Site: Martha Boone
ID #: MOD980633069
Break: 1.8
Other: 7/2/87
078D

40024214
SUPERFUND RECORDS

REM IV

Remedial Planning Activities
at Selected Uncontrolled
Hazardous Waste Sites-Z

Site: Martha Rose
ID #: MOD980633069
Break: 1.8
Other:
7-21-87

Environmental Protection Agency
Hazardous Site Control Division
Contract No. 68-01-7251

Martha C. Rose Chemical Company Site

FINAL HRS SCORING PACKAGE

July 21, 1987

WA NO. 69-748D.0

CH2M HILL

Black & Veatch
ICF
PRC
Ecology and Environment

CONTENTS

HRS Work Sheets

Documentation Records for Hazard Ranking System

Documentation Support

Facility name: Martha C. Rose Chemical Company Site

Location: 500 W. McKissock, Holden, Missouri

EPA Region: Seven

Person(s) in charge of the facility: W.C. Carolan

6350 Wenonga Rd.

Mission Hills, Kansas 66208

Name of Reviewer: H.L. Wieland, Black & Veatch Date: Rev: 7/21/87

General description of the facility:

(For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the facility; contamination route of major concern; types of information needed for rating; agency action, etc.)

Martha C. Rose Chemical Company formerly (as of 3/86) processed waste PCB oils and capacitors. An estimated 3095 tons of contaminated oils and wastes are stored on-site in warehouses. Air monitors located around the site parameter have detected PCB's.

Scores: $S_M = 30.2$ (S_{gw} = --- S_{sw} = --- $S_a = 52.3$)

S_{FE} = ---

S_{DC} = ---

FIGURE 1
HRS COVER SHEET

Ground Water Route Work Sheet					NOT SCORED
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Release	0 45	1		45	3.1
If observed release is given a score of 45, proceed to line 4. If observed release is given a score of 0, proceed to line 2.					
2 Route Characteristics					3.2
Depth to Aquifer of Concern	0 1 2 3	2		6	
Net Precipitation	0 1 2 3	1		3	
Permeability of the Unsaturated Zone	0 1 2 3	1		3	
Physical State	0 1 2 3	1		3	
	Total Route Characteristics Score			15	
3 Containment	0 1 2 3	1		3	3.3
4 Waste Characteristics					3.4
Toxicity/Persistence	0 3 6 9 12 15 18	1		18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
	Total Waste Characteristics Score			26	
5 Targets					3.5
Ground Water Use	0 1 2 3	3		9	
Distance to Nearest Well/Population Served	0 4 6 8 10 12 16 18 20 24 30 32 35 40	1		40	
	Total Targets Score			49	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5				57,330	
7 Divide line 6 by 57,330 and multiply by 100		S_{gw} = --			

FIGURE 2
GROUND WATER ROUTE WORK SHEET

Surface Water Route Work Sheet					NOT SCORED
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Release	0 45	1		45	4.1
If observed release is given a value of 45, proceed to line 4. If observed release is given a value of 0, proceed to line 2.					
2 Route Characteristics					4.2
Facility Slope and Intervening Terrain	0 1 2 3	1		3	
1-yr. 24-hr. Rainfall	0 1 2 3	1		3	
Distance to Nearest Surface Water	0 1 2 3	2		6	
Physical State	0 1 2 3	1		3	
Total Route Characteristics Score				15	
3 Containment	0 1 2 3	1		3	4.3
4 Waste Characteristics					4.4
Toxicity/Persistence	0 3 6 9 12 15 18	1		18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
Total Waste Characteristics Score				26	
5 Targets					4.5
Surface Water Use	0 1 2 3	3		9	
Distance to a Sensitive Environment	0 1 2 3	2		6	
Population Served/Distance to Water Intake Downstream	0 4 6 8 10 12 16 18 20 24 30 32 35 40	1		40	
Total Targets Score				55	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5				64,350	
7 Divide line 6 by 64,350 and multiply by 100		S_{sw} =			

FIGURE 7
SURFACE WATER ROUTE WORK SHEET

Air Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Release	0 (45)	1	45	45	5.1
Date and Location:	September 6, 1986 - Facility parameter				
Sampling Protocol:	Personal air samplers with florisil tube, 1/L for 1 hour				
If line 1 is 0, the S_a = 0. Enter on line 5. If line 1 is 45, then proceed to line 2.					
2 Waste Characteristics					5.2
Reactivity and Incompatibility	(0) 1 2 3	1	0	3	
Toxicity	0 1 2 (3)	3	9	9	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 (8)	1	8	8	
	Total Waste Characteristics Score		17	20	
3 Targets					5.3
Population Within 4-Mile Radius	0 9 12 15 18 (21) 24 27 30	1	21	30	
Distance to Sensitive Environment	(0) 1 2 3	2	0	6	
Land Use	0 1 2 (3)	1	3	3	
	Total Targets Score		24	39	
4 Multiply 1 x 2 x 3			18360	35.100	
5 Divide line 4 by 35.100 and multiply by 100		S_a = 52.308			

FIGURE 9
AIR ROUTE WORK SHEET

	S	S^2
Groundwater Route Score (S_{gw})	---	---
Surface Water Route Score (S_{sw})	---	---
Air Route Score (S_a)	52.308	2736.127
$S_{gw}^2 + S_{sw}^2 + S_a^2$		2736.127
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		52.308
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		30.24

FIGURE 10
WORKSHEET FOR COMPUTING S_M

DOCUMENTATION RECORDS
FOR
HAZARD RANKING SYSTEM

INSTRUCTIONS: As briefly as possible summarize the information you used to assign the score for each factor (e.g., "Waste quantity = 4,230 drums plus 800 cubic yards of sludges"). The source of information should be provided for each entry and should be a bibliographic-type reference. Include the location of the document.

FACILITY NAME: Martha C. Rose Chemical Company Site

LOCATION: Holden, Missouri

DATE SCORED: February 4, 1987, Revised July 21, 1987

PERSON SCORING: H.L. Wieland, Black & Veatch

PRIMARY SOURCE(S) OF INFORMATION (e.g., EPA region, state, FIT, etc):

U.S. Environmental Protection Agency Region VII files

FACTORS NOT SCORED DUE TO INSUFFICIENT INFORMATION:

Ground Water Route and Surface Water Route were not scored.

COMMENTS OR QUALIFICATIONS:

Air Route Releases were documented.

GROUND WATER ROUTE

NOT SCORED

1 OBSERVED RELEASE

Contaminants detected (5 maximum):

Rationale for attributing the contaminants to the facility:

* * *

2 ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifer(s) of concern:

Depth(s) from the ground surface to the highest seasonal level of the saturated zone [water table(s)] of the aquifer of concern:

Depth from the ground surface to the lowest point of waste disposal/storage:

Net Precipitation

Mean annual or seasonal precipitation (list months for seasonal):

Mean annual lake or seasonal evaporation (list months for seasonal):

Net precipitation (subtract the above figures):

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

Permeability associated with soil type:

Physical State

Physical state of substances at time of disposal (or at present time for generated gases):

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Method with highest score:

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

Compound with highest score:

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

Basis of estimating and/or computing waste quantity:

* * *

5 TARGETS

Ground Water Use

Use(s) of aquifer(s) of concern within a 3-mile radius of the facility:

Distance to Nearest Well

Location of nearest well drawing from aquifer of concern or occupied building not served by a public water supply:

Distance to above well or building:

Population Served by Ground Water Wells Within a 3-Mile Radius

Identified water-supply well(s) drawing from aquifer(s) of concern within a 3-mile radius and populations served by each:

Computation of land area irrigated by supply well(s) drawing from aquifer(s) of concern within a 3-mile radius, and conversion to population (1.5 people per acre):

Total population served by ground water within a 3-mile radius:

SURFACE WATER ROUTE

NOT SCORED

1 OBSERVED RELEASE

Contaminants detected in surface water at the facility or downhill from it (5 maximum):

Rationale for attributing the contaminants to the facility:

* * *

2 ROUTE CHARACTERISTICS

<u>Facility Slope and Intervening Terrain</u>

Average slope of facility in percent:

Name/description of nearest downslope surface water:

Average slope of terrain between facility and above-cited surface water body in percent:

Is the facility located either totally or partially in surface water?

Is the facility completely surrounded by areas of higher elevation?

1-Year 24-Hour Rainfall in Inches

Distance to Nearest Downslope Surface Water

Physical State of Waste

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Method with highest score:

4 WASTE CHARACTERISTICS

Toxicity and Persistence Score:

Compound(s) evaluated:

Compound with highest score:

Hazardous Waste Quantity Score:

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

Basis of estimating and/or computing waste quantity:

* * *

5 TARGETS

Surface Water Use Score:

Use(s) of surface water within 3 miles downstream of the hazardous substance:

Is there tidal influence?

Distance to a Sensitive Environment Score:

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

Distance to critical habitat of an endangered species or national wildlife refuge, if 1 mile or less:

Population Served by Surface Water Score:

Location(s) of water-supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static water bodies) downstream of the hazardous substance and population served by each intake:

Computation of land area irrigated by above-cited intake(s) and conversion to population (1.5 people per acre):

Total population served:

Name/description of nearest of above water bodies:

Distance to above-cited intakes, measured in stream miles.

AIR ROUTE

1 OBSERVED RELEASE — Score: 45

Contaminants detected: PCB 1242 and PCB 1260 — REF 1, Laboratory Results

- Sample No. 4092-61: 1.97 ug/m^3
- Sample No. 4092-66: 17.14 ug/m^3 — REF 2
- Sample No. 4092-67: 131.20 ug/m^3 — REF 3, REF 4, REF 5

Date and location of detection of contaminants:

Air samples collected on September 6, 1986, along property fence line at 7 locations. — REF 1, Summary; REF 5

Methods used to detect the contaminants:

Personal air samplers equipped with florisil tubes at a rate of one liter per minute for 60 to 90 minutes. Samplers pointed into wind and were positioned 4-feet above the ground. — REF 2; REF 3

Rationale for attributing the contaminants to the site:

- No other known source of contaminant near site — REF 1
- Samples collected near drum storage were positive for PCB, while samples collected upwind (southwest) were negative. — REF 3

* * *

2 WASTE CHARACTERISTICS

Reactivity and Incompatibility — Score: 0

Most reactive compound:

Polychlorinated biphenyls, NOS - non-reactive — REF 6; REF 7, p. 43

Most incompatible pair of compounds:

Polychlorinated biphenyls — REF 8, p. 2

Toxicity Score: 3

Most toxic compound:

Polychlorinated biphenyl, NOS REF 9
REF 7, p. 20

Hazardous Waste quantity Score: 8

Total quantity of hazardous waste: Approximately 3095 ton REF 9
- 322,000 gallon tulk PCB contaminated oils
- 5,000 55-gallon drums PCB contaminated waste
- 400 transformers (drained and undrained) - Assume 200 full at 100 gallons/transformer
- 5,700 cubic feet of capacitor cores in steel bin
- 1.3 million pounds capacitor cores in fifty pound paper bags.

Basis of estimating and/or computing waste quantity:

- PCB Inspection Report, February 26 and 27, 1986 REF 8, p. 2
- Preliminary tank inventory REF 10, Attachment 1

* * *

3 TARGETS

Population Within 4-Mile Radius Score: 21

Circle radius used, give population, and indicate how determined:

(Score: 18)	(Score: 18)		(Score: 21)
0 to 4 mi	0 to 1 mi	0 to 1/2 mi	0 to 1/4 mi
3392 persons	2518 persons		House Count: 612 persons

REF 11
REF 12
REF 13
REF 14

Distance to a Sensitive Environment Score: 0

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

Not applicable

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

There are no 5-acre freshwater wetlands within one mile of the Martha C. Rose site. REF 11
REF 15
REF 16

Distance to critical habitat of an endangered species, if 1 mile or less:

There are no critical habitats of endangered species within one mile of the Martha C. Rose site.	REF 15 REF 16

Land Use Score: 3

Distance to commercial/industrial area, if 1 mile or less:

There are businesses located approximately 200 feet east of the facility and 100 feet south of the facility.	REF 11 REF 13

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

There are no national or state parks, forests, are wildlife reserves within 2 miles of the Martha C. Rose site.	REF 15 REF 16

Distance to residential area, if 2 miles or less:

There is a residential area approximately 100 feet east of the facility	REF 17 REF 11

Distance to agricultural land in production within past 5 years, if 1 mile or less:

There is farmland currently in use directly adjacent to the facility on the north and west edges.	REF 11 REF 13

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

As above	REF 11 REF 12

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?

