6-22-87

See page 1A for complete definitions of the data reporting qualifiers.

Form I

SPECTRIX D.C. #7226-5-8

RECEIVED JUN 24 1987

Laboratory Name: SPECTRIX CORP.
Case No: 7226

Sample Number
EL34

ORGANICS ANALYSIS DATA SHEET
(Page 2)

SEMIVOLATILE COMPOUNDS

Concentration: LOW
Date Extracted/Prepared: 05/06/87
Date Analyzed: 05/29/87
Conc/Dil Factor: 1.
Percent Moisture: (Decanted) 4.6

GPC Cleanup ___ Yes _X_ No
Separatory Funnel Extraction ___ Yes
Continuous Liquid-Liquid Extraction ___ Yes

CAS Number		ug/kg	CAS Number		ug/kg
108-95-2	Phenol	340. U	83-32-9	Acenaphthene	340. U
111-44-4	bis(2-Chloroethyl)Ether	340. U	51-28-5	2,4-Dinitrophenol	1700. UJ
95-57-8	2-Chlorophenol	340. U	100-02-7	4-Nitrophenol	1700. U
541-73-1	1,3-Dichlorobenzene	340. U	132-64-9	Dibenzofuran	340. U
106-46-7	1,4-Dichlorobenzene	340. U	121-14-2	2,4-Dinitrotoluene	340. U
100-51-6	Benzyl Alcohol	340. U	606-20-2	2,6-Dinitrotoluene	340. U
95-50-1	1,2-Dichlorobenzene	340. U	84-66-2	Diethylphthalate	340. U
95-48-7	2-Methylphenol	340. U	7005-72-3	4-Chlorophenyl-phenylether	340. UJ
39[illegible]38-32-9	bis(2-Chloroisopropyl)Ether	340. U	86-73-7	Fluorene	340. U
1[illegible] 44-5	4-Methylphenol	340. U	100-10-6	4-Nitroaniline	1700. U
621-64-7	N-Nitroso-Di-n-Propylamine	340. U	534-52-1	4,6-Dinitro-2-Methylphenol	1700. UJ
67-72-1	Hexachloroethane	340. U	86-30-6	N-Nitrosodiphenylamine (1)	340. U
98-95-3	Nitrobenzene	340. U	101-55-3	4-Bromophenyl-phenylether	340. U
78-59-1	Isophorone	340. U	118-74-1	Hexachlorobenzene	340. U
88-75-5	2-Nitrophenol	340. U	87-86-5	Pentachlorophenol	1700. U
105-67-9	2,4-Dimethylphenol	340. U	85-01-8	Phenanthrene	66. J
65-85-0	Benzoic Acid	1700. U	120-12-7	Anthracene	340. U
111-91-1	bis(2-Chloroethoxy)Methane	340. U	84-74-2	Di-n-Butylphthalate	340. U
120-83-2	2,4-Dichlorophenol	340. U	206-44-0	Fluoranthene	120. J
120-82-1	1,2,4-Trichlorobenzene	340. U	129-00-0	Pyrene	120. J
91-20-3	Naphthalene	340. U	85-68-7	Butylbenzylphthalate	340. U
106-47-8	4-Chloroaniline	340. UJ	91-94-1	3,3'-Dichlorobenzidine	690. U
87-68-3	Hexachlorobutadiene	340. U	56-55-3	Benzo(a)Anthracene	340. U
59-50-7	4-Chloro-3-Methylphenol	340. U	117-81-7	bis(2-Ethylhexyl)Phthalate	1000.
91-57-6	2-Methylnaphthalene	340. U	218-01-9	Chrysene	57. J
77-47-4	Hexachlorocyclopentadiene	340. U	117-84-0	Di-n-Octyl Phthalate	340. U
88-06-2	2,4,6-Trichlorophenol	340. U	205-99-2	Benzo(b)Fluoranthene	52. J
95-95-4	2,4,5-Trichlorophenol	1700. U	207-08-9	Benzo(k)Fluoranthene	340. UJ
91-58-7	2-Chloronaphthalene	340. U	50-32-8	Benzo(a)Pyrene	340. U
88-74-4	2-Nitroaniline	1700. U	193-39-5	Indeno(1,2,3-cd)Pyrene	340. U
131-11-3	Dimethyl Phthalate	340. U	53-70-3	Dibenz(a,h)Anthracene	340. U
208-96-8	Acenaphthylene	340 U	191-24-2	Benzo(g,h,i)Perylene	340. U
99-09-2	3-Nitroaniline	1700. U			

(UJ) def 6-22-87

(1) - Cannot be separated from diphenylamine

Form I

Lab Name: Spectrix
Case No:7226
Lab No.:87-05-013-08A

DC No: 7226-5-8
SMO No: E131

RECEIVED JUN 24 1987

ORGANICS ANALYSIS DATA SHEET
(page 3)

Pesticide/PCBs

Conc: Low
Date Extracted: 05/08/87
Date Analyzed: 06/12/87
Dilution Factor: 1
Percent Moisture(Decanted): _

GPC Cleanup _Yes ✓No
Sep. Funnel Ext. _Yes
Cont. Liquid Ext. ✓Yes

CAS #	Compound	ug/Kg
319-84-6	ALPHA-BHC	8 U
319-85-7	BETA-BHC	8 U
319-86-8	DELTA-BHC	8 U
58-89-9	GAMMA-BHC (LINDANE)	8 U
76-44-8	HEPTACHLOR	8 U
309-00-2	ALDRIN	8 U
1024-57-3	HEPTACHLOR EPOXIDE	8 U
959-98-8	ENDOSULFAN I	8 U
60-57-1	DIELDRIN	17 U
72-55-9	4,4'-DDE	17 U
72-20-8	ENDRIN	17 U
33213-65-9	ENDOSULFAN II	17 U
72-54-8	4,4'-DDD	17 U
7421-93-4	ENDRIN ALDEHYDE	17 U
1031-07-8	ENDOSULFAN SULFATE	17 U
50-29-3	4,4'-DDT	17 U
72-43-5	METHOXYCHLOR	83 U
53494-70-5	ENDRIN KETONE	17 U
57-74-9	CHLORDANE	83 U
8001-35-2	TOXAPHENE	170 U
12674-11-2	AROCLOR-1016	83 U
11104-28-2	AROCLOR-1221	83 U
11141-16-5	AROCLOR-1232	83 U
53469-21-9	AROCLOR-1242	83 U
12672-29-6	AROCLOR-1248	83 U
11097-69-1	AROCLOR-1254	170 U
11096-82-5	AROCLOR-1260	170 U

Ws = 30 = Weight of soil extracted (gr)
Vt = 1000 = Volume of total extract (ul)
Vi = 1 = Volume of extract injected(ul)
1st Column Inst. : 6000 PAM
2nd Column Inst. : 3400

U=UNDETECTED AT THE LISTED DETECTION LIMIT.
J=COMPOUND IS PRESENT,BUT BELOW THE LISTED DETECTION LIMIT.
B=COMPOUND ALSO FOUND IN BLANK.

Form 1

INST ID: 5100

SPECTRIX DC # 7226-5- 8

SAMPLE NUMBER: EL311

RECEIVED JUN 24 1987

ORGANICS ANALYSIS DATA SHEET - PAGE 4

LABORATORY NAME: SPECTRIX CORPORATION

CASE NO.: 7226

QC REPORT NO.: 221

ANALYST: CKT

DATAFILE: EU05013V08

B. TENTATIVELY IDENTIFIED COMPOUNDS

CAS #	VOLATILE COMPOUND NAMES	SCAN#	PURITY	AMOUNT
				UG.
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	33		5 J
75-69-4	METHANE, TRICHLOROFLUORO-	123	946	5 J
109-99-9	FURAN, TETRAHYDRO-	158	989	22 J

J = ESTIMATED VALUE - A 1:1 RESPONSE FACTOR IS ASSUMED

B = COMPOUND DETECTED IN QC BLANK

INST ID: 4530

SPECTRIX DC # 7226-5- 8

RECEIVED JUN 24 1987

SAMPLE: EL314

ORGANICS ANALYSIS DATA SHEET - PAGE 5

LABORATORY NAME: SPECTRIX CORPORATION

CASE NO.: 7226

QC REPORT NO.: 221

ANALYST: CEB

DATAFILE: EU05013C08

B. TENTATIVELY IDENTIFIED COMPOUNDS

CAS #	SEMIVOLATILE COMPOUND NAMES	SCAN#	PURITY	AMOUNT
				UG/KG
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	267		180000 J
10032-93-3	HEPTANE, 2,3,6-TRIMETHYL-	274	915	910 J
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	355		2900 J
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	712		360 J

J = ESTIMATED VALUE - A 1:1 RESPONSE FACTOR IS ASSUMED

B = COMPOUND DETECTED IN QC BLANK

SPECTRIX D.C. #7226-5-8

RECEIVED JUN 24 1987

Sample Number
EL312

ORGANICS ANALYSIS DATA SHEET

(Page 1)

Laboratory Name: SPECTRIX CORP.
Lab Sample ID No: 870501309
Sample Matrix: SOIL
Data Release Authorized By: [illegible]

Case No: 7226
QC Report No: 221
Contract No: 68-01-7149
Date Sample Received: 05/06/87

VOLATILE COMPOUNDS

Concentration: LOW
Date Extracted/Prepared: 05/16/87
Date Analyzed: 05/16/87
Conc/Dil Factor: 1. pH 8.32
Percent Moisture: (Not Decanted) 15.0

CAS Number		ug/kg	CAS Number		ug/kg
74-87-3	Chloromethane	12. UJ	78-87-5	1,2-Dichloropropane	5.9U
74-83-9	Bromomethane	12. U	10061-02-6	Trans-1,3-Dichloroproene	5.9U
75-01-4	Vinyl Chloride	12. U	79-01-6	Trichloroethene	5.9U
75-00-3	Chloroethane	12. U	124-48-1	Dibromochloromethane	5.9U
75-09-2	Methylene Chloride	10. J	79-00-5	1,1,2-Trichloroethane	5.9U
67-64-1	Acetone	4.1 ~~BU~~ UJ	71-43-2	Benzene	5.9U
75-15-0	Carbon Disulfide	5.9U	10061-01-5	cis-1,3-Dichloropropene	5.9U
75-35-4	1,1-Dichloroethene	5.9U	110-75-8	2-Chloroethylvinylether	12. U
75-35-3	1,1-Dichloroethane	5.9U	75-25-2	Bromoform	5.9U
156-60-5	Trans-1,2-Dichloroethene	5.9U	108-10-1	4-Methyl-2-Pentanone	12. U
67-66-3	Chloroform	5.9U	591-78-6	2-Hexanone	12. U
107-06-2	1,2-Dichloroethane	5.9UJ	127-18-4	Tetrachloroethene	5.9U
78-93-3	2-Butanone	12. ~~BU~~ UJ	79-34-5	1,1,2,2-Tetrachloroethane	5.9U
71-55-6	1,1,1-Trichloroethane	5.9U	108-88-3	Toluene	5.9U
56-23-5	Carbon Tetrachloride	5.9U	108-90-7	Chlorobenzene	5.9U
108-05-4	Vinyl Acetate	12. U	100-41-4	Ethylbenzene	5.9UJ
75-27-4	Bromodichloromethane	5.9U	100-42-5	Styrene	5.9U
				Total Xylenes	5.9U

B - Compound was detected in the QC blank.
J - Reported value is less than the detection limit.
U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.

See page 1A for complete definitions of the data reporting qualifiers.

(UJ) [illegible] 6-22-87

Form I

SPECTRIX D.C. #7226-5-8

RECEIVED JUN 24 1987

Laboratory Name: SPECTRIX CORP.
Case No: 7226

Sample Number
EL312

ORGANICS ANALYSIS DATA SHEET
(Page 2)

SEMIVOLATILE COMPOUNDS

Concentration: LOW
Date Extracted/Prepared: 05/06/87
Date Analyzed: 05/29/87
Conc/Dil Factor: 1.
Percent Moisture: (Decanted) 13

GPC Cleanup ___ Yes _X_ No
Separatory Funnel Extraction ___ Yes
Continuous Liquid-Liquid Extraction ___ Yes

CAS Number		ug/kg	CAS Number		ug/kg
108-95-2	Phenol	390. U	83-32-9	Acenaphthene	390. U
111-44-4	bis(2-Chloroethyl)Ether	390. U	51-28-5	2,4-Dinitrophenol	1900. UJ
95-57-8	2-Chlorophenol	390. U	100-02-7	4-Nitrophenol	1900. U
541-73-1	1,3-Dichlorobenzene	390. U	132-64-9	Dibenzofuran	390. U
106-46-7	1,4-Dichlorobenzene	390. U	121-14-2	2,4-Dinitrotoluene	390. U
100-51-6	Benzyl Alcohol	390. U	606-20-2	2,6-Dinitrotoluene	390. U
95-50-1	1,2-Dichlorobenzene	390. U	84-66-2	Diethylphthalate	390. U
95-48-7	2-Methylphenol	390. U	7005-72-3	4-Chlorophenyl-phenylether	390. UJ
39638-32-9	bis(2-Chloroisopropyl)Ether	390. U	86-73-7	Fluorene	390. U
[illegible]-44-5	4-Methylphenol	390. U	100-10-6	4-Nitroaniline	1900. U
621-64-7	N-Nitroso-Di-n-Propylamine	390. U	534-52-1	4,6-Dinitro-2-Methylphenol	1900. UJ
67-72-1	Hexachloroethane	390. U	86-30-6	N-Nitrosodiphenylamine (1)	390. U
98-95-3	Nitrobenzene	390. U	101-55-3	4-Bromophenyl-phenylether	390. U
78-59-1	Isophorone	390. U	118-74-1	Hexachlorobenzene	390. U
88-75-5	2-Nitrophenol	390. U	87-86-5	Pentachlorophenol	1900. U
105-67-9	2,4-Dimethylphenol	390. U	85-01-8	Phenanthrene	390. U
65-85-0	Benzoic Acid	1900. U	120-12-7	Anthracene	390. U
111-91-1	bis(2-Chloroethoxy)Methane	390. U	84-74-2	Di-n-Butylphthalate	390. U
120-83-2	2,4-Dichlorophenol	390. U	206-44-0	Fluoranthene	390. U
120-82-1	1,2,4-Trichlorobenzene	390. U	129-00-0	Pyrene	49. J
91-20-3	Naphthalene	390. U	85-68-7	Butylbenzylphthalate	390. U
106-47-8	4-Chloroaniline	390. UJ	91-94-1	3,3'-Dichlorobenzidine	780. U
87-68-3	Hexachlorobutadiene	390. U	56-55-3	Benzo(a)Anthracene	390. U
59-50-7	4-Chloro-3-Methylphenol	390. U	117-81-7	bis(2-Ethylhexyl)Phthalate	330. J
91-57-6	2-Methylnaphthalene	390. U	218-01-9	Chrysene	390. U
77-47-4	Hexachlorocyclopentadiene	390. U	117-84-0	Di-n-Octyl Phthalate	390. U
88-06-2	2,4,6-Trichlorophenol	390. U	205-99-2	Benzo(b)Fluoranthene	390. U
95-95-4	2,4,5-Trichlorophenol	1900. U	207-08-9	Benzo(k)Fluoranthene	390. UJ
91-58-7	2-Chloronaphthalene	390. U	50-32-8	Benzo(a)Pyrene	390. U
88-74-4	2-Nitroaniline	1900. U	193-39-5	Indeno(1,2,3-cd)Pyrene	390. U
131-11-3	Dimethyl Phthalate	390. U	53-70-3	Dibenz(a,h)Anthracene	390. U
208-96-8	Acenaphthylene	390. U	191-24-2	Benzo(g,h,i)Perylene	390. U
99-09-2	3-Nitroaniline	1900. U			

(1) - Cannot be separated from diphenylamine

(UJ) ddf 6-22-87

Form I

Lab Name: Spectrix
Case No:7226
Lab No.:87-05-013-09A

DC No: 7226-5-8
SMO No: E1312

RECEIVED JUN 24 1987

ORGANICS ANALYSIS DATA SHEET
(page 3)

Pesticide/PCBs

Conc: Low
Date Extracted: 05/08/87
Date Analyzed: 06/12/87
Dilution Factor: 1
Percent Moisture(Decanted): 15

GPC Cleanup _Yes ✓No
Sep. Funnel Ext. _Yes
Cont. Liquid Ext. ✓Yes

CAS #	Compound	ug/Kg
319-84-6	ALPHA-BHC	9 U
319-85-7	BETA-BHC	9 U
319-86-8	DELTA-BHC	9 U
58-89-9	GAMMA-BHC (LINDANE)	9 U
76-44-8	HEPTACHLOR	9 U
309-00-2	ALDRIN	9 U
1024-57-3	HEPTACHLOR EPOXIDE	9 U
959-98-8	ENDOSULFAN I	9 U
60-57-1	DIELDRIN	19 U
72-55-9	4,4'-DDE	19 U
72-20-8	ENDRIN	19 U
33213-65-9	ENDOSULFAN II	19 U
72-54-8	4,4'-DDD	19 U
7421-93-4	ENDRIN ALDEHYDE	19 U
1031-07-8	ENDOSULFAN SULFATE	19 U
50-29-3	4,4'-DDT	19 U
72-43-5	METHOXYCHLOR	94 U
53494-70-5	ENDRIN KETONE	19 U
57-74-9	CHLORDANE	94 U
8001-35-2	TOXAPHENE	190 U
12674-11-2	AROCLOR-1016	94 U
11104-28-2	AROCLOR-1221	94 U
11141-16-5	AROCLOR-1232	94 U
53469-21-9	AROCLOR-1242	94 U
12672-29-6	AROCLOR-1248	94 U
11097-69-1	AROCLOR-1254	190 U
11096-82-5	AROCLOR-1260	190 U

Ws = 30 = Weight of soil extracted (gr)
Vt = 1000 = Volume of total extract (ul)
Vi = 1 = Volume of extract injected(ul)
1st Column Inst. : 6000 PAA
2nd Column Inst. : 3400

U=UNDETECTED AT THE LISTED DETECTION LIMIT.
J=COMPOUND IS PRESENT, BUT BELOW THE LISTED DETECTION LIMIT.
B=COMPOUND ALSO FOUND IN BLANK.

Form 1

SAMPLE NUMBER: EL312

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ORGANICS ANALYSIS DATA SHEET - PAGE 4

LABORATORY NAME: SPECTRIX CORPORATION

CASE NO.: 7226

QC REPORT NO.: 221

ANALYST: CKT

DATAFILE: EU05013V09

B. TENTATIVELY IDENTIFIED COMPOUNDS

CAS #	VOLATILE COMPOUND NAMES	SCAN#	PURITY	AMOUNT
				UG
109-99-9	FURAN, TETRAHYDRO-	161	977	7

J = ESTIMATED VALUE - A 1:1 RESPONSE FACTOR IS ASSUMED

B = COMPOUND DETECTED IN QC BLANK

INST ID: 4530

SPECTRIX DC # 7226-5- 8

SAMPLE: EL31

RECEIVED JUN 24 1987

ORGANICS ANALYSIS DATA SHEET - PAGE 5

LABORATORY NAME: SPECTRIX CORPORATION

CASE NO.: 7226

QC REPORT NO.: 221

ANALYST: CEB

DATAFILE: EU05013C09

B. TENTATIVELY IDENTIFIED COMPOUNDS

CAS #	SEMIVOLATILE COMPOUND NAMES	SCAN#	PURITY	AMOUNT
				UG/KG
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	261		190000 J
4032-93-3	HEPTANE, 2,3,6-TRIMETHYL-	272	937	750 J
	UNKNOWN-DOESN'T MATCH ANY LIBRARY SPECTRA	352		2300 J
625-06-9	2-PENTANOL, 2,4-DIMETHYL-	715	765	170 J

J = ESTIMATED VALUE - A 1:1 RESPONSE FACTOR IS ASSUMED

B = COMPOUND DETECTED IN QC BLANK

ecology and environment, inc.

111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415

International Specialists in the Environment

Date Received for Review 21 July 87 Date Review Completed July 21 1987

To: Tom Kouris

From: Brenda R. Jones

Subject: LURIA BROS.