There are no historic sites or landmarks within view of the site.	REF 18

HRS DOCUMENTATION LOG SHEET

SITE NAME Martha C. Rose Chemical Company Site
CITY Holden STATE Missouri
IDENTIFICATION NUMBER

REFERENCE NUMBER	DESCRIPTION OF THE REFERENCE
1	Preliminary Sampling/Analytical Survey, Rose Chemicals Company Site, Holden, Missouri, Harry V. Drushel, DRU-TEK, September 11, 1986.
2	Letter from Mike A. Edelbrock, O.H. Materials Co., to Roger Van Zele, Clean Sites Inc., October 20, 1986.
3	Memorandum from G.A. Carson to J.R. Kaufman, Review of HRS Scoring Package for Martha C. Rose Chemical Company Site, Holden, Missouri, Black & Veatch, Engineers, July 8, 1987.
4	Letter from Roger L. Van Zele, Clean Sites, Inc. to J.L. Robinson, Illinois Power Company, October 22, 1986.
5	Letter from Clifford W. Kline, Clean Sites Inc., to J.S. Pemberton, USEPA, with Attachments, November 24, 1986.
6	Chris Hazardous Chemical Data, Commandment Instruction M.16465.12A, Polychlorinated biphenyls, June 1985.
7	Uncontrolled Hazardous Waste Site Ranking System, A User's Manual, K.W. Barrett, et. al., The Mitre Corporation, McClean, Virginia, August 1982.
8	PCB Inspection Report, Martha C. Rose Chemicals, Inc., Inspection No. 022686178101, Docket No. 07-86-T-384, February 26 and 27, 1986.
9	Calculation of Hazardous Waste Quantity, Martha C. Rose Chemical Company Site, Holden, Missouri, H.L. Wieland, Black & Veatch Engineers.
10	Rose Chemicals, Schiff Harden and Waite, Letter to J.G. Pemberton, USEPA from Sheldon A. Zabel, with attachments September 26 and 27, 1986.
11	Topographic Map, 7.5 Minute Series, Pittsville, Kingsville, Elm and Holden Quadrangles; Johnson County, Missouri, U.S. Geological Survey, 1954.

12 Census of Population and Housing, 1980 - Summary Tape File 3A, Madison Township, Holden, Missouri, p. 5939-A.

13 Aeral Plate Photos, Johnson County, Missouri, State Tax Commission of Missouri, Section 10, Township 45 North, Range 28 West, Scale 1" = 100', November 1980.

14 Calculations of Population within 4-mile radius of Martha C. Rose Facility, Holden, Missouri, by H.L. Wieland, Black & Veatch Engineers.

15 Letter from Joe Tieger, Field Supervisor, U.S. Fish and Wildlife Service, Ecological Services, Columbia, Missouri, October 1, 1986.

16 Letter from Dan F. Dickneite, Environmental Services Officer, Missouri Department of Conservation, Jefferson City, Missouri, October 3, 1986.

17 Conversation with Mr. Don McCoy, 100 N. Buffalo Street, Holden, Missouri, September 30, 1986.

18 Telephone Conversation with Geneva Salsbury, Johnson County Historical Society, Warrensburg, Missouri, (816) 747-6438, October 14, 1986.

Reference 1

RECEIVED
OCT 01 1986
CMPL SECTION

M E M O R A N D U M

September 11, 1986

PRELIMINARY SAMPLING/ANALYTICAL SURVEY

Rose Chemicals Co. Site
Holden, Missouri

by Harry V. Drushel, DRU-TEK
(for Clean Sites, Inc.)

INTRODUCTION

The initial phase of PCB cleanup at the Rose Chemicals Co. site in Holden, Missouri, requires activities such as mowing of grass/weeds, installation of a security fence around the perimeter of the property, consolidation of debris, etc. To provide information to assist in the determination of health and safety precautions necessary to carry out such work activities, a preliminary sampling/analytical program was needed. Also, concern existed as to the present level of PCB's in sediment along the creek bed below the site because of a previous spill from a truck tank parked near the main building. Additionally, there was concern over a level of several parts per million (ppm) PCB's reported in samples of sludge from the sludge tank at the city sewage plant.

This report discusses a preliminary sampling/analytical plan which was developed to quickly address the above issues.

Analysis of Perimeter Soil Samples

Composite surface samples were collected between selected marker points as shown on the attached plot plan (Attachment 1). These markers were 150' apart on the average. A composite sample consisted of 10 approximately equal portions taken over the 150' interval between markers. These perimeter samples consisted of samples 1 through 22 as described in the attached table (Attachment 2).

Prior to mowing weeds and grass throughout the site some spot surface grab samples also were taken as shown on the plot plan.

Creek Soil/Sediment Samples

Since any drainage from the site apparently would ultimately enter the small creek below the site and since one spill had been reported, it was felt wise to obtain some current values on the PCB levels of the soil/sediment along the creek. Samples were taken upstream, along the site, and downstream of the site. Samples were taken at the spot where a storm sewer drain entered the creek from the site. This was the spot where the EPA found the higher PCB levels after the reported spill.

Contamination of Sewage

In view of the earlier finding that several ppm PCB's were found in sludge at the city sewage plant, it was felt necessary to define the present level of PCB's in the sewage plant system. Because disposal of contaminated sludge represents a problem to the city, some urgency in defining any problems was indicated.

Samples were taken from the sanitary sewer system upstream, within, and downstream of the site. Samples of influent and effluent from the sewage plant were taken from the sludge tank as well as the dried sludge from the drying beds.

"Background" Levels Off-site

A number of surface grab samples were collected at various random offsite locations in public areas of Holden to serve as a measure of PCB background level in the Holden area. These samples are described in Attachment 2.

Subsurface Samples From the Stream

Additional samples were taken of soil/sediment from the creek bed to a depth of 2 feet. This was decided on the basis that one witness claimed to have seen oil oozing up from the subsurface when a shovel full of soil/sediment was removed from the creek bed.

Confirmation of PCB Levels Around the Perimeter Near the Buildings.

Early results from analysis of the perimeter samples indicated no PCB contamination in open areas to the north and west. However, levels up to 12 ppm were found east of the main building and south of the south warehouse. Although this could be contamination from PCB's in the buildings, a transformer on an utility pole east of the building could be the cause of a high level at that point. Spraying along the road (2nd St.) right-of-way south of the south warehouse could have increased PCB levels there. Consequently, it was decided to collect some surface grab samples (not composites) to better define the distribution over these areas. Some samples adjacent to the south warehouse were taken, also.

Repeat of Offsite Samples

Because of the detectable, albeit low, level of PCB's in the offsite sample taken at the Baptist Temple, it was decided to repeat the sampling. Another sample was taken at the original sampling spot, and an additional sample was taken near, but some distance removed from that spot.

Duplicate Samples

Three samples were split and submitted blind in a later group of samples in order to get some idea of repeatability.

EPA Split Samples

The EPA was provided with 13 splits of samples taken in this preliminary study. Results are expected to be available within the next several weeks. This will provide laboratory/laboratory reproducibility and help to establish approval and acceptance of Langston Laboratory as a reliable resource for PCB determinations.

Analytical Results

Results from these initial sampling/analytical efforts are listed in detail in Attachment 2. A summary of observations and conclusions derived from these is presented in a separate section attached to this memorandum.

September 16, 1986

Dr. Roger L. Van Zele
Manager, Project Controls
1199 North Fairfax Street
Alexandria, VA 22314

Dear Roger:

On September 8, I visited Langston Laboratories, Inc., 2005 W. 103rd Terrace (B), Leawood, KS 66206-2695, and oriented them as to the source and purpose of the samples submitted to them by O.H. Materials, the contractor engaged to carry out the first phase of the Rose Chemicals Company site cleanup. One of the main purposes of my visit was to evaluate the capability of Langston Laboratories to provide reliable analytical services, particularly for the determination of PCB's in a wide range of samples collected at the Rose Chemicals Co. site in Holden, Missouri.

Langston laboratories, Inc. were selected for the analysis of samples from the first phase of the Rose Chemicals Co. cleanup. In addition to being within one hour's drive of the site, they offered a 2-day turn-around on groups of 20 samples at a reasonable price of $44 for a PCB analysis.

For PCB determinations they have five gas chromatographs equipped with electron capture detectors (GC/ECD). These detectors provide the sensitivity toward PCB's which makes their mesurement at ppm and ppb levels possible. The Laboratories do not have a gas chromatograph equipped with a mass spectrometer (GC/MS) at this time, but they plan to get one in the near future. For our work in cleanup at the site, the GC/MS would probably not be required. It would be useful primarily in resolving whether the ECD response is really due to PCB's when the pattern of isomers shown in the chromatogram is not normal and suggestive of the presence of an interferring substance(s).

ROSE:executive/drushel.drutek

Langston Laboratories has been in the chemical, environmental, agricultural and microbiological testing business for the past 15 years. The assay of transformer oils, water, soil, air, and cardboard products for PCB's has been a significant part of their activities, particularly over the past 10 years. More generally, hazardous waste services offered by Langston include site investigations, spill contamination assessment, PCB testing, waste characterization, corrosivity, reactivity, ignitability, and toxicity determinations.

Langston Laboratories participate in several certification and quality control check sample programs. They are certified for drinking water and wastewater sampling and analysis in Kansas, Missouri and Nebraska. They are certified by the State of Kansas for hazardous waste analysis. The City of Holden used them to analyze samples of soils, sludge and water related to its sewage treatment plant. Results they obtained on three blind duplicates in the first set of samples from the site which we recently submitted were satisfactory. In addition, the EPA took splits on thirteen of the samples from this same set of samples which will be analyzed by them to provide additional crosschecks on the results provided by Langston laboratories. Results should be available within the next few weeks.

In summary, Langston Laboratories appear to have the technical competence, expertise and experience to provide the analytical services needed to monitor cleanup activities at the Rose Chemicals Company site at Holden, Missouri,

Sincerely yours,

Harry V. Drushel

Harry V. Drushel
Analytical Consultant
DRU-TEK

HVD/sjr

ROSE:executive/drushel.drutek

September 23, 1986

SUMMARY

PRELIMINARY SAMPLING/ANALYTICAL SURVEY

AT ROSE CHEMICALS SITE

- This preliminary survey focused primarily on surface soils and the city sewer system. With two exceptions (described below) solids analyzed showed either no PCBs or only low concentrations, relative to the detection limits (LD) used.

- No PCBs (LD=0.2 parts per million [ppm]) were detected in surface soil samples taken along the perimeter at the NW, W, and SE sides of the site.

- No PCBs (LD=0.2 ppm) were found in 4 out of 6 surface grab samples taken across the center of the site. Two samples taken S of the main building showed only 0.5 and 1.0 ppm PCBs.

- With only one exception, low levels of PCBs from 1 to 12 ppm were found along the perimeter next to the main building along the E and NE sides and near the south warehouse along the S and SE sides of the site.

- Only one surface sample yielded results of greater than 12 ppm PCBs. Sample No. 83 taken at the SE corner of the south warehouse showed nearly 16,000 ppm PCBs.

- Low levels of PCBs were detected in samples of surface sediments in the creek. Less than 2 ppm PCBs were found in the surface sediment where a spill occurred earlier from the site. Less than 1 ppm PCBs were found in sediments downsteam of this point.

- Soil cores taken at the point where the spill exited the storm drain in May showed approximately 30 ppm PCBs at a depth of 0-6 inches, and 2 ppm at the 6-12 inches level. Cores taken both upstream and downstream of this point showed concentrations of 1-2 ppm PCBs at the same depths.

- No PCBs (LD=0.2ppm) were detected in sanitary sewer sediments taken above and below the site.

- Low levels of PCBs were found in dried sludge from the city sewer plant. Levels of less than 1 ppm on a wet weight basis and less than 2 ppm on a dry weight basis were detected.

- Water at the city sewage plant was tested for PCBs. Samples of influent, effluent and sludge tank water showed 22 ppb (parts per billion), 8 ppb and 14 ppb (two samples), respectively.

- Four of seven air samples taken around the perimeter of the site showed no PCBs (LD=0.025 ug/600 l.). Low levels were detected in the remaining three samples taken near locations which also tested positive on soil samples.

- Seven background samples were taken from five public areas around the City of Holden. No PCBs were detected in three of the five areas (LD=0.2 ppm). The other two areas tested showed 1.6 ppm and 5.6 ppm (mean of three samples).

CLEAN SITES INC

1199 NORTH FAIRFAX STREET / ALEXANDRIA VIRGINIA 22314 / 703-683-8522

September 23, 1986

Mr. Jene Robinson
Illinois Power Company
500 S. 27th Street
Decatur, IL 62525-1805

SUBJECT: Initial Sampling Results
Rose Chemicals Site

Dear Jene:

The initial sampling and analytical efforts at the Rose Chemicals site in Holden, Missouri, undertaken by CSI and its contractors during the past two weeks have been completed. During this work, O.H. Materials Co. (OHM), working with CSI's analytical consultant and the EPA's On-Scene Coordinator (OSC), took a total of 72 solid and 4 liquid samples from the Rose site and the city sewage treatment system. Additionally, eight air samples were taken at points on the site's perimeter. Subsequent to sample collecting, all samples were analyzed by Langston Laboratories of Kansas City, Missouri.

The sampling plan implemented by OHM was developed with CSI and was reviewed and agreed with the EPA OSC and EPA's Technical Assistance Team (TAT) representative prior to implementation. Splits of certain of the samples taken were provided to the OSC as directed by him.

The samples taken by OHM included (1) surface soil and sediment samples from the site, the creek, the sewer lines, the sludge drying beds at the sewer plant, and several offsite "background" locations; (2) core samples from the creek, (3) samples from the sludge tank at the sewer plant (largely liquid), (4) samples of the sewer plant influent and effluent, and eight air samples.