PAN: IN0571 Case # 7226

Sample Description

Organics (VOA, ABN, Pest/PCB)		Inorganics (Metals, Cyanide)	
#	Low Soil	# 4	Low Soil
	Low Water		Low Water
	Drinking Water		Drinking Water
	Other		Other

Project Data Status ✓✓ Completed!!

_____ Incomplete, awaiting: _____

FIT Data Review Findings:

Note: the data reviewer indicates that several elements may be biased low based on their spike recoveries. Please see attached memo

✓ Compounds were detected in sample(s); see enclosed Chemical Evaluation Form.

Book No. 6 Page No. 91

recycled paper

ecology and environment, inc.
111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415
International Specialists in the Environment

MEMORANDUM

DATE: 21 July 87
TO: File
FROM: Brenda Robbins Jones BRJ
SUBJECT: Luria Bros. & Company
PAN #: IN6571 CASE #: 7226

The reviewer of this inorganic/organic data package correctly notes that spike recoveries for the compounds/elements listed below are all biased low and should be considered estimated (i.e. qualified with a J). However, the data, at worst, underestimates the actual concentrations found in the sample.

It is my opinion that this data is usable for HRS purposes.

99N:5X

Element	Spike Recovery
Antimony	32%
Lead	70%
Mercury	33%

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ecology and environment, inc.

111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415

International Specialists in the Environment

Date Received for Review 21 July 87 Date Review Completed July 8 1987

To: Tom Kouris

From: Brenda R. Jones

Subject: LURIA BROS.

PAN: IN0571 Case # 7226

Sample Description

Organics (VOA, ABN, Pest/PCB)

#	Low Soil
	Low Water
	Drinking Water
	Other

Inorganics (Metals, Cyanide)

# 4	Low Soil
	Low Water
	Drinking Water
	Other

Project Data Status ✓✓ Completed!!

Incomplete, awaiting:

FIT Data Review Findings:

Note: the data reviewer indicates that several elements may be biased low based on their spike recoveries. Please see attached memo

✓ Compounds were detected in sample(s); see enclosed Chemical Evaluation Form.

Book No. 6 Page No. 91

recycled paper

ecology and environment, inc.
CHICAGO, ILLINOIS

CHEMICAL EVALUATION FORM

SITE NAME: Lurin Bros & Company PAN# IN0571 DATE: 21 July 87

CASE # 7226 UNITS: mg/kg REVIEWER: (DRJ)

TOX/ PERS	COMPOUND	CRDL	3-5xCRDL	MEM 037	038	039	040			
	Arsenic	2	6-10	10			56			
	Lead	1	3-5	130	147	170	438			
	Mercury	.008	.024-.04	1.8	0.28	0.18	919			
	Nickel	8	24-40	27	76	122	167			
	Selenium	1	3-5	8						
	Tin	8	24-40	36						
	Cadmium	1	3-5		25	32	36			
	Copper	5	15-25	28	280	225	351			
	Cyanide	2	6-10		2.9					
				Back-ground	53	52	51			
					Raw	Processed				

entered V
SUPERFUND 3968

CENTRAL REGIONAL LABORATORY SAMPLE DATA REPORT
ORGANICS/INORGANICS

LOG IN DATE: 5/18/87
DUE DATE: 7/4/87

THIS FORM IS TO BE USED FOR SAMPLES SENT TO CONTRACT ONLY

CASE NUMBER/SAS No. 72226 SITE NAME Lurio Bros & Co QV LABORATORY Spectrix 69 / Mack 55 DATE SHIPPED 5/5/87

SUPERFUND DU NUMBER 4905 EPA RPM or OSC (S.M.S.)/(CES) CERCLIS NUMBER IND095264818 PAGE 1 OF 1

ACTIVITY NUMBER C72100

CRL LOG NUMBER	ORGANIC TRAFFIC REPORT NUMBER or SAS Packing List No.	INORGANIC TRAFFIC REPORT NUMBER or SAS Packing List No.	WATER OR LIQUIDS: ACID-BASE NEUTRAL CPDS ORGANIC SCAN UG/L TOX17574	VOLATILE ORGANIC ANALYSIS ORGANIC SCAN UG/L TOX17564	WATER POLYCHLORINATED BIPHENYLS UG/L PES 17144	WATER CHLORINATED PESTICIDES UG/L PES17134	TOTAL METALS IN WATER UG/L MET111	WATER CYANIDE UG/L MIN74919	NITRATE/NITRITE MG/L MIN7284	AMMONIA MG/L MIN7294	RESIDUE, FILTERABLE TDS MG/L MIN7362	RESIDUE, NON-FILT TSS MG/L MIN7372			SEDIMENTS or SOILS: ACID-BASE NEUTRAL CPDS ORGANIC SCAN MG/KG TOX215722	VOLATILE ORGANIC ANALYSIS ORGANIC SCAN MG/KG TOX215622	SEDIMENTS POLYCHLORINATED BIPHENYLS MG/KG PES211422	SEDIMENT CHLORINATED PESTICIDES MG/KG 211322	TOTAL METALS MG/KG MET413	CYANIDE MG/KG MIN44930	EP TOXICITY METALS MG/KG	AMMONIA MG/KG MIN42925				
87FK06526	EL309 ✓	MEM037													✓	✓	✓	✓	✓	✓						
87FK06527	EL310 ✓	MEM038													✓	✓	✓	✓	✓	✓						
87FK06528	EL311 ✓	MEM039													✓	✓	✓	✓	✓	✓						
87FK06529	EL312 ✓	MEM040													✓	✓	✓	✓	✓	✓						

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U. S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

Date July 9, 1987

COVER PAGE
INORGANIC ANALYSIS DATA PACKAGE

Lab Name: Mack Laboratories
SOW No.: 784

Case No.: 7226
Q.C. Report No.: 3000/41

Sample Numbers

EPA No.	Lab ID No.	EPA No.	Lab ID No.
MEM 037	3000/536		
MEM 038	3000/537		
MEM 039	3000/538		
MEM 040	3000/539		

Comments:

ICP Interelemental and Background correction applied? Yes X No ____

If yes, correction applied before X or after N/A generation of raw data.

Footnotes:

NR - not required by contract at this time

Form I:

Value - If the result is a value greater than or equal to the instrument detection limit but less than the contract required detection limit, report the value in brackets (i.e., [10]). Indicate the analytical method used with P (for ICP/Flame AA) or F (for Furnace).

U - Indicates element was analyzed for but not detected. Report with the detection limit value (e.g., 10U).

E - Indicates a value estimated or not reported due to the presence of interference. Explanatory note included on cover page.

S - Indicates value determined by Method of Standard Addition.

R - Indicates spike sample recovery is not within control limits.

* - Indicates duplicate analysis is not within control limits.

\+ - Indicates the correlation coefficient for method of Standard Addition is less than 0.995.

NE - No flag required for spike recovery outside of control limits (75 - 125); sample concentration greater than 4 times the spike concentration.

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Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MEM 037

Date: July 9, 1987

INORGANICS ANALYSIS DATA SHEET

LAB NAME: Mack Laboratories
SOW NO. 784
LAB SAMPLE ID. NO. 3000/536

CASE NO. 7226

-- QC REPORT NO.: 3000/41

Elements Identified and Measured

Concentation: Low X Medium ____

Matrix: Water ____ Soil X Sludge ____ Other ____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	12,800 E		P	13.	Magnesium	4,920		P
2.	Antimony	24 UR	UJ	P	14.	Manganese	410 *		P
3.	Arsenic	10 *	J	F	15.	Mercury	1.8 R	J	C.Vapor
4.	Barium	136		P	16.	Nickel	27		P
5.	Beryllium	0.6		P	17.	Potassium	2,440		P
6.	Cadmium	3 U		P	18.	Selenium	8	J	F
7.	Calcium	11,600		P	19.	Silver	5 U		P
8.	Chromium	26 *	J	P	20.	Sodium	712 U		P
9.	Cobalt	12 U		P	21.	Thallium	5 U		F
10.	Copper	28 ER		P	22.	Tin	36		P
11.	Iron	15,400		P	23.	Vanadium	24		P
12.	Lead	130 R	J	P	24.	Zinc	260 R		P
Cyanide		0.47		Color	Percent Solids (%)		84		

Footnotes: For reporting results to EPA, Standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Defintion of such flags must be explicit and contained on Cover Page, however.

Comments: ____

Lab Manager ____

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Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MEM 038

Date: July 9, 1987

INORGANICS ANALYSIS DATA SHEET

LAB NAME: Mack Laboratories
SOW NO. 784
LAB SAMPLE ID. NO. 3000/537

CASE NO. 7226
QC REPORT NO.: 3000/41

Elements Identified and Measured

Concentation: Low X Medium ____

Matrix: Water ____ Soil X Sludge ____ Other ____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	2,720 E		P	13.	Magnesium	[1,100]	P
2.	Antimony	22 UR	UJ	P	14.	Manganese	2,400 *	P
3.	Arsenic	26 *s+	J	F	15.	Mercury	0.28 R J	C.Vapor
4.	Barium	[82]		P	16.	Nickel	76	P
5.	Beryllium	0.5 U		P	17.	Potassium	1,640 U	P
6.	Cadmium	25		P	18.	Selenium	2 Us+ J	F
7.	Calcium	14,800		P	19.	Silver	5 U	P
8.	Chromium	63 *	J	P	20.	Sodium	655 U	P
9.	Cobalt	11 U		P	21.	Thallium	5 U	F
10.	Copper	280 ER		P	22.	Tin	11 U	P
11.	Iron	342,000		P	23.	Vanadium	22 U	P
12.	Lead	147 R	J	P	24.	Zinc	455 R	P
Cyanide		2.9		Color	Percent Solids (%)		92	

Footnotes: For reporting results to EPA, Standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Defintion of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager John B Mack

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Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MEM 039

Date: July 9, 1987

INORGANICS ANALYSIS DATA SHEET

LAB NAME: Mack Laboratories
SOW NO. 784
LAB SAMPLE ID. NO. 3000/538

CASE NO. 7226
QC REPORT NO.: 3000/41

Elements Identified and Measured

Concentation: Low X Medium ____

Matrix: Water ____ Soil X Sludge ____ Other ____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	1,330 E		P	13.	Magnesium	266 U	P
2.	Antimony	21 UR	U5	P	14.	Manganese	3,600 *	P
3.	Arsenic	(47 *)	J	F	15.	Mercury	(0.18 R) J	C.Vapor
4.	Barium	[58]		P	16.	Nickel	(122)	P
5.	Beryllium	0.5 U		P	17.	Potassium	1,600 U	P
6.	Cadmium	(32)		P	18.	Selenium	(3) J	F
7.	Calcium	4,300		P	19.	Silver	5 U	P
8.	Chromium	(130 *)	J	P	20.	Sodium	639 U	P
9.	Cobalt	[11]		P	21.	Thallium	5 U	F
10.	Copper	(225 ER)		P	22.	Tin	11 U	P
11.	Iron	527,000		P	23.	Vanadium	21 U	P
12.	Lead	(170 R)	J	P	24.	Zinc	93 R	P
Cyanide		0.11 U		Color	Percent Solids (%)		94	

Footnotes: For reporting results to EPA, Standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Defintion of such flags must be explicit and contained on Cover Page, however.

Comments: ____

Lab Manager John B Mack

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Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MEM 040

Date: July 9, 1987

INORGANICS ANALYSIS DATA SHEET

LAB NAME: Mack Laboratories
SOW NO. 784
LAB SAMPLE ID. NO. 3000/539

CASE NO. 7226

QC REPORT NO.: 3000/41

Elements Identified and Measured

Concentation: Low X Medium ____

Matrix: Water ____ Soil X Sludge ____ Other ____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	2,200 E		P	13.	Magnesium	[2,260]		P
2.	Antimony	23 UR	UJ	P	14.	Manganese	4,230 *		P
3.	Arsenic	56 *		F	15.	Mercury	919 R	J	C.Vapor
4.	Barium	[86]		F	16.	Nickel	167		P
5.	Beryllium	0.6 U		P	17.	Potassium	1,730 U		P
6.	Cadmium	36		P	18.	Selenium	2 Us		F
7.	Calcium	8,990		P	19.	Silver	5 U		P
8.	Chromium	77 *	J	P	20.	Sodium	691 U		P
9.	Cobalt	[12]		P	21.	Thallium	5 U		F
10.	Copper	351 ER		P	22.	Tin	12 U		P
11.	Iron	635,000		P	23.	Vanadium	23 U		P
12.	Lead	436 R	J	P	24.	Zinc	265 R		P
Cyanide		0.12 U		C.Vapor	Percent Solids (%)		86		

Footnotes: For reporting results to EPA, Standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Defintion of such flags must be explicit and contained on Cover Page, however.

Comments: ____

Lab Manager John B Mack

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Form III - A

Q. C. Report No.: 3000/41

BLANKS

LAB NAME: Mack Laboratories CASE NO.: 7226

DATE: July 9, 1987 UNITS: ug/L

Matrix: Soil

Preparation Compound	Initial Calibration Blank Value	Continuing Calibration Blank Value 1	2	3	4	Preparation Blank 1	2
Metals:							
1. Aluminum	110 U	110 U	110 U	110 U	110 U	55 U	
2. Antimony	[40]	[50]	40 U			20 U	
3. Arsenic	4 U	4 U	4 U			[2]	
4. Barium	[20]	[20]	[20]			[40]	
5. Beryllium	1 U	1 U	1 U	1 U	1 U	0.5 U	
6. Cadmium	5 U	5 U	5 U	5 U	5 U	2 U	
7. Calcium	800 U	800 U	800 U	800 U	800 U	400 U	
8. Chromium	7 U	7 U	7 U			5	
9. Cobalt	20 U	20 U	20 U	20 U	20 U	10 U	
10. Copper	10 U	[14]	10 U	10 U	10 U	5 U	
11. Iron	40 U	40 U	40 U	40 U	40 U	20 U	
12. Lead	40 U	40	40 U	40	40 U	20 U	
13. Magnesium	500 U	500 U	500 U	500 U		250 U	
14. Manganese	6 U	6 U	6 U	6 U	6 U	3 U	
15. Mercury	0.2 U	0.2 U				0.1 U	
16. Nickel	30 U	30 U	30 U	30 U	30 U	15 U	
17. Potassium	3,000 U	3,000 U				1,500 U	
18. Selenium	4 U	4 U	4 U			[2]	
19. Silver	9 U	9 U	9 U	9 U	9 U	4 U	
20. Sodium	1,200 U	1,200 U	1,200 U			600 U	
21. Thallium	9 U	9 U	9 U			4 U	
22. Tin	20 U	20 U	20 U			[10]	
23. Vanadium	40 U	40 U	40 U	40 U	40 U	20 U	
24. Zinc	20 U	20 U	20 U			10 U	
Other							
Cyanide	2 U	2 U				0.1 U	

RECEIVED JUL 21 1987

Form III - B

Q. C. Report No.: 3000/41

BLANKS

LAB NAME: Mack Laboratories CASE NO.: 7226

DATE: July 9, 1987 UNITS: ug/L

Matrix: Soil

Preparation Compound	Initial Calibration Blank Value	Continuing Calibration Blank Value 5	6	7	8	Preparation Blank 3	4
Metals:							
1. Aluminum		110 U	110 U				
2. Antimony							
3. Arsenic							
4. Barium							
5. Beryllium		1 U	1 U				
6. Cadmium							
7. Calcium		800 U	800 U				
8. Chromium							
9. Cobalt		20 U					
10. Copper		10 U	10 U				
11. Iron		40 U					
12. Lead							
13. Magnesium							
14. Manganese		6 U	6 U				
15. Mercury							
16. Nickel		30 U					
17. Potassium							
18. Selenium							
19. Silver		9 U	9 U				
20. Sodium							
21. Thallium							
22. Tin							
23. Vanadium		40 U	40 U				
24. Zinc							
Other							
Cyanide							

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Form III - C

Q. C. Report No.: 3000/41

BLANKS

LAB NAME: Mack Laboratories CASE NO.: 7226

DATE: July 9, 1987 UNITS: ug/L

Matrix: Soil

Preparation Compound	Initial Calibration Blank Value	Continuing Calibration Blank Value 1	2	3	4	Preparation Blank 1	2
Metals:							
1. Aluminum							
2. Antimony							
3. Arsenic	4 U	4 U					
4. Barium	[20]	10 U	[10]				
5. Beryllium							
6. Cadmium	5 U	5 U					
7. Calcium							
8. Chromium	7 U	7 U	7 U				
9. Cobalt							
10. Copper							
11. Iron							
12. Lead							
13. Magnesium							
14. Manganese							
15. Mercury							
16. Nickel							
17. Potassium							
18. Selenium	4 U	4 U	4 U	4 U			
19. Silver							
20. Sodium							
21. Thallium							
22. Tin							
23. Vanadium							
24. Zinc							
Other							
Cyanide							

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Form III - D

S. C. Report No.: 3000/41

BLANKS

LAB NAME: Mack Laboratories CASE NO.: 7226

DATE: July 9, 1987 UNITS: ug/L

Matrix: Soil

Preparation Compound	Initial Calibration Blank Value	Continuing Calibration Blank Value 1	2	3	4	Preparation Blank 1	2
Metals:							
1. Aluminum							
2. Antimony							
3. Arsenic	4 U	4 U	4 U				
4. Barium							
5. Beryllium							
6. Cadmium							
7. Calcium							
8. Chromium							
9. Cobalt							
10. Copper							
11. Iron							
12. Lead							
13. Magnesium							
14. Manganese							
15. Mercury							
16. Nickel							
17. Potassium							
18. Selenium							
19. Silver							
20. Sodium							
21. Thallium							
22. Tin							
23. Vanadium							
24. Zinc							
Other							
Cyanide							

RECEIVED JUL 21 1987

Form V

Q. C. Report No.: 3000/41

SPIKE SAMPLE RECOVERY

LAB NAME: Mack Laboratories

DATE: July 9, 1987

CASE NO.: 7226
EPA Sample No.: MEM 038
Lab Sample ID No.: 3000/537
Units: mg/kg

Matrix: SOIL

Compound	Control Limit % R	Spiked Sample Result (SSR)	Sample Result (SR)	Spiked Added (SA)	% R[1]
Metals:					
1. Aluminum	75-125	NR			
2. Antimony	"	87	22 U	272	32R
3. Arsenic	"	42	26 s+	21	76
4. Barium	"	1,240	82	1,090	106
5. Beryllium	"	28	0.5 U	27	104
6. Cadmium	"	48	25	27	85
7. Calcium	"	NR			
8. Chromium	"	182	63	109	109
9. Cobalt	"	300	11 U	272	110
10. Copper	"	282	280	136	1R
11. Iron	"	NR			
12. Lead	"	338	147	272	70R
13. Magnesium	"	NR			
14. Manganese	"	2,520	2,430	272	33NF
15. Mercury	"	0.46	0.28	0.54	33R
16. Nickel	"	359	76	272	104
17. Potassium	"	NR			
18. Selenium	"	6 s+	2 Us	5.4	112
19. Silver	"	22	5 U	27	81
20. Sodium	"	NR			
21. Thallium	"	32	5 U	27	118
22. Tin	"	267	11 U	272	98
23. Vanadium	"	294	22 U	272	108
24. Zinc	"	812	455	272	131R
Other:					
Cyanide	"	8.1	2.9	5.4	96

1 % R = [(SSR - SR)/SA] x 100

"R" - Out of control
Comments: NF: No flag required - sample concentration greater than 4 times spike concentration.