ROSE:executive/samplng.result

CHAIRMAN OF THE BOARD/Russell E. Train PRESIDENT/Charles W. Powers BOARD OF DIRECTORS/Peter A.A. Berle, Douglas M. Costle, Louis Fernandez, Sandra S. Gardebring, Edwin A. Gee, Jay D. Hair, Donald Kennedy, Joshua Lederberg, H. Eugene McBrayer, Charles W. Powers, William K. Reilly, Henry B. Schacht

The following materials related to these initial sampling and analytical efforts are enclosed:

- Summary of findings.
- Report by CSI's analytical consultant, Dr. H. V. Drushel, on the sampling design and analytical results.
- Report by Dr. Drushel on his review of Langston Laboratories.
- OH Materials Company (OHM) sampling/analytical report.
- Langston Laboratories analytical reports.

If you have any questions on these materials, please advise.

Very truly yours,

Roger L. Van Zele

Roger L. Van Zele
Acting Project Manager

RLVZ/sjr

cc: G.E. Johnson
PRP Technical Committee
G.E. Murray
J.J. Kohanek
N.W. Newkirk
R. Selman
S. Zabel

ROSE:executive/samplng.result

OHM
THE ENVIRONMENTAL SERVICES COMPANY

O.H. MATERIALS CO.
16406 U.S. Route 224 East
P.O. Box 551
Findlay, Ohio 45839-0551
Phone 419-423-3526
800-537-9540 (24 hr)
800-537-5660 (in Ohio)
Telex 296248 OHMI UR (RCA)

September 18, 1986

Roger L. Van Zele
Clean Sites, Inc.
1199 North Fairfax Street
Alexandria, VA 22314

Dear Sir:

Enclosed, please find the information you requested regarding the Rose Chemical site investigation. This includes:

1. Sampling procedures and site observations
2. Laboratory results obtained from Langston Laboratories
3. QA/QC results from Langston Laboratories
4. Site sketch with sampling points
5. General information regarding air monitoring instrumentation requested by Jim O'Brien

If you should have any question or need additional information, do not hesitate to contact me. This is an interum report only. Additional compatibility analyses on 95 drum samples are forthcoming.

Yours truly,

John F. Molina

John F. Molina, Ph.D.
Manager, Field Analytical Services

JFM:acb

Enclosure

pc: Stan Brand - OHM - St. Louis, MO
Steve Nelson - OHM - New Lennox, MO
Jim O'Brien - Clean Sites, Inc.

SAMPLING PROCEDURES AND SITE OBSERVATION

Twenty-two samples were taken to determine PCB levels along the perimeter of the site. The perimeter barbed-wire fence was marked off at 22 locations between 100 and 175 feet apart. Sample numbers 01 through 22 were taken as surface (0-2 inches deep) soil composites between these markers. Sample 01 was taken between markers number 1 and 2, sample 02 was taken between marker numbers 2 and 3, etc., through sample 22. These samples were taken with chrome-plated trowels which were decontaminated between samples and rinsed with hexane. The number and location of these samples was determined by the client.

In addition to the original 22 surface soil composite samples, ten more surface soil samples were taken at locations along the perimeter fence as designated by the client. These samples were also taken by trowel.

Ten samples, numbers 45 - 50, and 82 - 85 were taken on site away from the main building at locations designated by the client. These were to determine if levels of PCB contamination of soil increased closer to the main building.

Seven samples were taken to determine PCB levels in a creek adjacent to the southern perimeter of the site. Four of these samples were surface samples (0-2 inches deep). Sample number 23 was taken upstream from the site. Sample number 24 was taken at a point where a drain culvert fed into the creek from the site, and samples 25 and 26 were taken downstream of the site. These four samples were taken with tongue depressor blades which were disposed of after each sample.

Samples number 69 through 71 were taken to determine PCB levels at various depths at three sites in the same creek. These three locations were chosen by the client. Sample number 69 was taken in close proximity to sample number 24, where the drain culvert fed into the creek. Samples numbered 70 and 71 were taken at points 50 feet downstream and upstream of the drain pipe, respectively. Each of these three samples was taken with a split spoon in two increments, the first from surface to 6 inches deep and the second from 6 to 12 inches. The split spoon was decontaminated between increments and between samples by scrubbing with soap and water, and rinsing with clean water, acetone, and hexane.

Four samples were taken in four sewer manholes on and adjacent to the site property, to determine PCB levels in the sewers. These samples were taken as solid samples when available. One of the manhole samples, number 33, was taken by wipe method since no residual solid matter was found in this manhole. The wipe was done with Whatman GFA glass microfibre filter paper which had been saturated with hexane. The wipe covered a 100 cm^2 area.

Six surface soil samples were taken in various locations throughout the Holden, Missouri area to determine background PCB levels. These samples were also taken with a chrome plated trowel which was decontaminated and rinsed with hexane between samples. These samples were taken at the Miller Mausoleum, Holden Baptist Temple, City of Holden water tower and the Holden ball park.

Six samples were taken at the City of Holden's sewage treatment plant to determine PCB levels at various stages throughout the system. The influent and effluent samples, numbers 34 and 35 respectively, were each taken as grab samples. The samples of drying sludge, numbers 59 and 60, were taken with tongue depressor blades which were disposed of after each sample. The two samples from the sludge tank, numbers 27 and 28, were taken by using a bacon bomb. The bacon bomb is used to sample a tank at a specific depth. The sludge tank was sampled at one foot below the surface and at six feet below the surface. The bacon bomb was decontaminated after each sample by scrubbing with soapy water and rinsing with clean water, acetone, and hexane.

In addition to the soil and sludge samples, seven air samples, numbers 61 through 67, were taken along the perimeter fence at locations listed on the map. These air samples were taken on florisil tube at a rate of 10 liters/minute for one hour, for a total sample volume of 600 liters.

All sample locations were designated by the client, with the exception of background samples. These sample locations were chosen by the O.H. Materials Corp. (OHM) chemists. Samples were taken at public locations throughout the Holden area which could be easily identified later, as mentioned above.

In addition to these soil, air, and sludge samples taken around the site, ninety-five unidentified drums were sampled for compatibility categories. These drums were found in various locations within the main building and were staged in the eastern bay of the building prior to sampling.

These drums include containers of oils, solvent, caustics, acids, cleaning fluids, and other contents and range in size from one to fifty-five gallons.

Besides the drums which were sampled, one hundred-one drums which had contained sodium metal suspended in organic solvent were moved into the staging area. These drums may still contain a considerable amount of sodium metal present as a residue. They were stored on the opposite side of the bay from the acid containers. There is also one drum which is approximately eighty percent full of the sodium metal suspension. This drum was disconnected from a hose leading to the reactor tank and moved to the staging area.

There are also four containers of sodium metal which were located in the laboratory. These were moved into a locker at the edge of the staging area. This locker is well labeled with "Flammable Solid" placards and the words "Sodium Metal".

Another area of interest are the sixty tanks which are located in and around the main building and south warehouse. These tanks are of various sizes with the majority being over 5,000 gallons. These tanks were inventoried and the size recorded, but they were never sampled.

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Telex 298245 OHMI UR (RCA

Langston Laboratories, Inc.

Leawood, KS

LABORATORY REPORT

CLIENT: Clean Sites, Inc.
1199 N. Fairfax Street
Alexandria, VA 22314

ATTN: Roger Van Zele

RECEIVED: September 3, 1986 (7:00 pm)
COMPLETED: September 10, 1986

LLI NO.: 86-0231
PROJECT NO.: 4092

SAMPLE DESCRIPTION: Composite Soil Samples Collected September 3, 1986 by O. H. Materials Corporation

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
1	Polychlorinated Biphenyls	
	Aroclor 1242	6.1 mg/kg
	Aroclor 1260	5.6 mg/kg
2	Polychlorinated Biphenyls	
	Aroclor 1242	1.7 mg/kg
	Aroclor 1260	3.9 mg/kg
3	Polychlorinated Biphenyls	
	Aroclor 1242	1.1 mg/kg
		1.0 mg/kg
	Aroclor 1260	1.1 mg/kg
		1.1 mg/kg
4	Polychlorinated Biphenyls	< 0.2 mg/kg
5	Polychlorinated Biphenyls	< 0.2 mg/kg
6	Polychlorinated Biphenyls	
	Aroclor 1242	0.4 mg/kg
	Aroclor 1260	0.9 mg/kg

NOTE: All soil results are reported on a dry weight basis.

cc: O. H. Materials
John Molina - Findley, OH
Stan Brand - St. Peters, MO
Steve Nelson - New Lenox, IL

APPROVED: Alan Kerschen
Alan Kerschen
Vice President

SAMPLE DESCRIPTION: Composite Soil Samples Collected September 3, 1986 by O. H. Materials Corporation

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
7	Polychlorinated Biphenyls	
	Aroclor 1242	3.5 mg/kg
	Aroclor 1260	5.6 mg/kg
8	Polychlorinated Biphenyls	
	Aroclor 1242	6.5 mg/kg
	Aroclor 1260	5.7 mg/kg
9	Polychlorinated Biphenyls	
	Aroclor 1260	0.2 mg/kg
10	Polychlorinated Biphenyls	
	Aroclor 1242	4.0 mg/kg
		3.9 mg/kg
	Aroclor 1260	2.7 mg/kg
		2.8 mg/kg
11	Polychlorinated Biphenyls	< 0.2 mg/kg
12	Polychlorinated Biphenyls	< 0.2 mg/kg
13	Polychlorinated Biphenyls	
	Aroclor 1260	0.4 mg/kg
14	Polychlorinated Biphenyls	< 0.2 mg/kg
15	Polychlorinated Biphenyls	< 0.2 mg/kg
16	Polychlorinated Biphenyls	< 0.2 mg/kg
17	Polychlorinated Biphenyls	< 0.2 mg/kg
18	Polychlorinated Biphenyls	< 0.2 mg/kg
19	Polychlorinated Biphenyls	< 0.2 mg/kg
20	Polychlorinated Biphenyls	< 0.2 mg/kg
21	Polychlorinated Biphenyls	
	Aroclor 1242	0.7 mg/kg
		0.7 mg/kg
	Aroclor 1260	3.1 mg/kg
		3.1 mg/kg
22	Polychlorinated Biphenyls	
	Aroclor 1242	0.4 mg/kg
	Aroclor 1260	0.9 mg/kg

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Telex 298245 OHM UR (RCA)

Langston Laboratories, Inc.

Leawood, KS

LABORATORY REPORT

CLIENT: Clean Sites, Inc.
1199 N. Fairfax Street
Alexandria, VA 22314
ATTN: Roger Van Zele

RECEIVED: September 5, 1986 (10:20 am)
COMPLETED: September 9, 1986

LLI NO.: 86-0245
PROJECT NO.: 4092

SAMPLE DESCRIPTION: Soil, Water, Sludge, and Wipe Samples Collected September 4, 1986 by O. H. Materials Corporation

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
23 (Soil)	Polychlorinated Biphenyls	< 0.2 mg/kg
24 (Soil)	Polychlorinated Biphenyls	
	Aroclor 1242	0.8 mg/kg
	Aroclor 1260	0.9 mg/kg
25 (Soil)	Polychlorinated Biphenyls	
	Aroclor 1242	0.2 mg/kg
	Aroclor 1260	0.4 mg/kg
26 (Soil)	Polychlorinated Biphenyls	
	Aroclor 1242	0.5 mg/kg
		0.4 mg/kg
	Aroclor 1260	0.6 mg/kg
		0.6 mg/kg
27 (Water)	Polychlorinated Biphenyls	
	Aroclor 1242	14.5 µg/liter
28 (Water)	Polychlorinated Biphenyls	
	Aroclor 1242	14.0 µg/liter

NOTE: All soil results are reported on a dry weight basis. Water and sludge results are reported on an as-received basis.

cc: O. H. Materials
John Molina - Findley, OH
Stan Brand - St. Peters, MO
Steve Nelson - New Lenox, IL

APPROVED: Alan Kerschen
Alan Kerschen
Vice President

SAMPLE DESCRIPTION: Soil, Water, Sludge, and Wipe Samples Collected September 4, 1986 by O. H. Materials Corporation

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
30 (Sludge)	Polychlorinated Biphenyls	< 0.2 mg/kg
31 (Sludge)	Polychlorinated Biphenyls	< 0.2 mg/kg
32 (Sludge)	Polychlorinated Biphenyls	< 0.2 mg/kg
33 (Wipe)	Polychlorinated Biphenyls	0.005 $\mu g/cm^2$
34 (Water)	Polychlorinated Biphenyls Aroclor 1242	8.0 µg/liter
35 (Water)	Polychlorinated Biphenyls Aroclor 1242	21.5 µg/liter
45 (Soil)	Polychlorinated Biphenyls Aroclor 1260	0.4 mg/kg
46 (Soil)	Polychlorinated Biphenyls Aroclor 1242 Aroclor 1260	 0.6 mg/kg 1.7 mg/kg
47 (Soil)	Polychlorinated Biphenyls	< 0.2 mg/kg
48 (Soil)	Polychlorinated Biphenyls	< 0.2 mg/kg
49 (Soil)	Polychlorinated Biphenyls	< 0.2 mg/kg
50 (Soil)	Polychlorinated Biphenyls	< 0.2 mg/kg
55 (Soil)	Polychlorinated Biphenyls	< 0.2 mg/kg
56 (Soil)	Polychlorinated Biphenyls Aroclor 1242	5.9 mg/kg
57 (Soil)	Polychlorinated Biphenyls	< 0.2 mg/kg
58 (Soil)	Polychlorinated Biphenyls	< 0.2 mg/kg
59 (Sludge)	Polychlorinated Biphenyls Aroclor 1242	0.6 mg/kg
60 (Sludge)	Polychlorinated Biphenyls Aroclor 1242	0.4 mg/kg

Comments: The chromatographs for the water samples 27, 28, 34, and 35 did not exhibit the same peak ratio as those of the standards. These samples did appear to be positive for Aroclor 1242, and the values given indicate the maximum contamination levels.