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Form VI

Q. C. Report No.: 3000/41

DUPLICATES

LAB NAME: Mack Laboratories

DATE: July 9, 1987

CASE NO.: 7226
EPA Sample No.: MEM 039
Lab Sample ID No.: 3000/538
Units: mg/kg

Matrix: SOIL

Compound	Control Limit [1]	Sample (S)	Duplicate (D)	RPD [2]
Metals:				
1. Aluminum	20	1,320	1,420	7
2. Antimony	NC	21 U	21 U	NC
3. Arsenic	20	47	37 s+	24 *
4. Barium	NC	[58]	[74]	NC
5. Beryllium	NC	0.5 U	0.5 U	NC
6. Cadmium	20	32	30	6
7. Calcium	20	14,600	13,400	10
8. Chromium	20	130	194	40 *
9. Cobalt	NC	[11]	[11]	NC
10. Copper	20	225	219	3
11. Iron	20	527,000	512,000	3
12. Lead	20	170	186	9
13. Magnesium	NC	266 U	[2,090]	NC
14. Manganese	20	3,600	4,770	28 *
15. Mercury	+-CRDL	0.18	0.24	28
16. Nickel	20	122	122	0
17. Potassium	NC	1,600 U	1,590 U	NC
18. Selenium	NC	3	[2]	NC
19. Silver	NC	5 U	5 U	NC
20. Sodium	NC	639 U	636 U	NC
21. Thallium	NC	5 U	5 U	NC
22. Tin	NC	11 U	11 U	NC
23. Vanadium	NC	21 U	42	NC
24. Zinc	20	93	93	0
Other:				
Cyanide	NC	0.11 U	0.11 U	NC

* Out of Control

[1] To be added at a later date

[2] RPD = [|S - D|/((S + D)/2)] x 100

NC - Non Calculable RPD due to value(s) less than CRDL

RECEIVED JUL 21 1987

Form VI

Q. C. Report No.: 3000/41

DUPLICATES

LAB NAME: Mack Laboratories

DATE: July 9, 1987

CASE NO.: 7226
EPA Sample No.: MEM 039
Lab Sample ID No.: 3000/538
Units: mg/kg

Matrix: SOIL

Compound	Control Limit [1]	Sample (S)	Duplicate (D)	RPD [2]
Metals:				
1. Aluminum	20	1,320	1,420	7
2. Antimony	NC	21 U	21 U	NC
3. Arsenic	20	47	37 s+	24 *
4. Barium	NC	[56]	[74]	NC
5. Beryllium	NC	0.5 U	0.5 U	NC
6. Cadmium	20	32	30	6
7. Calcium	20	14,800	13,400	10
8. Chromium	20	130	194	40 *
9. Cobalt	NC	[11]	[11]	NC
10. Copper	20	225	219	3
11. Iron	20	527,000	512,000	3
12. Lead	20	170	186	9
13. Magnesium	NC	266 U	[2,090]	NC
14. Manganese	20	3,600	4,770	28 *
15. Mercury	+-CRDL	0.18	0.24	28
16. Nickel	20	122	122	0
17. Potassium	NC	1,600 U	1,590 U	NC
18. Selenium	NC	3	[2]	NC
19. Silver	NC	5 U	5 U	NC
20. Sodium	NC	639 U	636 U	NC
21. Thallium	NC	5 U	5 U	NC
22. Tin	NC	11 U	11 U	NC
23. Vanadium	NC	21 U	42	NC
24. Zinc	20	93	93	0
Other:				
Cyanide	NC	0.11 U	0.11 U	NC

* Out of Control

[1] To be added at a later date

[2] RPD = [|S - D|/((S + D)/2)] x 100

NC - Non Calculable RPD due to value(s) less than CRDL

RECEIVED JUL 2 1 1987

DEVELOPMENT OF A DEOILING PROCESS FOR RECYCLING MILLSCALE

Derek S. Harold

Luria Brothers and Company
Cleveland, Ohio

INTRODUCTION

The annual production of raw steel in the United States and Canada averaged 134 million tons over the last seven years. In that same period, the generation of iron-bearing waste solids reached a level of roughly 13 million tons,(1)* of which approximately 7 million tons were mill scale. This tonnage of mill scale constitutes 3.7 to 4.7 percent(2)* of the annual raw steel output of an integrated steel plant and is governed by operating practice, the types of steel produced, the availability of continuous casting, and overall mill facilities.

Among the various waste oxides produced in a steel plant, mill scale is the most attractive candidate for reclamation because of its high iron content and its potential for replacing costly purchased iron units.

Several different contaminants in varying quantities accompany the raw mill scale which is generated. Among these are metallic scrap, rubble, moisture, mill lubricants, and rolling oil, which are picked up during the various processing steps. These contaminants are tabulated in Table I. The scrap and rubble can be removed mechanically, but the moisture and oil must be treated by other means for reduction or elimination. In general, the quantities of both oil and moisture increase with decreasing particle size.

Until recent years, mill scale under 1/4 inch in size was recycled to the sinter plant and contributed low cost iron units as well as enhanced the quality of the sinter produced.

*See references

Table I - Raw Millscale Contaminants

Scrap	Percent Range
Plus 5" Size	0.3 - 0.5%
+5/8" - 5"	2.0 - 3.5%
Moisture	3.0 - 9.0%
Oil	0.3 - 10.2%
Rubble	0.2 - 0.5%

At the present time however, with the advent of sophisticated air pollution control facilities, oily millscale cannot be sintered in large quantities because of mill operating problems and environmental restrictions. Oil contained in the millscale volatilizes during sintering resulting in a carryover of hydrocarbons to the bag house or scrubber. These hydrocarbons present a fire hazard, can blind the filter bags and result in unacceptable stack emissions. Removal of the hydrocarbons before sintering is therefore essential in order to achieve maximum recycling of this material.

The problems imposed by hydrocarbon contamination have caused substantial tonnages of oily mill scale to be stockpiled while significantly less desirable waste oxides have been recycled.

Several methods for oil removal have been investigated and are described in the literature.(2)* These processes are shown in Table II. While each of these systems is attended by varying degrees of success, Luria chose direct incineration as both the simplest and the most likely to provide consistent success in removing oil from scale.

The selection of direct incineration resulted in the construction of a plant in Gary, Indiana, for de-oiling mill scale generated at Inland Steel Company. This facility began operating in November, 1978.

Table II - Millscale Deoiling Methods (2)*

Washing	Thermal Incineration
1 - Water	1 - Direct Firing
2 - Hot Alkaline	2 - Indirect Firing
3 - Solvent	

Process Description

Figure 1 shows the de-oiling plant layout and the flow path of the mill scale received from the steel plant.

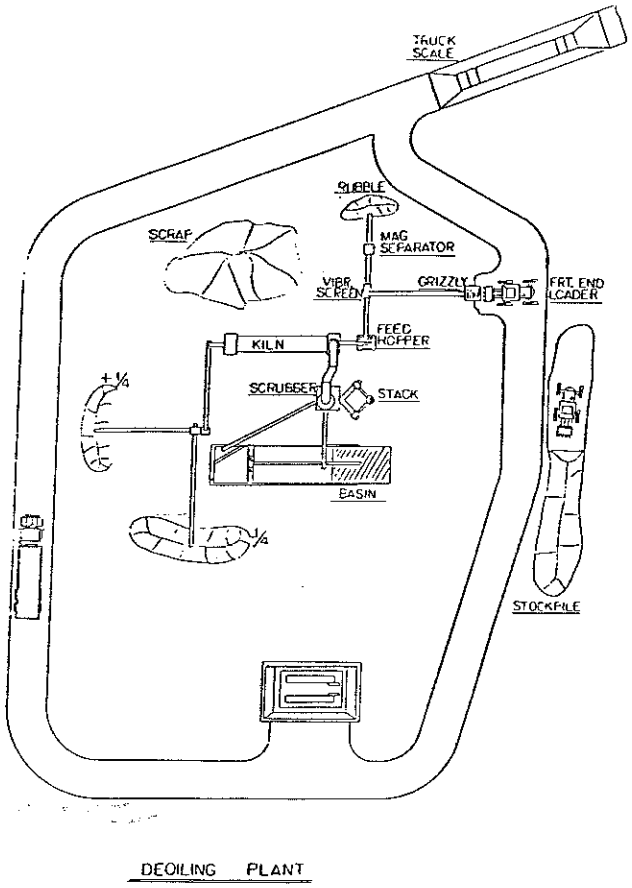

Figure 1 - Deoiling Plant

Unprocessed mill scale is delivered to the facility by truck and weighed into the raw material stockpile. A front end loader equipped with a 4 yard bucket transports the material to the grizzly where scrap and rubble over 5" is removed. A pan feeder under the grizzly hopper controls the flow of mill scale to the conveyor travelling to the vibratory screen. Oversize material on the 5/8" x 2" screen passes to the magnetic separation equipment which recovers scrap suitable for direct charge to the blast furnaces. Rubble is collected at the end of the conveyor for disposal. Minus 5/8" x 2" screened mill scale from the vibrating screen moves by conveyor to the kiln feed hopper which holds approximately 20 net tons. Delivery of oily material to the kiln is accomplished with a variable speed feed screw.

The rotary kiln is oil fired, 10' in diameter by 60' long and is lined with 6" of refractory lining. Oily mill scale entering the kiln is agitated by kiln rotation and internal lifters which cause the material to cascade through the hot combustion gases. The kiln rotates at slightly less than 4 RPM's with retention time of approximately 12 minutes.

Dry, oil-free scale is discharged from the kiln and conveyed to a vibrating screen which separates the plus 1/4-inch from the remainder for return to the blast furnace. Four percent water is added to the minus 1/4-inch material for dust suppression and for control purposes at the sinter plant.

Table III describes the dry properties of the de-oiled mill scale and demonstrates that the iron-rich material is well within the residual oil limit of 0.01%.

Table III
Deoiled Millscale Analysis (2)*
Sinter Plant Size (Dry Basis)

	Percent
Total Fe	76.2
Fe ++	45.9
Fe +++	18.7
Metallic Fe	11.6
Magnetic Fe	26.3
Gangue	4.0
Sul	.029
Oil	.005*

Oil Specification - .01% Max.

Table IV
Physical Properties Deoiled Millscale(2)*
Sinter Plant Size

Screen Size	Wt. %	Cum. Wt. %
Plus 1/4"	0.4	0.4
-1/4" + 4 Mesh	1.0	1.4
- 4 + 6 Mesh	3.0	4.4
- 6 + 10 Mesh	8.8	13.2
- 10 + 18 Mesh	13.5	26.7
- 18 + 32 Mesh	28.4	55.1
- 32 + 60 Mesh	18.8	73.9
- 60 + 100 Mesh	13.8	87.7
- 100 Mesh	12.3	100.0
Bulk Density (Dry Basis)	190 - 205 lb./ft.^{3}	

Table IV outlines the particle size distribution of treated scale which is recirculated to the sinter strand. The composition of the scale and its relative fineness result in a bulk density ranging from 190 to 205 pounds per cubic foot.