SAMPLE DESCRIPTION: Composite Soil Samples Collected September 3, 1986 by O. H. Materials Corporation

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
51	Polychlorinated Biphenyls	
	Aroclor 1242	3.6 mg/kg
	Aroclor 1260	7.5 mg/kg
52	Polychlorinated Biphenyls	< 0.2 mg/kg
53	Polychlorinated Biphenyls	< 0.2 mg/kg
54	Polychlorinated Biphenyls	
	Aroclor 1260	1.6 mg/kg

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Leawood, KS

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Telex 298245 OHMI UR (RCA)

LABORATORY REPORT

CLIENT: Clean Sites, Inc.
1199 N. Fairfax Street
Alexandria, VA 22314
ATTN: Roger Van Zele

RECEIVED: September 8, 1986 (9:15 am)
COMPLETED: September 11, 1986

LLI NO.: 86-0255
PROJECT NO.: 4092

SAMPLE DESCRIPTION: Air Samples Collected September 6 and 8, 1986 by O. H. Materials Corporation

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
61	Polychlorinated Biphenyls	
	Aroclor 1242	0.19 µg
62	Polychlorinated Biphenyls	< 0.025 µg
63	Polychlorinated Biphenyls	< 0.025 µg
64	Polychlorinated Biphenyls	< 0.025 µg
65	Polychlorinated Biphenyls	< 0.025 µg
66	Polychlorinated Biphenyls	
	Aroclor 1242	0.38 µg
	Aroclor 1260	0.68 µg
67	Polychlorinated Biphenyls	
	Aroclor 1242	1.44 µg
	Aroclor 1260	7.9 µg
68	Polychlorinated Biphenyls	< 0.025 µg

cc: O. H. Materials
John Molina - Findley, OH
Stan Brand - St. Peters, MO
Steve Nelson - New Lenox, IL

APPROVED: Alan Kerschen
Alan Kerschen
Vice President

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Langston Laboratories, Inc.

Leawood, KS

LABORATORY REPORT

CLIENT: Clean Sites, Inc.
1199 N. Fairfax Street
Alexandria, VA 22314
ATTN: Roger Van Zele

RECEIVED: September 10, 1986 (8:00 am)
COMPLETED: September 15, 1986

LLI NO.: 86-0280
PROJECT NO.: 4092

SAMPLE DESCRIPTION: Soil Samples Collected September 9, 1986 by O. H. Materials Corporation

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
#69 (0-1')	Polychlorinated Biphenyls	
	Aroclor 1242	9.6 mg/kg *
	Aroclor 1260	17.9 mg/kg
#69 (1'-2')	Polychlorinated Biphenyls	
	Aroclor 1260	2.1 mg/kg
#70 (0-1')	Polychlorinated Biphenyls	
	Aroclor 1260	1.0 mg/kg
#70 (1'-2')	Polychlorinated Biphenyls	
	Aroclor 1242	0.3 mg/kg *
	Aroclor 1260	1.4 mg/kg
#71 (0-1')	Polychlorinated Biphenyls	
	Aroclor 1260	1.3 mg/kg *

* Degraded Aroclor 1242

NOTE: All soil results are reported on a dry weight basis.

cc: O. H. Materials
John Molina - Findley, OH
Stan Brand - St. Peters, MO
Steve Nelson - New Lenox, IL

APPROVED: Alan Kerschen
Alan Kerschen
Vice President

SAMPLE DESCRIPTION: Soil Samples Collected September 9, 1986 by O. H. Materials Corporation

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
#71 (1'-2')	Polychlorinated Biphenyls	
	Aroclor 1260	1.4 mg/kg *
#72	Polychlorinated Biphenyls	
	Aroclor 1242	0.7 mg/kg *
	Aroclor 1260	1.9 mg/kg
#73	Polychlorinated Biphenyls	
	Aroclor 1260	1.6 mg/kg
#74	Polychlorinated Biphenyls	
	Aroclor 1242	0.5 mg/kg *
		0.3 mg/kg *
	Aroclor 1260	1.7 mg/kg
		1.7 mg/kg
#75 **	Polychlorinated Biphenyls	
	Aroclor 1242	0.5 mg/kg
	Aroclor 1260	1.9 mg/kg
#76	Polychlorinated Biphenyls	
	Aroclor 1242	0.5 mg/kg *
	Aroclor 1260	2.2 mg/kg
#77	Polychlorinated Biphenyls	
	Aroclor 1242	2.6 mg/kg *
	Aroclor 1260	7.5 mg/kg
#78	Polychlorinated Biphenyls	
	Aroclor 1242	1.5 mg/kg *
		1.4 mg/kg *
	Aroclor 1260	8.0 mg/kg
		8.3 mg/kg
#79	Polychlorinated Biphenyls	
	Aroclor 1242	0.5 mg/kg *
	Aroclor 1260	1.8 mg/kg
#80	Polychlorinated Biphenyls	
	Aroclor 1242	3.8 mg/kg *
	Aroclor 1260	3.7 mg/kg
#81	Polychlorinated Biphenyls	
	Aroclor 1242	0.6 mg/kg *
		0.6 mg/kg *
	Aroclor 1260	1.9 mg/kg
		1.9 mg/kg

* Degraded Aroclor 1242
** #75 not listed on chain-of-custody record.

OHM

SAMPLE DESCRIPTION: Soil Samples Collected September 9, 1986 by O. H. Materials Corporation

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
#82	Polychlorinated Biphenyls	
	Aroclor 1242	0.6 mg/kg *
		0.2 mg/kg *
	Aroclor 1260	1.9 mg/kg
		1.9 mg/kg
#83	Polychlorinated Biphenyls	
	Aroclor 1242	158 mg/kg *
	Aroclor 1260	15,700 mg/kg
#84	Polychlorinated Biphenyls	
	Aroclor 1242	5.5 mg/kg *
	Aroclor 1260	5.3 mg/kg
#85	Polychlorinated Biphenyls	
	Aroclor 1242	0.3 mg/kg *
#86	Polychlorinated Biphenyls	
	Aroclor 1242	3.2 mg/kg *
	Aroclor 1260	6.0 mg/kg
#87	Polychlorinated Biphenyls	
	Aroclor 1242	0.2 mg/kg *
	Aroclor 1260	1.5 mg/kg

* Degraded Aroclor 1242

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Langston Laboratories, Inc.

Leawood, KS

SPIKE RECOVERY DATA

LANGSTON LABORATORIES, INC.

SEPTEMBER 16, 1986

		AROCLOR 1242		AROCLOR 1260	
SAMPLE ID	SAMPLE RESULT	SPIKE SOLUTION AMOUNT	RECOVERY	SPIKE SOLUTION AMOUNT	RECOVERY
#74	0.50 mg/kg (1242)	375 µg/liter	98%	375 µg/liter	100%
		375 µg/liter	97%	375 µg/liter	105%
	1.70 mg/kg (1260)	125 µg/liter	106%	125 µg/liter	93%
#75	0.46 mg/kg (1242)	250 µg/liter	92%	250 µg/liter	98%
	2.2 mg/kg (1260)				
#79	0.54 mg/kg (1242)	250 µg/liter	86%	250 µg/liter	116%
	1.8 mg/kg (1260)				
#82	0.62 mg/kg (1242)	188 µg/liter	104%		
	1.9 mg/kg (1260)				

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LANGSTON LABORATORY

LEAWOOD, KANSAS CITY

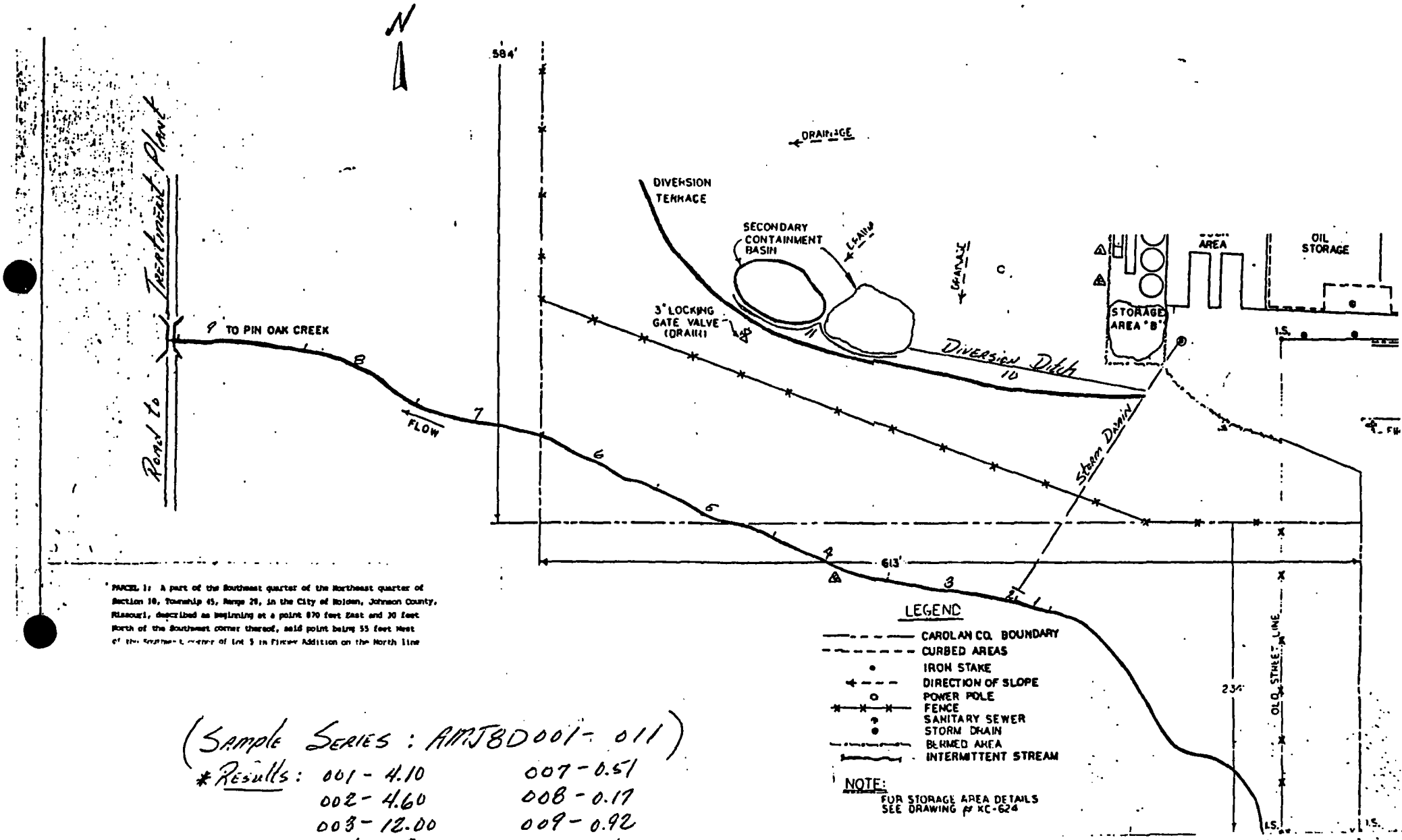
VERBAL REPORT

Moisture Contents:

Sample No.	% Moisture	Wet Basis, mg/kg	Dry Basis mg/kg
30	89.66	<0.2	<2.0
31	5.61	<0.2	<.21
32	37.79	<0.2	<.32
59	60.51	0.6	1.52
60	76.21	0.4	1.68

SAMPLING MAP

(Samples taken June 16, 1986).



PARCEL 1: A part of the Southeast quarter of the Northeast quarter of Section 10, Township 45, Range 28, in the City of Holden, Johnson County, Missouri, described as beginning at a point 870 feet East and 30 feet North of the Southeast corner thereof, said point being 55 feet West of the Southwest corner of Lot 5 in Finney Addition on the North line

(Sample Series: AMJ8D001-011)

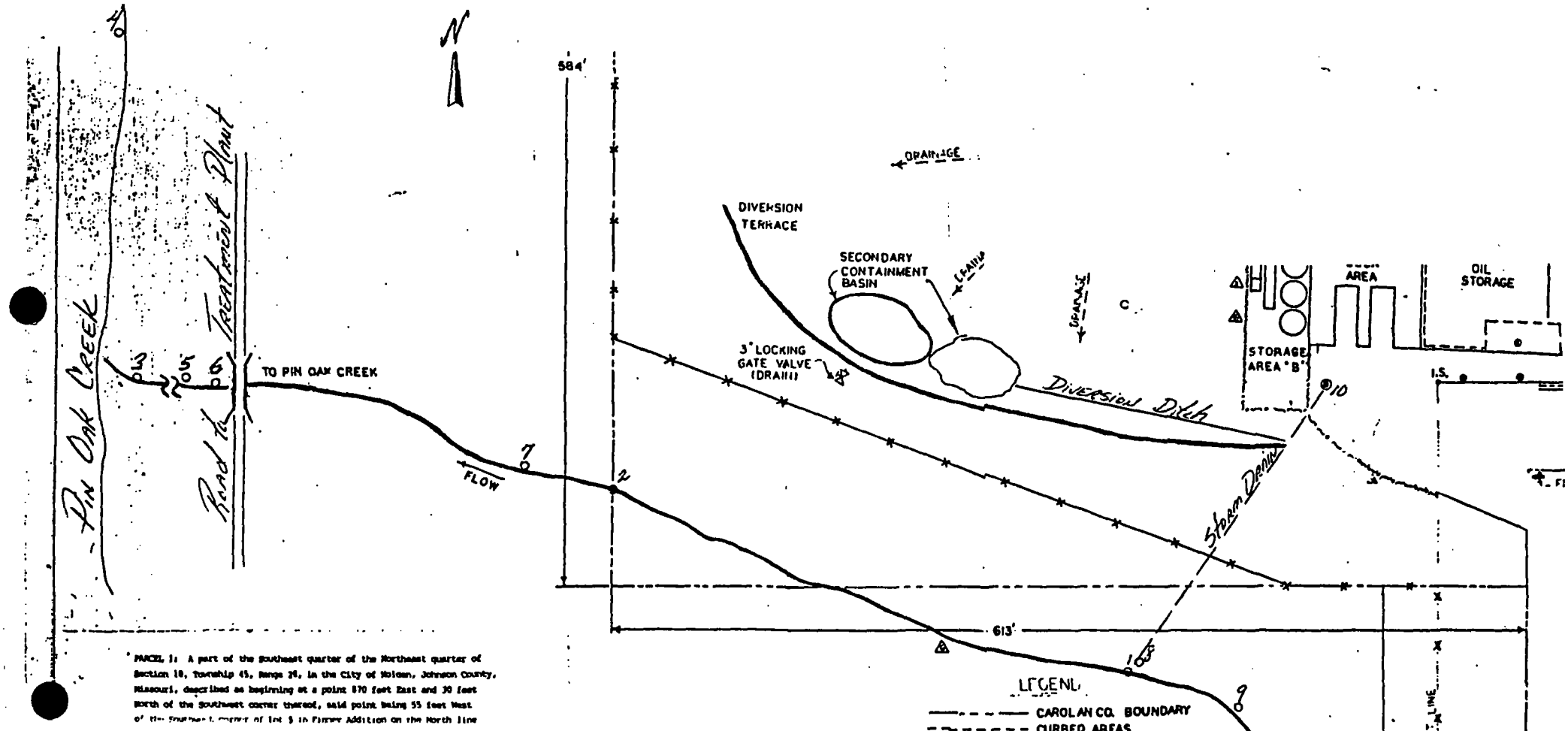
*Results:

001 - 4.10	007 - 0.51
002 - 4.60	008 - 0.17
003 - 12.00	009 - 0.92
004 - 5.30	010 - 3.40
005 - 3.75	011 - 1.40
006 - 0.46	

* Total PCB Concentration in ppm

Sampling Map

(Samples taken May 19, 1986)



PARCEL 1: A part of the Southeast quarter of the Northeast quarter of Section 18, Township 45, Range 28, in the City of Nelson, Johnson County, Missouri, described as beginning at a point 870 feet East and 30 feet North of the Southeast corner thereof, said point being 55 feet West of the Southeast corner of Lot 5 in Finney Addition on the North line

(Sample Series: BKJ8D001-010)

*Results:

001 - 69.0	006 - Und.
002 - 59.0	007 - 2.12
003 - Und.	008 - 10.4
004 - Und.	009 - Und.
005 - 2.13	010 - 183.0

* Total PCB concentration in ppm

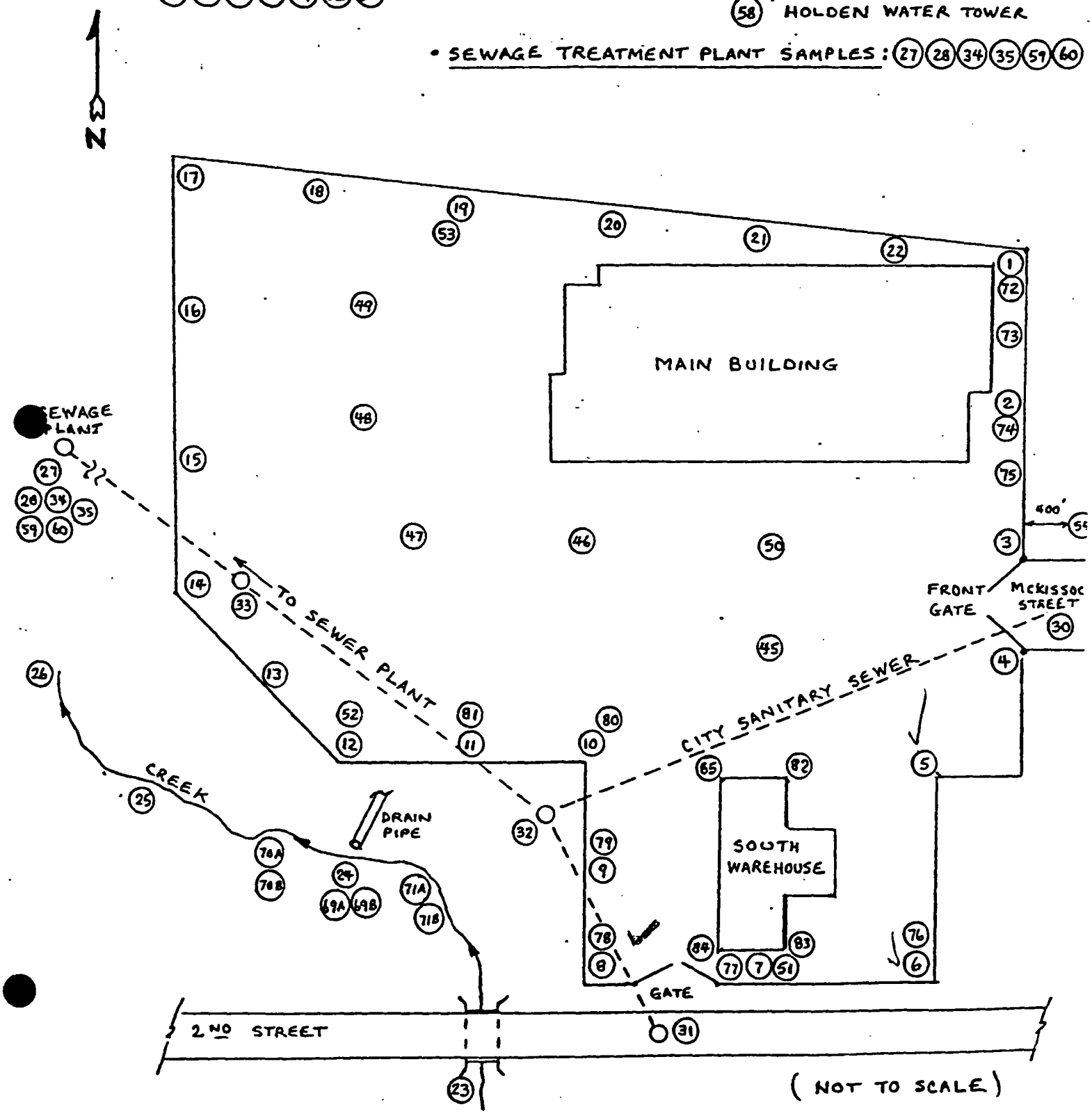
ATTACHMENT 1

LOCATION OF SAMPLES ROSE CHEMICAL CO. SITE

- EPA SPLIT LIST
  2 8 10 17 23 24
  27 28 29 30 31 32 50

- BACKGROUND SAMPLES:
  54 400' E. OF FRONT GATE
  55 MILLER MAUSOLEUM
  56 86 87 HOLDEN BAPTIST TEMPLE
  57 HOLDEN BALL PARK
  58 HOLDEN WATER TOWER

- SEWAGE TREATMENT PLANT SAMPLES: 27 28 34 35 59 60



ATTACHMENT 2

RESULTS OF PRELIMINARY SITE SAMPLING/ANALYSIS
ROSE CHEMICALS SITE - HOLDEN, MISSOURI
(BDL = below detection limits)

SAMPLE NO. (4092-)	DATE TAKEN	SAMPLE DESCRIPTION (See attached site sampling map)	Moisture Content %	PCB CONTENT (ppm) (DL = 0.2 ppm) 1242	1260	TOTAL	PCB CONTENT (ppb) (DL = 0.1 ppb) 1242	1260	TOTAL	PCB CONTENT (ug/600 l) (DL = 0.025 ug/600 l) 1242	1260	TOTAL	PCB CONTENT (ug/100cm2) TOTAL
1	9/3/86	Soil composite between markers 1 and 2		6.1	5.6	11.7							
2	9/3/86	" " " 2 and 3		1.7	3.9	5.6							
3	9/3/86	" " " 3 and 4		1.1	1.1	2.2							
4	9/3/86	" " " 4 and 5		BDL	BDL	BDL							
5	9/3/86	" " " 5 and 6		BDL	BDL	BDL							
6	9/3/86	" " " 6 and 7		0.4	0.9	1.3							
7	9/3/86	" " " 7 and 8		3.5	5.6	9.1							
8	9/3/86	" " " 8 and 9		6.5	5.7	12.2							
9	9/3/86	" " " 9 and 10		BDL	0.2	0.2							
10	9/3/86	" " " 10 and 11		3.9	2.8	6.7							
11	9/3/86	" " " 11 and 12		BDL	BDL	BDL							
12	9/3/86	" " " 12 and 13		BDL	BDL	BDL							
13	9/3/86	" " " 13 and 14		BDL	0.4	0.4							
14	9/3/86	" " " 14 and 15		BDL	BDL	BDL							
15	9/3/86	" " " 15 and 16		BDL	BDL	BDL							
16	9/3/86	" " " 16 and 17		BDL	BDL	BDL							
17	9/3/86	" " " 17 and 18		BDL	BDL	BDL							
18	9/3/86	" " " 18 and 19		BDL	BDL	BDL							
19	9/3/86	" " " 19 and 20		BDL	BDL	BDL							
20	9/3/86	" " " 20 and 21		BDL	BDL	BDL							
21	9/3/86	" " " 21 and 22		0.7	3.1	3.8							
22	9/3/86	" " " 22 and 1		0.4	0.9	1.3							
23	9/4/86	Soil/sediment from creek bed, S. of culvert on 2nd St.		BDL	BDL	BDL							
24	9/5/86	" " " , near store drain		0.8	0.9	1.7							
25	9/6/86	" " " , sewage plant road E. of culvert		0.2	0.4	0.6							
26	9/7/86	" " " , where two streams meet		0.5	0.6	1.1							
27	9/4/86	Water sludge tank (30'), city sewage plant, top					14.5	BDL	14.5				
28	9/4/86	" " " " , middle					14.0	BDL	14.0				
29	-	Not sampled					-	-	-				
30	9/4/86	Sludge from manhole, city sanitary sewer main, near front gate	89.66	BDL	BDL	BDL							
31	9/4/86	" " " " , on 2nd St. near gate	5.61	BDL	BDL	BDL							
32	9/4/86	" " " " , 1st manhole on site	37.79	BDL	BDL	BDL							
33	9/4/86	" " " " , far W. manhole cover											0.5
34	9/4/86	Effluent from city sewer plant					8.0	BDL	8.0				
35	9/4/86	Influent from city sewer plant					21.5	BDL	21.5				
36-44	-	Not sampled		-	-	-							
45	9/4/86	Soil, 150' S. of main sliding door of main building		BDL	0.4	0.4							
46	9/4/86	" , 48' N. of marker #10		0.6	1.7	2.3							
47	9/4/86	" , 18' S. of light pole		BDL	BDL	BDL							
48	9/4/86	" , 14' S. of light pole 3		BDL	BDL	BDL							
49	9/4/86	" , 25' W. of light pole 2		BDL	BDL	BDL							
50	9/4/86	" , 75' S. of main sliding door of main building		BDL	BDL	BDL							
51	9/4/86	Replicate of Sample # 7		3.6	7.5	11.1							
52	9/4/86	" " #12		BDL	BDL	BDL							
53	9/4/86	" " #19		BDL	BDL	BDL							
54	9/4/86	Background - soil (surface grab), 400' E. of site front gate		BDL	1.6	1.6							
55	9/4/86	" " " , Miller mausoleum/park		BDL	BDL	BDL							
56	9/4/86	" " " , Holden Baptist Temple		5.9	BDL	5.9							
57	9/4/86	" " " , Holden ball park		BDL	BDL	BDL							
58	9/4/86	" " " , Holden school/water tower		BDL	BDL	BDL							