The oil-free and moistened mill scale is loaded from the product stockpile and transported to the sinter plant at Inland Steel, a distance of roughly 3/4 mile.

Production Figures

Production of sinter plant size material has averaged 27,029 net tons per month for the past year, with a best single month output of 34,618 net tons.

Both delivery of raw scale and shipment of treated scale are normally made on a five-day per week basis. Thus, the average daily shipment of de-oiled material to the sinter plant has been 1,351 net tons.

Environmental Aspects

The hot gases leave the kiln at a temperature of roughly 800°F and pass into an after burner chamber where the temperature is raised to about 1500°F for complete incineration of residual hydrocarbons. Approximately 25,000 cubic feet per minute of hot gases leave the after burner and travel through ductwork into a high intensity wet scrubber before being discharged into the atmosphere. The duct is refractory lined and the internal gas velocity is sufficient to entrain any particulate matter.

The wet scrubbing system is shown in Figure 2. Water is sprayed into the system at a rate of 400 gallons per minute and the pressure drop across the venturi throat is 20 inches of water. After being scrubbed and having particulates removed, the clean gas passes through a mist eliminator and then into the induced draft fan and the stack.

Based upon the fraction of solid matter removed, the scrubber efficiency is above 99%. The data are shown in Table V. The system has performed with exceptional efficiency since operation began. The stack emission rate has been consistently under 2 lbs. per hour and is always substantially below the permissible level of 20 lbs. per hour.

The slurry from the scrubber is pumped to a basin where the solids settle quickly, and the water is returned to the scrubber for re-use.

From a performance point of view, the scrubber has operated very well. Excessive abrasion and internal erosion,

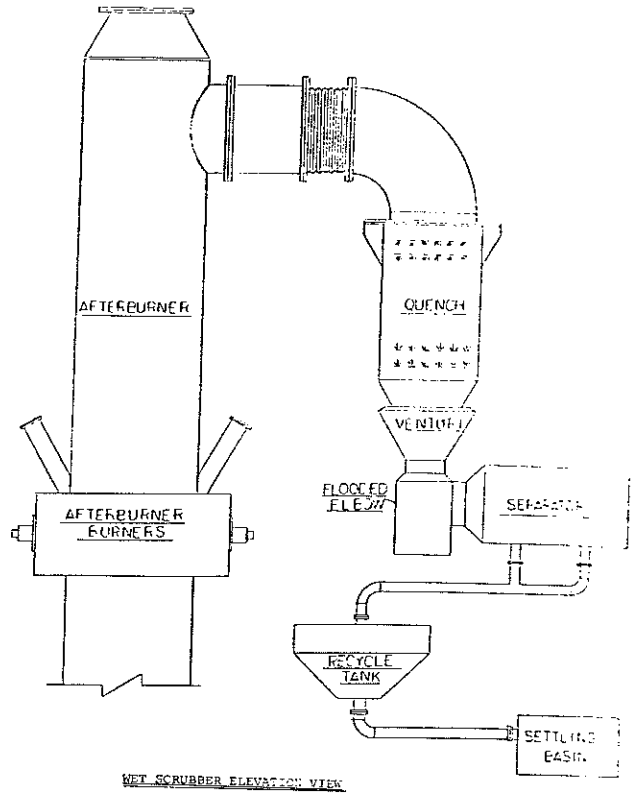

Figure 2 - Wet Scrubber Elevation View

however, have resulted in relatively high maintenance costs. Consequently, the quencher, venturi inlet, and venturi throat are being replaced with more abrasion-resistant material. Experimental work with refractory coatings has demonstrated satisfactory performance, and this material will be utilized for the internal parts which are subject to abrasion wear.

Production Problems

Aside from normal start-up and operating problems, most troubles have resulted from the high density and abrasive properties of the mill scale being treated. Steps are being taken presently to minimize these problems.

Process costs are most sensitive to fuel costs, and the steady rise of fuel oil prices has imposed an ever heavier burden on the cost of de-oiling the mill

Table V - Wet Scrubber Efficiency

Test	Production Rate	Scrubber Inlet Particulate Loading	Stack Particulate Emission Rate	Efficiency
#1	43 NT/Hr.	1280 lb./Hr.	1.8 lb./Hr.	99.8%
#2	43 NT/Hr.	951 lb./Hr.	1.3 lb./Hr.	99.8%

scale. For this reason, a shift to the use of natural gas as fuel is being made. This change will result in a 58% reduction in fuel costs at today's prices and, together with better handling techniques and the employment of more abrasion-resistant construction materials, will permit de-oiling of mill scale at a significantly lower cost.

Conclusions

Although the process concept is simple and the equipment used for de-oiling mill scale is unsophisticated, the following conclusions may be drawn from Luria's work:

(1) Large quantities of oil-contaminated mill scale can be treated on a steady, high tonnage basis.

(2) The mill scale which is produced by Luria's de-oiling process is highly satisfactory and will permit additions in excess of 20% of sinter plant feed.

(3) The process produces material of consistently high quality and low oil content. These features insure operation of the sinter plant within the environmental standards established.

(4) Optimization of fuel selection, burner placement, and construction materials will provide a low cost source of valuable iron units, and will simultaneously minimize disposal and environmental problems.

Future Plans

It is recognized that the existing scale de-oiling plant is but a first generation facility, and that much can be done to make its operation more attractive.

To this end, studies are presently underway to establish the most suitable materials of construction and optimum methods of handling and transferring a heavy, abrasive material. This work should result in greater than 85% availability of the equipment and reduce maintenance costs to their lowest level.

In addition to the shift from fuel oil to gas, a program to study the effects of burner position within the kiln has been initiated. The placement of the burners within the after burner chamber will also be investigated for optimum results and fuel conservation.

A further program will be undertaken to determine whether the use of recuperators in the waste gas stream can provide an additional cost reduction which will warrant the required capital investment for such a system.

Long range considerations point to steady refinement of the process to achieve lowest possible cost in de-oiling mill scale. At the same time, the incorporation of other steel plant wastes will be examined to ascertain whether these less valuable but important materials can also be treated in the equipment in an acceptable manner.

Agglomeration process studies will also be pursued to establish the response of de-oiled mill scale and to determine whether the agglomerates can be returned to the blast furnace directly, thus saving the cost of sintering.

The work already accomplished, as well as that being planned is vital. The recovery of iron, carbon, calcium and other valuable units is essential considering future availability and cost of these materials. Finally, reclamation and recycling of mill waste materials can eliminate or minimize in-plant handling, storage and environmental problems. We believe these concepts to be a very important support of a strong and prosperous Steel Industry in the United States.

References

1. Harris, M. M., The Use Of Steel Mill Waste Solids In Iron And Steelmaking. American Iron and Steel Institute - 86th General Meeting, May 24, 1978.

2. Balajee, S. R., Deoiling And Utilization Of Millscale. First E.P.A. symposium on the Iron and Steel Pollution Abatement Technology. November 1, 1979.

RCRA FACILITY REVIEW FOR SOLID WASTE MANAGEMENT UNITS

FACILITY NAME: Luria Brothers and Company, Inc.
EPA ID NUMBER: IND 095264818
LOCATION (CITY, STATE): Gary, Indiana
DATE OF INSPECTION: July 14, 1984
INSPECTOR(S): Reggie Baker, Jim Matter
TITLE(S): Permit Writers
FACILITY REPRESENTATIVES PRESENT: -none-

1. Based on a review of State records, describe any land disposal units that have ever had a State permit for managing municipal or industrial (non-hazardous) waste at this site. Summarize the information which is available to indicate whether the waste may contain hazardous constituents and whether the unit may be leaking.

none

2. Based on a review of State records, describe any incinerators or other solid waste management units at this site (other than those treatment, storage and disposal units that have interim status) for which a State air pollution control permit has been issued. Summarize the information which is available to indicate whether the waste may contain hazardous constituents, and whether and whether the emissions from the unit may contain hazardous constituents.

No permits issued for rotary kiln incinerator.

3. Based on a review of State records (including CERCLA 103(c) notifications, complaints from the public, etc.) describe any known, suspected or likely releases of hazardous constituents to the environment from solid waste management units, except those spills not related to a specific unit, which were properly reported and cleaned up.

none

4. Based on State records, describe any permitted injection wells at this facility and indicate whether injected the wastes may contain hazardous waste or hazardous constituents. Summarize the information which is available to indicate whether hazardous constituents may be escaping to the environment through improperly constructed or managed injection wells.

none

5. Did you see any of the following solid waste management units or evidence of prior existance of such a unit at the facility? NOTE - DO NOT INCLUDE HAZARDOUS WASTES UNITS CURRENTLY SHOWN IN THE PART B APPLICATION

	YES	NO
• Landfill		✓
• Surface Impoundment		✓
• Land Farm		✓
• Waste Pile		✓
• Incinerator	✓	
• Storage Tank (Above Ground)	✓	
• Storage Tank (Underground)		✓
• Container Storage Area	✓	
• Injection Wells		✓
• Wastewater Treatment Units		✓
• Transfer Stations		✓
• Waste Recycling Operations		✓
• Waste Treatment, Detoxification		✓
• Other -		✓

6. If there are "Yes" answers to any of the items in Number 5 above, please provide a description of the wastes that were stored, treated or disposed of in each unit. In particular, please focus on whether or not the wastes would be considered as hazardous wastes or hazardous constituents under RCRA. Also include any available data on quantities or volume of wastes disposed of and the dates of disposal. Please also provide a description of each unit and include capacity, dimensions, location at facility, provide a site plan if avalable. You may simply reference the owner or operator's "Certification Regarding Potential Releases from Solid Waste Management Units" if the description contained therein appears to be accurate.

10,000 storage tank labeled "Journal Oil".
1 - 55 gallon drum labeled "Ethylene Glycol".
20 - Bags of "Soda Ash".
4 - 100# Bags of unknown material.
6 - 55 gallon drums containing a "dark oil".
1 - 5 gallon container labeled "alumina Chromic Oxide Phosphate Bonded ~~Plastic Refractory~~".