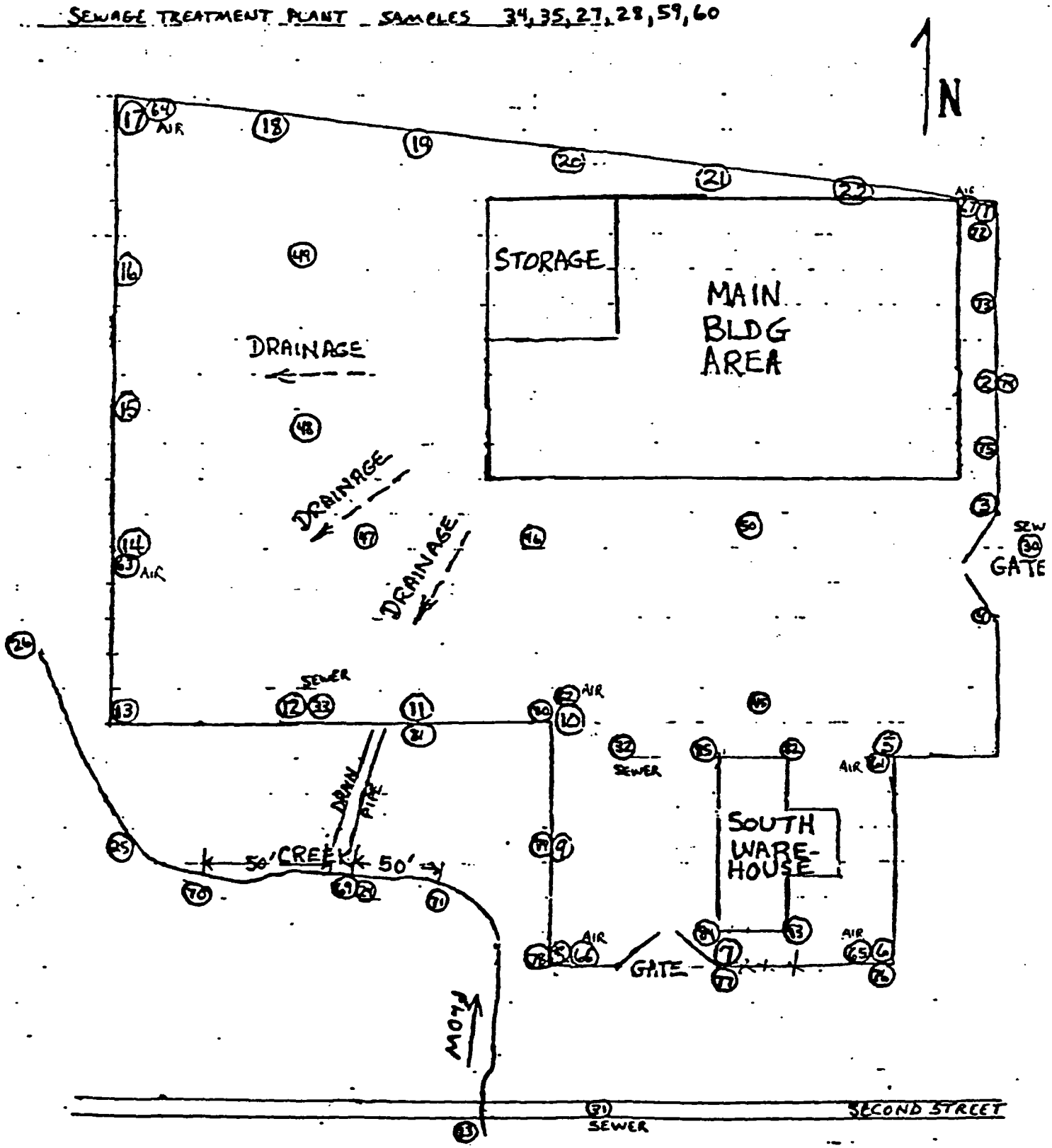
SAMPLE NO. (4092-)	DATE TAKEN	SAMPLE DESCRIPTION (See attached site sampling map)	Moisture Content %	PCB CONTENT (ppm) (DL = 0.2 ppm) 1242	1260	TOTAL	PCB CONTENT (ppb) (DL = 0.1 ppb) 1242	1260	TOTAL	PCB CONTENT (ug/600 l) (DL = 0.025 ug/600 l) 1242	1260	TOTAL	PCB CONTENT (ug/100cm2) TOTAL
59	9/4/86	Dried sludge, city sewage plant, E. drying pit (wet weight basis)	60.51	0.6	BDL	0.6							
		(dry weight basis)		1.6	BDL	1.6							
60	9/3/86	" " " , NE. drying pit (wet weight basis)	76.21	0.4	BDL	0.4							
		(dry weight basis)		1.8	BDL	1.8							
61	9/3/86	Air sample from site perimeter, marker 05								0.19	BDL	0.19	
62	9/3/86	" " " " 010								BDL	BDL	BDL	
63	9/3/86	" " " " 014								BDL	BDL	BDL	
64	9/4/86	" " " " 017								BDL	BDL	BDL	
65	9/4/86	" " " " 06								BDL	BDL	BDL	
66	9/4/86	" " " " 08								0.38	0.68	1.06	
67	9/4/86	" " " " 01								1.44	7.9	9.34	
68	9/4/86	Travel blank								BDL	BDL	BDL	
69a	9/4/86	Soil from creek bed at 0- 6 in. depth, taken near Sample 024		9.6	17.9	27.5							
69b	9/9/86	" " 6-12 in. depth, " "		BDL	2.1	2.1							
70a	9/9/86	" " 0- 6 in. depth 50' downstream of Sample 069		BDL	1.0	1.0							
70b	9/9/86	" " 6-12 in. depth, " "		0.3	1.4	1.7							
71a	9/9/86	" " 0- 6 in. depth 50' upstream of Sample 069		BDL	1.3	1.3							
71b	9/9/86	" " 6-12 in. depth, " "		BDL	1.4	1.4							
72	9/9/86	Soil (surface grab), taken at corner of fence (marker 01)		0.7	1.9	2.6							
73	9/9/86	" " " halfway point between markers 01 and 02		BDL	1.6	1.6							
74	9/9/86	" " " marker 02 (near base of utility pole)		0.4	1.7	2.1							
75	9/9/86	" " " halfway point bewteen markers 02 and 03		0.5	1.9	2.4							
76	9/9/86	" " " corner of fence (marker 06)		0.5	2.2	2.7							
77	9/9/86	" " " marker 07 (S. of south warehouse)		2.6	7.5	10.1							
78	9/9/86	" " " corner of fence (marker 08)		1.5	8.2	9.7							
79	9/9/86	" " " marker 09		0.5	1.8	2.3							
80	9/9/86	" " " marker 010		3.8	3.7	7.5							
81	9/9/86	" " " marker 011		0.6	1.9	2.5							
82	9/9/86	" " " NE corner of south warehouse		0.4	1.9	2.3							
83	9/9/86	" " " SE " " "		158.0	15700.0	15858.0							
84	9/9/86	" " " SW " " "		5.5	5.3	10.8							
85	9/9/86	" " " NW " " "		0.3	BDL	0.3							
86	9/9/86	Background - soil (surface grab), Holden Baptist Temple gate		3.2	6.0	9.2							
87	9/9/86	" " " , same spot as Sample 056		0.2	1.5	1.7							

PLOT PLAN OF ROSE CHEMICAL CO SITE

(Not drawn to scale)

BACKGROUND SAMPLES 55 MILLER MAUSOLEUM
56,86,87 HOLDEN BAPTIST TEMPLE
57 HOLDEN BALL PARK
58 HOLDEN WATER TOWER

SEWAGE TREATMENT PLANT SAMPLES 34,35,27,28,59,60



OHM
THE ENVIRONMENTAL SERVICES COMPANY

O.H. MATERIALS CO.
16406 U.S. Route 224 East
P.O. Box 551
Findlay, Ohio 45839-0551
Phone: 419-423-5526
800-537-9540 (24 hr)
800-537-5660 (in Ohio)
Telex: 298248 OHMI UR (BOX)

October 20, 1986

Mr. Roger Van Zele
Manager, Project Control
Clean Sites Inc.
1199 N. Fairfax Street
Alexandra, VA 22314

Dear Mr. Van Zele:

RE: Analytical Results from the Rose Chemical Site, Holden, Missouri

Enclosed is the information that you requested regarding the air monitoring and initial drum sampling results.

The air samples were taken on florisil tubes at a rate of 1.0 liters/minute for 60 to 90 minutes, for a total sample volume of 60 to 90 liters. The collection tubes were pointed into the wind and were positioned 4-feet above the ground. The wind was out of the Southwest and the day was breezy. Results have been converted to micrograms per cubic meter of air (Attachment 1).

Drum samples were tested for compatibility. This series of testing is qualitative only and additional testing is required for positive results for a given parameter. It is recommended that all positive cyanide results be retested for total and amenable cyanide under USEPA SW-846 Method 9010 and positive sulfide results by Method 9030 for quantitative results. Positive cyanide and sulfide results that need additional confirmation are highlighted on the original laboratory report (Attachment 2).

If you have any further questions or need additional assistance from me or our staff please feel free to call.

Sincerely,

Mike A. Edelbrock

Mike A. Edelbrock
Senior Project Chemist

ME:smb

(ATTACHMENT 1)

TABLE 1 - POLYCHLORINATED BIPHENYLS IN AIR SAMPLES

(All concentrations are reported in ug/m^3)

Sample Number	Concentration (ug/m^3)
4092-61	1.97 (Aroclor 1242)
4092-62	BDL
4092-63	BDL
4092-64	BDL
4092-65	BDL
4092-66	6.14 (Aroclor 1242) 11.0 (Aroclor 1260)
4092-67	20.2 (Aroclor 1242) 111 (Aroclor 1260)
4092-68	BDL

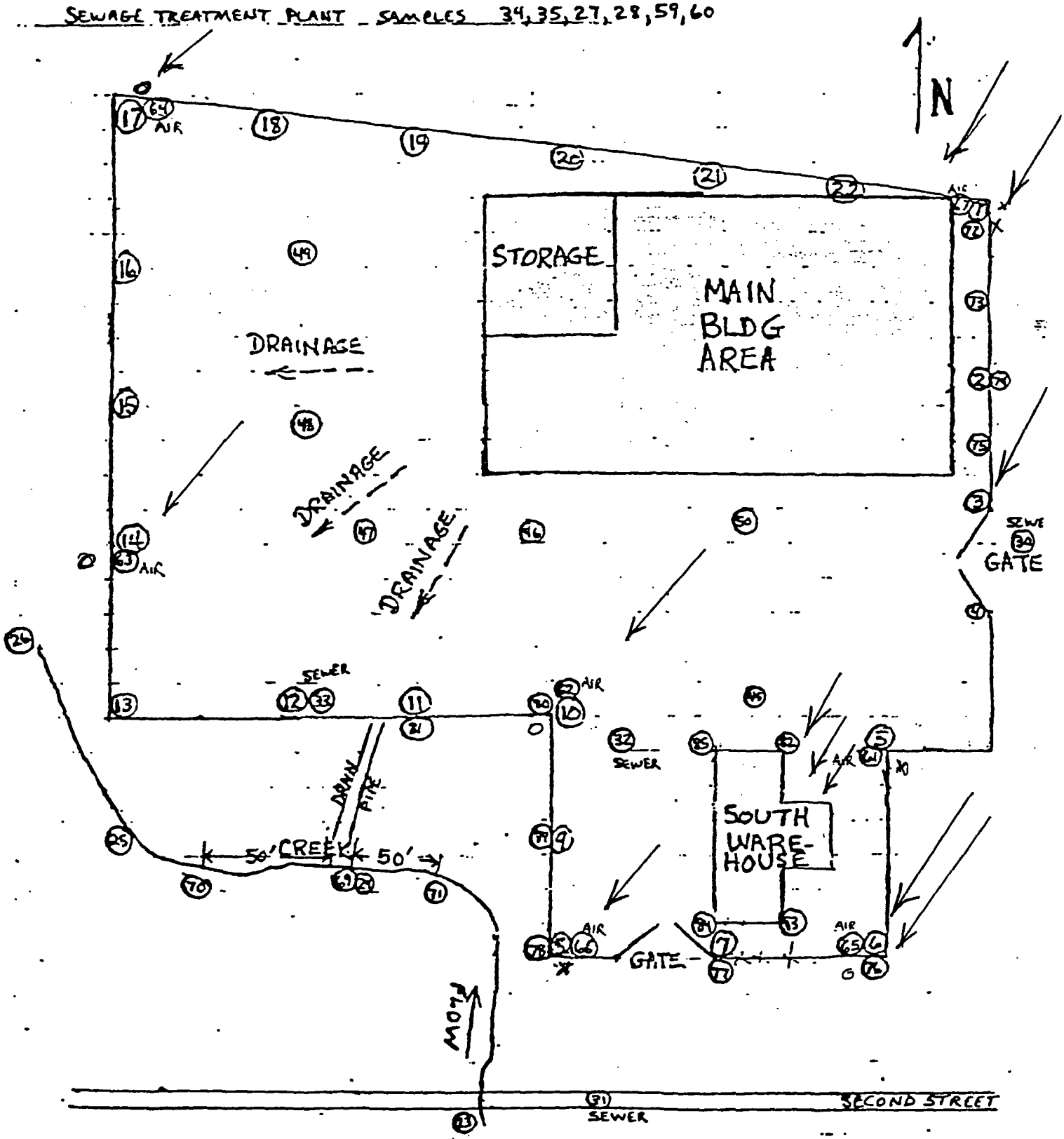
Limit of Detection = 0.25 ug/m^3
BDL = Below Detection Limit

PLOT PLAN OF ROSE CHEMICAL CO. SITE

(Not drawn to scale)

BACKGROUND SAMPLES 55 MILLER MAUSOLEUM
56,86,87 HOLDEN BAPTIST TEMPLE
57 HOLDEN BALL PARK
58 HOLDEN WATER TOWER

SEWAGE TREATMENT PLANT SAMPLES 34,35,27,28,59,60



BLACK & VEATC

MEMORANDUM

July 8, 1987

To: J.R. Kaufman

From: G.A. Carson

Subject: Review of HRS Scoring Package for Martha C. Rose Chemical Company Site

I have reviewed in detail the air portion of the subject package. The air sampling techniques utilized are questionable and the documentation is confusing. NIOSH method P&CAM #253 was mentioned in the field notes as the method utilized. However, this method has been replaced by NIOSH Method #5503 which requires a filter in front of the florsil sorbent tube. This two stage sampling train allows one to determine whether the PCBs are in the particulate and gaseous phase. When the sorbent tube is utilized by itself there is a possibility that the particulate material will pass through the sorbent and not be collected. The recommended sampling flow rate for both P&CAM #253 and Method #5503 is 50 to 200 cubic centimeters per minute (cc/min). According to the field notes, a flow rate of approximately 1000 cc/min was utilized although there was some confusion in other documentation about this fact. Based on the sampling times of 60 to 90 minutes, this flow rate resulted in a total volume sampled of 60 to 90 liters. The methods state that the maximum volume should be 50 liters.

The laboratory analytical results appear to be reasonable. One blank sorbent tube was run and it showed less than the limit of detection. Although it was never stated, I assume that Aroclor 1242 and 1260 were selected as the analyte of interest because of their reported presence at the site. This does not rule out the possibility of other PCBs being present at the site and therefore in the air.

In my opinion the three of seven positive air samples for PCBs (1242 and 1260) are real numbers. However, an explanation of their relative value based on their site location is difficult to formulate. If in fact the wind was from the southwest on the day of the sampling there may be some reason to believe that the highest air concentration (as reported) would be at the northeast corner of the site. However, this same reasoning would not explain the air levels at the southwest corner of the entrance gate.

July 8, 1987

The guidance for HRS scoring given in 40 CFR 300, Appendix A, Paragraph 5.1 states as follows:

> "5.1 Observed Release. The only acceptable evidence of release for the air route is data that show levels of a contaminant at or in the vicinity of the facility that significantly exceed background levels, regardless of the frequency of occurrence..."

Since four of the air samples were below the limit of detection, these can be assumed to be representative of background. Therefore, the three positive samples show levels of a contaminant that significantly exceed background. Although the samples represent a small time window, the guidance specifically states that frequency of occurrence is not a consideration.

Based on the guidance for HRS scoring and the previously discussed sampling data supplied by Clean Sites, it is my opinion that there was an observed release.

jdb

Reference 4

CLEAN SITES INC

1199 NORTH FAIRFAX STREET / ALEXANDRIA VIRGINIA 22314 / 703-683-8522

October 22, 1986

Mr. Jene L. Robinson
Illinois Power Company
500 S. 27th Street
Decatur, IL 62525

FILE NO: 5.02.03/25.01
5.02.03/1.04.02

Dear Jene:

I recently have been advised by O. H. Materials Company (OHM) that their earlier report on the sampling results at the Rose Chemicals Site contained an error. Specifically, the results of their air sampling efforts were reported incorrectly in their report dated September 18, 1986. This report was attached to the CSI report on initial sampling results directed to you with our letter of September 23, 1986.

In this report (page 2), a total sample volume of 600 liters for each sample was indicated. The sample results have now been corrected to reflect the fact that the actual sample volumes ranged from 60 to 90 liters.

The revised air sampling results from OHM are attached. Since five of the eight samples involved showed levels below detection limits, OHM's original results remain unchanged after the volume correction (i.e. still non-detectable). However, the three samples showing positive results reflect higher concentrations than reported earlier by OHM.

Very truly yours,

Roger L. Van Zele
Acting Project Manager

RLVZ/sjr

Attachment

RECEIVED
OCT 27 1986
EPA-CNSL

CHAIRMAN OF THE BOARD/Russell E. Train PRESIDENT/Charles W. Powers BOARD OF DIRECTORS/Peter A.A. Berle, Douglas M. Costle, Louis Fernandez, Sandra S. Gardebring, Edwin A. Gee, Jay D. Hair, Donald Kennedy, Joshua Lederberg, H. Eugene McBrayer, Charles W. Powers, William K. Reilly, Henry B. Schacht

cc: G. Johnson
PRP Technical Subcommittee
R. Selman
S. Zabel

G. Hess, EPA-Region VII
S. Pemberton, EPA-Region VII

H. Drushel, DRU-TEK

C. Kline
J. Kohanek
W. Laughlin
G. Murray
N. Newkirk
G Stohrer

J. Trimble, (City of Holden, MO)
J. McConathy, (MO. DNR)

ROSE:executive/samplg_results

Reference 5

CLEAN SITES INC

1199 NORTH FAIRFAX STREET / ALEXANDRIA VIRGINIA 22314 / 703-683-8522

RECEIVED

DEC 8 1986

BLACK & VEATCH

November 24, 1986

RECEIVED

NOV 28 1986

CMPL SECTION

J. Scott Pemberton, Esq.
Assistant Regional Counsel
USEPA, Region VII
726 Minnesota Ave.
Kansas City, KS 66101

Subject: Air Sampling Field Notes
Rose Chemical Site

Dear Mr. Pemberton:

Attached is a copy of the O. H. Materials Company field notes for the air samples collected at the Rose Chemical site. These samples were taken September 6 and 9.

If you have any questions or need further information, please call me or Phil Laughlin (703) 683-8522.

Very truly yours,

Clifford W. Kline

Clifford W. Kline
CSI Project Manager

WPL:bcd

cc: L. Burris
G. E. Johnson
S. Kinser
J. J. Kohanek
G. E. Murray
N. W. Newkirk
J. Robinson
R. Selman
S. Zabel

File: 5.02.03/25.01

CHAIRMAN OF THE BOARD/Russell E. Train PRESIDENT/Charles W. Powers BOARD OF DIRECTORS/Peter A.A. Berle, Douglas M. Costle, Louis Fernandez, Sandra S. Gardebring, Edwin A. Gee, Jay D. Hair, Donald Kennedy, Joshua Lederberg, H. Eugene McBrayer, Charles W. Powers, William K. Reilly, Henry B. Schacht

OHM
THE ENVIRONMENTAL SERVICES COMPANY

O.H. MATERIALS CO.
16406 U.S. Route 224 East
P.O. Box 551
Findlay, Ohio 45839-0551
Phone: 419-423-3526
800-537-9540 (24 hr)
800-537-5660 (in Ohio)
Telex: 298248 OHMI UR (RCA)

November 20, 1986

Mr. Phil Laughlin
Clean Sites Inc.
1199 N. Fairfax St.
Alexandria, VA 22314

Dear Mr. Laughlin:

RE: Air Samples Collected at the Rose Chemical Site, Holden, Missouri

Enclosed are the field notes for the air samples collected at the Rose Chemical site. I apologize for not submitting this information sooner and I hope it is sufficient.

If you have any further questions, do not hesitate to contact myself or Stan Brand.

Sincerely,

Michael A. Edelbrock
Senior Project Chemist

MAE:jkb

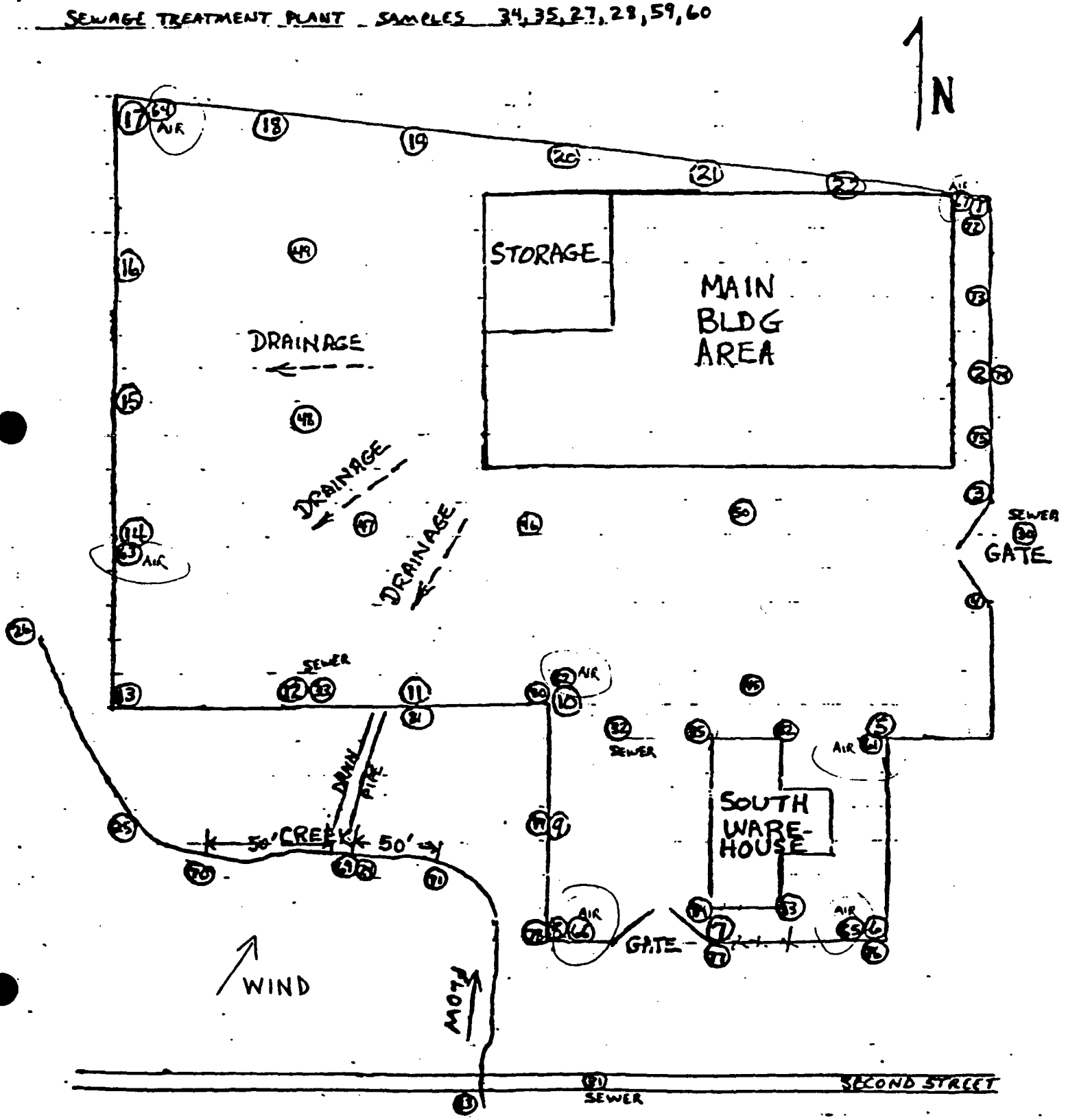
Enclosure

PLOT PLAN OF ROSE CHEMICAL CO. SITE

(Not drawn to scale)

BACKGROUND SAMPLES 55 MILLER MAUSOLEUM
56,86,87 HOLDEN BAPTIST TEMPLE
57 HOLDEN BALL PARK
58 HOLDEN WATER TOWER

SEWAGE TREATMENT PLANT SAMPLES 34,35,27,28,59,60



4092 Holden, Mo.

AIR RESULTS IN TOTAL ug
SOIL RESULTS IN ug/g

Sample Number	Description	Length of ~~Composite~~ Composite	Time	Date	Samplers	Analysis	Results	Comments
4092-61	AIR	~1½HR	1328	9-6-86	AMV/JC			
62	AIR	~1½HR	1330	9-6-86	AMV/JC			
63	AIR	~1½HR	1335	9-6-86	AMV/JC			
64	AIR	~1½HR	1337	9-6-86	AMV/JC			
65	AIR	~1 HR	1530	9-6-86	AMV/JC			
66	AIR	~1 HR	1540	9-6-86	AMV/JC			
67	AIR	~1 HR	1550	9-6-86	AMV/JC			
68	AIR	—	0800	9-8-86	AMV/JC	PCB	<0.025 ug	TRAVEL BLANK
69	Soil 0-1'	—	1130	9-9-86	JC/TF	PCB	9.6/17.9	CREEK AT DRAIN PIPE 0-1' DEEP
	Soil 1'-2'	—	1200	9-9-86	JC/TF	PCB	BMDL/2.1	CREEK AT DRAIN PIPE 1'-2' DEEP
70	Soil 0-1'	—	1315	9-9-86	JC/TF	PCB	BMDL/1.0	CREEK 50' DOWNSTREAM OF DRAIN PIPE 0-1' DEEP
	Soil 1-2'	—	1345	9-9-86	JC/TF	PCB	0.28/1.4	1-2' DEEP
71	Soil 0-1'	—	1415	9-9-86	JC/TF	PCB	BMDL/1.3	CREEK 50' UPSTREAM OF DRAIN PIPE 0-1' DEEP
	Soil 1'-2'	—	1445	9-9-86	JC/TF	PCB	BMDL/1.4	1'-2' DEEP
72	Soil	—	1300	9-9-86	MV/PK	PCB	0.72/1.9	MARKER #1
73	Soil	—	1305	9-9-86	MV/PK	PCB	BMDL/1.6	HALFWAY BETWEEN MARKERS #1 AND #2
74	Soil	—	1310	9-9-86	MV/PK	PCB	0.50/1.7	MARKER #2
75	Soil	—	1315	9-9-86	MV/PK	PCB	0.46/1.9	HALFWAY BETWEEN MARKERS #2 AND #3
76	Soil	—	1320	9-9-86	MV/PK	PCB	0.46/2.2	MARKER #6
77	Soil	—	1325	9-9-86	MV/PK	PCB	2.6/7.5	MARKER #7
78	Soil	—	1330	9-9-86	MV/PK	PCB	1.5/8.0	MARKER #8
79	Soil	—	1335	9-9-86	MV/PK	PCB	0.54/1.8	MARKER #9
80	Soil	—	1340	9-9-86	MV/PK	PCB	3.6/3.7	MARKER #10
81	Soil	—	1345	9-9-86	MV/PK	PCB	0.59/1.4	MARKER #11
82	Soil	—	1350	9-9-86	MV/PK	PCB	0.62/1.9	NE CORNER OF SOUTH WAREHOUSE
83	Soil	—	1350	9-9-86	MV/PK	PCB	58/15,000	SE CORNER OF SOUTH WAREHOUSE
84	Soil	—	1355	9-9-86	MV/PK	PCB	5.5/5.3	SW CORNER OF SOUTH WAREHOUSE
85	Soil	—	1400	9-9-86	MV/PK	PCB	27/BMDL	NW CORNER OF SOUTH WAREHOUSE
86	Soil	—	1405	9-9-86	MV/PK	PCB	3.2/6.0	TAKEN 50' EAST OF HOLDEN BAPTIST TEMPLE BLDG.
87	Soil	—	1410	9-9-86	MV/PK	PCB	0.71/1.5	TAKEN ~~AT~~ NEAR BACK STEPS OF HOLDEN BAPTIST TEMPLE. (SAMPLE #87 WAS TAKEN IN SAME LOCATION AS #56)