7. If previous inspection reports indicated the presence of solid waste management units other than those described above, what is known about them?

none

8. Describe other information about existing or closed solid waste management units at this facility that should be considered in determining whether there may be a continuing release of hazardous waste or hazardous constituents from solid waste mangement units.

none

DENNIS E. WILLIAMSON
Typed or Printed Name - State Permit Writer

Dennis E Williamson
Signature - State Permit Writer

1-14-86
Date

FACILITY MANAGEMENT PLAN APPROVAL

Facility Name Luria Bros. & Co.

EPA ID Number IND 095264818

Facility Location 6633 W. Industrial Hwy.
Gary, IN 46406

Date Received from State 4/11/86

Date TPS Review 4/22/86

Date HWEB Review 5/7/86

Date ERRB Review 5/5/86

The Facility Management Plan for this facility is

- [ ] Corrective Action Order
- [x] Action involving ERRB
- [ ] RCRA permit
- [ ] Other

Brief narrative Closure of this facility was completed but never certified. The facility stopped operation in 1981. The property is now abandoned. Based on the IDEM recommendation for referral to CERCLA for federally financed activity and concurrence by SWB/TPS and ERRB/TSU, the site has been added into the CERCLIS data base and referred for inspection.

Based on my review, this FMP is hereby approved

Signature Clifton Plufch (EPA TPS staff)

Date 6/25/86

FACILITY MANAGEMENT PLAN (FMP)
Concurrence Sheet

To: Unit Chief, Hak Cho, Technical Programs Section.
State of Indiana

Name of Facility: Luria Bros. and Co., Inc.

Identification Number: IND 095264818

I have reviewed the subject FMP and concur/disagree with the recommended course of action.

Comments:

I concur with the recommendation for referral to CERCLA for Federally Financed or Enforcement Activity. The property is now abandoned and has been since 1981. The site is unfenced and nearly devoid of vegetation. The grounds are covered with a dark ash/cinder/scale material

Charles Hatcher 4/22/86
Signature and Date

State Form 4336

STATE BOARD OF HEALTH

INDIANAPOLIS

OFFICE MEMORANDUM

DATE: March 5, 1986

TO: RCRA File, Luria Brothers, IND 095264818
Gary, Indiana

THRU: Thomas Linson TEL 3/5/86

FROM: Dennis Williamson DCW 3/5/86
Plan Review and Permit Section

SUBJECT: Facility Management Plan Narrative

Facility Contact: Matthew J. Herman
Plant Manager
c/o P.O. Box 6548
Cleveland, OH 44101
(216) 752-4000

Permit Status: COMPANY REQUESTED WITHDRAWAL (04/23/82)

In May 1981, Luria Brothers applied for a hazardous waste processing permit. In July 1981, 659 tons of material was received, processed and returned to Bethlehem Steel in August 1981. In December 1981, the Gary Processing Plant stopped operation. Closure was completed, but never certified. The company requested withdrawal of interim status April 23, 1982. The property is now abandoned.

Summary and Corrective Action Review:

A closure inspection was conducted by the Indiana State Board of Health on July 18, 1984. Numerous items were found at the site, which may or may not be hazardous. The items found include the following:

1. One 55-gallon drum labeled "Ethylene Glycol" over one-half full with an open bung.

2. Twenty bags labeled "Soda Ash" which were torn open and spilling on the ground.

3. Four 100-pound bags of unknown material from AP Green Refractories.

4. One five-gallon container labeled "Aluminum Chronic Oxide Phosphate Bonded Plastic Refractory."

5. Six 55-gallon drums labeled "Phillips Petroleum" which were open and contained a dark oil which may have been reclaimed motor oil.

6. A very large, possibly 10,000-gallon storage tank labeled "Journal Oil" and with "No Smoking" stickers on it. This tank was steadily leaking a dark, viscous oily substance on the ground.

The facility was left in a shamble with equipment and junk all over. Physical security was nonexistent. This company no longer operates in the State of Indiana.

Recommendations

Referral to U.S. EPA/CERCLA for federally financed or enforcement activities.

THIS IS AN ENVIRONMENTALLY SIGNIFICANT FACILITY.

* This narrative prepared by: Dennis E. Williamson
Division of Land Pollution Control
Indiana State Board of Health
AC 317/243-5170

DEW/tr

Name of Preparer: DENNIS WILLIAMSON/DALE BEAL
Date: 1-14-86 and 3-3-86

Model Facility Management Plan

1. Facility Name: LURIA BROTHERS AND COMPANY, INC.

2. Facility I.D. Number: IND 095264818

3. Owner and/or Operator: DEREK S. HAROLD, General Mgr., c/o 20521 Chagrin Blvd. Cleveland, Ohio 44101

4. Facility Location: 6633 W. INDUSTRIAL HIGHWAY
Street Address

GARY	LAKE	INDIANA	46406
City	County	State	Zip Code

5. Facility Telephone (if available): (219) 949-8118 (PLANT CLOSED)
(216) 752-4000 (Cleveland, Ohio OFFICE)

6. Interim Status and/or Permitted Hazardous Waste Units and Capacities of Each Unit:

Type of Units	Size or Capacity	Active or Closed
✓ Storage in Tanks or Containers	10,000 gallons	Inactive - not certified closed.
✓ Incinerator	Rotary Kiln - 10' x 60' 25 TONS/HR.	Inactive - not certified closed.
___ Landfill		
___ Surface Impoundment		
✓ Waste Pile	400 yds.	Inactive - not certified closed.
___ Land Treatment		
___ Injection Wells		
___ Others (Specify)		

7. Permit Application Status: Requested withdrawal (April 23, 1982) (IDEM action item number)

8. Identification of Hazardous Waste Generated, Treated, Stored or Disposed at the Facility: (may attach ~~Part A~~ or permit list or reference those documents if listing of wastes is exceptionally long - in that case, to complete this question list wastes of greatest interest and/or quantity and note that additional wastes are managed)

Type of Waste	Quantity	Generated, Treated, Stored or Disposed (note appropriate categories)
F006 K062	60,000 TONS (ANNUAL)	(T04, S03) Rotary Kiln Incinerator 10,000 gallon storage tank Apparently waste was to be stored in a pile before incineration. The 4-23-82 letter from Kevin Bottles, mention is made that the only hazardous waste processed was 659 tons of material in July 1981.

9. Review of Response to Solid Waste Management Questionaire indicates: (check one)

_____ Solid Waste Management Units exist (other than previously identified RCRA units)

✓ No Solid Waste Management Units exist (other than previously identified RCRA units)

_____ It is unclear from review of questionaire whether or not any solid Waste Management Units exist

_____ Respondent indicates that does not know if any Solid Waste Management Units exist

10. If the response to question 9 is that Solid Waste Management Units exist, than check one of the following:

_____ Releases of hazardous waste or constituents have occurred or are thought to have occurred

_____ Releases of hazardous waste or constituents have not occurred

_____ Releases of hazardous waste or constituents have occurred or are thought to have occurred but have been adequately remedied

_____ It is not known whether a release of hazardous waste or constituents has occurred

11. The facility is on the National Priorities List or proposed update of the List or ERRIS list

_____ Yes - indicate List or update

✓ No

_____ Yes - ERRIS list

Prior to completion of the Recommendation portion of the Facility Management Plan, the attached Appendix must be completed.

12. Recommendation for Regional Approach to the Facility: Check one

_____ Further Investigation to Evaluate Facility

_____ Permit Compliance Schedule

_____ Corrective Action Order (may include compliance schedule)

_____ Other Administrative Enforcement

_____ Federal Judicial Enforcement

X Referral to CERCLA for Federally Financed or Enforcement Activity

_____ Voluntary/Negotiated Action

_____ State Action

Brief narrative in explanation of selection : _____

_____

_____

_____

a) If further investigation alternative is selected:

_____ Site inspection - anticipated inspection date _____

State or Federal inspection _____

_____ Preliminary Assessment - anticipated completion date _____

_____ RI/FS - anticipated date of initiation _____

State/Federal_____

Private Party_____ identify party(ies)

_____

b) If Permit Alternative is Selected: Projected Schedule

Date of Part B Submission: _____

Date of Completeness Check: _____

Date for Additional Submissions (if required): _____

Date of Completion of Technical Review: _____

Completion of Draft Permit/Permit Denial: _____

Public Notice for Permit Decision: _____

Date of Hearing (if appropriate): _____

Date for Final Permit or Denial Issuance: _____

Description of any corrective action provisions to be included in permit -

_____

_____

_____

c) If Corrective Action Order Alternative is Selected:

Estimated Date for Order Issuance: _____

Description of Provisions of the Order to be Completed by Facility: _____

_____

_____

Description of Compliance Schedule to be Contained in Order:

_____

_____

_____

d) If Other Administrative Enforcement Action is Selected:

Projected Date for Issuance of the Order: _____

Description of Provisions or Goals of the Order: _____

_____

_____

e) If Judicial Enforcement Alternative Selected:

Date of Referral to Office of Regional Counsel: _____

f) If Referral to CERCLA for Action Selected:

Date of Referral to CERCLA Sections: ASAP

g) If Voluntary/Negotiated Action Alternative if Selected:

Date of Initial Contact with Facility: _____

Description of Goals of Contact or Discussions with Facility: _____

_____

_____

_____

Date for Termination of Discussions if Not Successful:

_____

Date of Finalization of Settlement if Negotiation Successful:

_____

h) If State Action Alternative is Selected:

Date for Referral to State: _____

Name of State Contact: _____

Phone: _____

APPENDIX

The questions constituting this Appendix to the Facility Management Plan must be filled out prior to completion of recommendation elements of the Plan. The purpose of this appendix is to provide a summary documentation of the State and/or U.S.EPA review of available information on the subject facility. The intent is that a comprehensive file review will be conducted as the basis for selection of the recommended approach to a given facility. If the Appendix is completed by State personnel questions referring to available data reference information in State files; for Federal personnel the reference is to Federal files. Where questions refer to "all" available data or information and such material is voluminous, the response should indicate that files are voluminous, and then reference most telling information, for example groundwater contaminants found frequently or at extremely high concentrations should be specifically listed, and information most directly supporting recommended approach to facility should be described. If no information is available in facility files, the response should so indicate. It is also anticipated that this Appendix may be updated periodically as more information becomes available.

1. Description of All Available Monitoring Data for Facility:

Type of Data	Date	Author	Summary of Results or Conclusions

NONE IN FILES

2. Description of Enforcement Status:

Type of Action	Date	Local, State or Federal	Result or Status

NO CURRENT ACTIVITY IN FILES

3. Description of Any Complaints from Public:

Source of Complaint	Date	Recipient	Subject and Response
NONE IN FILES			

4. Description of All Inspection Reports for Facility:

Date of Inspection	Inspector (Local, State, or Federal)	Conclusions or Comments
7-18-84	State	Property abandoned

5. During inspection of this facility, did the inspector note any evidence of past disposal practices not currently regulated under RCRA, such as piles of waste or rubbish, injection wells, ponds or surface impoundments that might contain waste or active or inactive landfills?

_____ YES - give date of inspection and describe observation:

_____

_____

_____

_____

✓ NO _____ DON'T KNOW

6. Do inspection reports indicate observations of discolored soils or dead vegetation that might be caused by a spill, discharge or disposal of hazardous wastes or constituents?

✓ Yes - indicate date of report and describe observations

7-18-84 - "Reddish color soil, mostly devoid of plant life."

_____ No

_____ Don't know

7. Do inspection reports indicate the presence of any tanks at the facility which are located below grade and could possibly leak without being noticed by visual observation?

_____ Yes - date of inspection and describe information in report

✓ No - But, above ground tank was "steadily leaking a dark, viscous oily substance on the ground."

_____ Don't know

8. Does a groundwater monitoring system exist at the facility? NO RECORD ON FILE

9. If answer to question 8 is yes, is the groundwater system capable of monitoring both regulated RCRA units and other Solid Waste Management Units? _____

Explain - _____

10. Is the groundwater monitoring system in compliance with applicable RCRA groundwater monitoring standards? N/A

If no, explain deficiency _____

11. Decribe all information on facility subsurface geology or hydrogeology available.

Type of Information	Author	Date	Summary of Conclusions
Unknown			

12. Did the facility submit a 103(c) notification pursuant to CERCLA?

_____ Yes Date of Notification _____

✓ No

13. If answer to 12 is yes, briefly summarize content of that notification. (waste management units identified, type of waste concerned)

14. Has a CERCLA Preliminary Assessment/Site Investigation (PA/SI) been completed for this facility?

_____ Yes

✓ No

15. If answer to question 14 is yes, briefly describe conclusions of the PA/SI focusing on types of environmental contamination found, wastes and sources of contamination.

_____

_____

_____

_____

_____

16. If available, having reviewed the CERCLA notification, RCRA Part A and RCRA Part B, it appears that: (CERCLA unit refers to unit or area of concern in CERCLA response activity)

_____ RCRA and CERCLA units are same at this facility

_____ RCRA and CERCLA units are clearly different units

_____ There is an overlap between the RCRA and CERCLA units (some are the same, some are different)

17. Description of Any Past Releases or Environmental Contamination:

Type/Source of Release	Date	Material Released	Quantity	Response
unknown				

18. Identification of Reports or Documentation Concerning Each Release Described in Item 17.

Title/Type of Report	Date	Author	Recipients	Contents
N/A				

19. Highlight any information gaps in the file - describe any plans to obtain additional needed information.

What hazardous wastes were handled, through treatment (incineration), storage or disposal at this facility? Files indicate that the facility began incineration of oily millscale in 1978 but no data on that material is available. Also, what was the fate of the residues (ash, scrubber sludge) from the incinerator?

20. Summary of major environmental problems noted, desired solution and possible approaches.

Problem	Solution	Approach	Pros and Cons

SBH66-070
9-85

State Form 4336

EPA

STATE BOARD OF HEALTH

INDIANAPOLIS

OFFICE MEMORANDUM

DATE: March 24, 1986

TO: RCRA File 1B1
Luria Brothers and Company, Inc.

THRU: David Berrey DWB

FROM: Thomas O'Leary TEO
Compliance Monitoring Section

SUBJECT: RCRA Compliance Inspection
Luria Brothers and Company, Inc.
IND 095264818

RECEIVED
APR 14 1986
SWD - AIS
U.S. EPA, REGION V

RECEIVED
APR 1 1986
SOLID WASTE BRANCH
U.S. EPA, REGION V

On March 10, 1986, I attempted to conduct a scheduled RCRA TSD land disposal compliance inspection of Luria Brothers and Company, Inc., 6633 West Industrial Highway, Gary. No one was available to represent the facility. Luria Brothers processed waste solids from the steel industry. The plant is presently abandoned and has been since late 1981.

A pre-inspection file audit revealed that Luria Brothers notified in May 1981 and were granted interim status by the U.S. EPA, Region V. In December 1981, the facility ceased operations and vacated the property. In April 1982, Luria Brothers submitted a closure plan, which was modified and public noticed by the U.S. EPA, but apparently was never approved by them. Closure certification was never submitted. The State does not recognize the closure plan that the U.S. EPA referred to us. In November 1985, the facility lost its interim status.

The facility is located just north of the Gary Airport and is adjacent to the Conservation Chemical site. The property also borders a scrap metal yard and a junkyard. The facility consists of a roofed steel skeleton containing a rotary kiln and scrubber stack and a smaller steel shed. A cement "bunker" containing an ash or scale material was also observed. Approximately 12 drums of suspected oil were noted in the "skeleton" as were three empty semitrailers. The 10,000-gallon oil tank mentioned in the July 18, 1984, trip report was not leaking as previously observed.

The physical grounds of the facility were unfenced and nearly devoid of vegetation. The ground was covered with a dark ash/cinder/scale material. Various machinery and parts were left throughout the property.

Based on this inspection, it is recommended that enforcement action be implemented to ensure a proper, completed closure/cleanup.

On March 18, 1986, Messrs. Dennis Williamson, James Mattes, Rod Steele, Dale Beal, and I held an in-house conference discussing the site. It was determined that further information must be requested/received from the property owner(s) before enforcement action can be implemented. A time frame will be developed.

TEO/tr
cc: Mr. Dennis Williamson
Mr. Rod Steele
U.S. EPA, Region V
Mr. James Mattes
Mr. Dale Beal

CERTIFICATION REGARDING POTENTIAL RELEASES FROM
SOLID WASTE MANAGEMENT UNITS

RECEIVED
JAN 03 1986
SWD/MS
U.S. EPA, REGION V

FACILITY NAME: Gary Processing

U.S. EPA I.D. NUMBER: #IND 095264818

LOCATION CITY: Gary

STATE: Indiana

1. Are there any of the following solid waste management units at your facility?

	YES	NO
• Landfill		X
• Surface Impoundment		X
• Land Farm		X
• Waste Pile		X
• Incinerator		X
• Storage Tank (Above Ground)		X
• Storage Tank (Underground)		X
• Container Storage Area		X
• Injection Wells		X
• Wastewater Treatment Units		X
• Transfer Stations		X
• Waste Recycling Operations		X
• Waste Treatment, Detoxification		X
• Other _____		

2. If there are "Yes" answers to any of the items in Number 1 above, please provide a description of the wastes that were stored, treated or disposed of in each unit. In particular, please focus on whether or not the wastes would be considered as hazardous wastes or hazardous constituents under RCRA. Also include any available data on quantities or volume of wastes disposed on and the dates of disposal. Please also provide a description of each unit and include capacity, dimensions, location at facility, provide a site plan if available.

NOTE: Hazardous wastes are those identified in 40 CFR 261. Hazardous constituents are those listed in Appendix VIII of 40 CFR 261.

3. For the units noted in Number 1 above, please describe for each unit any data available on any prior or current releases of hazardous wastes or constituents to the environment that may have occurred in the past or still be occurring.

Please provide the following information

a. Date of release
b. Type of waste or constituent released
c. Quantity or volume of waste or constituent released
d. Describe nature of release (i.e., spill, overflow, ruptured pipe or tank, etc.)

- N O N E -

4. In regard to the prior releases described in Number 3 above, please provide (for each unit) any analytical data that may be available which would describe the nature and extent of environmental contamination that exists as a result of such releases. Please focus on concentrations of hazardous wastes or constituents present in contaminated soil or groundwater.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the submittal is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. (42 U.S.C. 6902 et seq. and 40 CFR 270.11(d))

H. M. Brown, Director of Operations
Typed Name and Title

Signature

12-30-85
Date

CONTINUING RELEASES AT PERMITTED FACILITIES

SEC. 206. Section 3004 of the Solid Waste Disposal Act is amended by adding the following new subsection after subsection (t) thereof:

"(u) CONTINUING RELEASES AT PERMITTED FACILITIES.—Standards promulgated under this section shall require, and a permit issued after the date of enactment of the Hazardous and Solid Waste Amendments of 1984 by the Administrator or a State shall require, corrective action for all releases of hazardous waste or constituents from any solid waste management unit at a treatment, storage, or disposal facility seeking a permit under this subtitle, regardless of the time at which waste was placed in such unit. Permits issued under section 3005 shall contain schedules of compliance for such corrective action (where such corrective action cannot be completed prior to issuance of the permit) and assurances of financial responsibility for completing such corrective action.".

INTERIM STATUS CORRECTIVE ACTION ORDERS

SEC. 233. (a) Section 3008 of the Solid Waste Disposal Act is amended by adding the following new subsection after subsection (g) thereof:

"(h) INTERIM STATUS CORRECTIVE ACTION ORDERS.—(1) Whenever on the basis of any information the Administrator determines that there is or has been a release of hazardous waste into the environment from a facility authorized to operate under section 3005(e) of this subtitle, the Administrator may issue an order requiring corrective action or such other response measure as he deems necessary to protect human health or the environment or the Administrator may commence a civil action in the United States district court in the district in which the facility is located for appropriate relief, including a temporary or permanent injunction.

"(2) Any order issued under this subsection may include a suspension or revocation of authorization to operate under section 3005(e) of this subtitle, shall state with reasonable specificity the nature of the required corrective action or other response measure, and shall specify a time for compliance. If any person named in an order fails to comply with the order, the Administrator may assess, and such person shall be liable to the United States for, a civil penalty in an amount not to exceed $25,000 for each day of noncompliance with the order.".

(b) Subsection (b) of section 3008 of the Solid Waste Disposal Act is amended by inserting "issued under this section" immediately after "Any order".