1242/1260

PCB	0.192/BMDL ug	TAKEN AT MARKER #5 — ΔT = 95 min
PCB	BMDL(0.005) ug	TAKEN AT MARKER #10 — ΔT = 94 min
PCB	BMDL(0.005) ug	TAKEN AT MARKER #14 — ΔT = 89 min
PCB	<0.025 ug	TAKEN AT MARKER #17 — ΔT = 92 min
PCB	<0.025 ug	TAKEN AT MARKER #6 — ΔT = 60 min
PCB	0.384/0.68 ug	TAKEN AT MARKER #8 — ΔT = 60 min
PCB	1.45/7.9 ug	TAKEN AT MARKER #1 — ΔT = 70 min

9/6

0700 Crew arrived on site
0730 JC + MU start lab pack operation and cleaning out the lab.

830 MU + JC ~~Took a~~ takes to a break to contact Cam Tro Inc. of taking care of the Sodium Container 30 gal Longstone Lab.
Method NASH 1 (253)

Air monitoring

Module # 224-175D

1#	SKC Air pump	1016 cm³/min
2#	SKC Air pump	1031 cm³/min
4#	SKC Air Pump	1046 cm³/min
HH4		1017 cm³/min
HH3		1023 cm³/min

		Ti		Tr
61	AP# 1	1328	Mark #5	1503
62	AP# 2	1330	Mark # 10	1504
63	HH#04	1335	Mark # 14	1504
64	HH#03	1337	Mark # 17	1509
65	HH03	1530	Mark #6	1630
66	HH04	1540	Mark #8	1640
67	SKC #1	1550	Mark #1	1700
68	Blank	0800 9/8/86		

1000 Crew started to staging miscellaneous containers from the Main building

ΔT				
~~175 min~~ 95 min	× 1016 cm³/min	× $\frac{1 m^3}{10^6 cm^3}$	= 0.0965 m³
ME ~~174 min~~ 94 min	× 1013 cm³/min	× 1m³/10⁶cm³	= 0.0952 m³
ME ~~169 min~~ 89	× 1031 cm³/min	× 1m³/10⁶cm³	= 0.0918 m³
ME ~~172 min~~ 92	× 1023 cm³/min	× 1m³/10⁶cm³	= 0.0941 m³
60 min	× 1023 cm³/min	× 1m³/10⁶cm³	0.0614 m³
60 min	× 1031 cm³/min	× 1m³/10⁶cm³	0.0619 m³
70 min	× 1016 cm³/min	× 1m³/10⁶cm³	0.0711 m³

9/6

~~1000~~ 1300 MVHC Calibrated the air sampling pumps

1325 MVHC Setup air pumps at the various corners of the (the area) parameter. (see map)

1400 MVHC cont helping the rest of the crew to stage chemical.

1730 crew departed from site.

Reference 6

U.S. Department of Transportation

United States Coast Guard

CHRIS

Hazardous Chemical Data

COMMANDANT INSTRUCTION M.16465.12A

POLYCHLORINATED BIPHENYL

PCB

Common Synonyms			
PCB Chlorinated biphenyl Aroclor Halogenated waxes Polychloropolyphenyls	Oily liquid to solid powder Sinks in water.	Light yellow liquid, or white powder	Weak odor

Stop discharge if possible. Keep people away.
Avoid contact with liquid and solid.
Call fire department.
Isolate and remove discharged material.
Notify local health and pollution control agencies.

Fire	Combustible. Extinguish with water, foam, dry chemical, or carbon dioxide.
Exposure	*CALL FOR MEDICAL AID.* **LIQUID OR SOLID** *Irritating to skin and eyes.* Flush affected areas with plenty of water. IF IN EYES, hold eyelids open and flush with plenty of water.
Water Pollution	HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS. *May be dangerous if it enters water intakes.* Notify local health and wildlife officials. Notify operators of nearby water intakes.

1. RESPONSE TO DISCHARGE

(See Response Methods Handbook)

Issue warning-water contaminant
Should be removed
Chemical and physical treatment

2. LABEL

2.1 Category: None
2.2 Class: Not pertinent

3. CHEMICAL DESIGNATIONS

3.1 CG Compatibility Class: Not listed
3.2 Formula: $(C_{12}H_{10-n})Cl_n$
3.3 IMO/UN Designation: Not listed
3.4 DOT ID No.: 2315
3.5 CAS Registry No.: 1336-36-3

4. OBSERVABLE CHARACTERISTICS

4.1 Physical State (as shipped): Liquid or solid
4.2 Color: Pale yellow (liquid); colorless (solid)
4.3 Odor: Practically odorless

5. HEALTH HAZARDS

5.1 Personal Protective Equipment: Gloves and protective garments.
5.2 Symptoms Following Exposure: Acne from skin contact.
5.3 Treatment of Exposure: SKIN: wash with soap and water.
5.4 Threshold Limit Value: 0.5 to 1.0 mg/m³
5.5 Short Term Inhalation Limits: Data not available
5.6 Toxicity by Ingestion: Grade 2; oral rat LD_{50} = 3980 mg/kg
5.7 Late Toxicity: Causes chromosomal abnormalities in rats, birth defects in birds
5.8 Vapor (Gas) Irritant Characteristics: Vapors cause severe irritation of eyes and throat and cause eye and lung injury. They cannot be tolerated even at low concentrations.
5.9 Liquid or Solid Irritant Characteristics: Contact with skin may cause irritation.
5.10 Odor Threshold: Data not available
5.11 IDLH Value: 5 to 10 mg/m³

6. FIRE HAZARDS

6.1 Flash Point: >266°F
6.2 Flammable Limits in Air: Data not available
6.3 Fire Extinguishing Agents: Water, foam, dry chemical, or carbon dioxide
6.4 Fire Extinguishing Agents Not to be Used: Not pertinent
6.5 Special Hazards of Combustion Products: Irritating gases are generated in fires.
6.6 Behavior in Fire: Not pertinent
6.7 Ignition Temperature: Data not available
6.8 Electrical Hazard: Not pertinent
6.9 Burning Rate: Data not available
6.10 Adiabatic Flame Temperature: Data not available
6.11 Stoichiometric Air to Fuel Ratio: Data not available
6.12 Flame Temperature: Data not available

7. CHEMICAL REACTIVITY

7.1 Reactivity With Water: No reaction
7.2 Reactivity with Common Materials: No reaction
7.3 Stability During Transport: Stable
7.4 Neutralizing Agents for Acids and Caustics: Not pertinent
7.5 Polymerization: Not pertinent
7.6 Inhibitor of Polymerization: Not pertinent
7.7 Molar Ratio (Reactant to Product): Data not available
7.8 Reactivity Group: Data not available

8. WATER POLLUTION

8.1 Aquatic Toxicity: 0.278 ppm/96 hr/bluegill/TL_m/fresh water
0.005 ppm/336-1080 hr/pinfish/TL_m/salt water
8.2 Waterfowl Toxicity: LD_{50} 2000 ppm (mallard duck)
8.3 Biological Oxygen Demand (BOD): Very low
8.4 Food Chain Concentration Potential: High

9. SHIPPING INFORMATION

9.1 Grades of Purity: 11 grades (some liquid, some solids) which differ primarily in their chlorine content (20%-68% by weight)
9.2 Storage Temperature: Ambient
9.3 Inert Atmosphere: No requirement
9.4 Venting: Open

10. HAZARD ASSESSMENT CODE

(See Hazard Assessment Handbook)

II

11. HAZARD CLASSIFICATIONS

11.1 Code of Federal Regulations: ORM-E
11.2 NAS Hazard Rating for Bulk Water Transportation: Not listed
11.3 NFPA Hazard Classification: Not listed

12. PHYSICAL AND CHEMICAL PROPERTIES

12.1 Physical State at 15°C and 1 atm: Solid
12.2 Molecular Weight: Not pertinent
12.3 Boiling Point at 1 atm: Very high
12.4 Freezing Point: Not pertinent
12.5 Critical Temperature: Not pertinent
12.6 Critical Pressure: Not pertinent
12.7 Specific Gravity: 1.3—1.8 at 20°C (liquid)
12.8 Liquid Surface Tension: Not pertinent
12.9 Liquid Water Interfacial Tension: Not pertinent
12.10 Vapor (Gas) Specific Gravity: Not pertinent
12.11 Ratio of Specific Heats of Vapor (Gas): Not pertinent
12.12 Latent Heat of Vaporization: Not pertinent
12.13 Heat of Combustion: Not pertinent
12.14 Heat of Decomposition: Not pertinent
12.15 Heat of Solution: Not pertinent
12.16 Heat of Polymerization: Not pertinent
12.25 Heat of Fusion: Data not available
12.26 Limiting Value: Data not available
12.27 Reid Vapor Pressure: Data not available

NOTES

PCB	POLYCHLORINATED BIPHENYL

12.17 SATURATED LIQUID DENSITY		12.18 LIQUID HEAT CAPACITY		12.19 LIQUID THERMAL CONDUCTIVITY		12.20 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot (estimate)	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit-inch per hour-square foot-F	Temperature (degrees F)	Centipoise
68	81.150		N		N		N
69	81.150		O		O		O
70	81.150		T		T		T
71	81.150						
72	81.150		P		P		P
73	81.150		E		E		E
74	81.150		R		R		R
75	81.150		T		T		T
76	81.150		I		I		I
77	81.150		N		N		N
78	81.150		E		E		E
79	81.150		N		N		N
80	81.150		T		T		T
81	81.150						
82	81.150						
83	81.150						
84	81.150						
85	81.150						

12.21 SOLUBILITY IN WATER		12.22 SATURATED VAPOR PRESSURE		12.23 SATURATED VAPOR DENSITY		12.24 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
	I		N		N		N
	N		O		O		O
	S		T		T		T
	O						
	L		P		P		P
	U		E		E		E
	B		R		R		R
	L		T		T		T
	E		I		I		I
			N		N		N
			E		E		E
			N		N		N
			T		T		T

Reference 7

Uncontrolled Hazardous Waste Site Ranking System

A Users Manual

Kris W. Barrett
S. Steven Chang
Stuart A. Haus
Andrew M. Platt

August 1982

MTR-82W111

SPONSOR:
U.S. Environmental Protection Agency
CONTRACT NO.:
68-01-6278

The MITRE Corporation
Metrek Division
1820 Dolley Madison Boulevard
McLean, Virginia 22102

TABLE 4
WASTE CHARACTERISTICS VALUES FOR SOME COMMON CHEMICALS

CHEMICAL/COMPOUND	TOXICITY [1]	PERSISTENCE [2]	FLAMMABILITY [3]	REACTIVITY [2]
Acetaldehyde	3	0	3	2
Acetic Acid	3	0	2	1
Acetone	2	0	3	0
Aldrin	3	3	1	0
Ammonia, Anhydrous	3	0	1	0
Aniline	3	1	2	0
Benzene	3	1	3	0
Carbon Tetrachloride	3	3	0	0
Chlordane	3	3	0*	0*
Chlorobenzene	2	2	3	0
Chloroform	3	3	0	0
Cresol-O	3	1	2	0
Cresol-M&P	3	1	1	0
Cyclohexane	2	2	3	0
Endrin	3	3	1	0
Ethyl Benzene	2	1	3	0
Formaldehyde	3	0	2	0
Formic Acid	3	0	2	0
Hydrochloric Acid	3	0	0	0
Isopropyl Ether	3	1	3	1
Lindane	3	3	1	0
Methane	1	1	3	0
Methyl Ethyl Ketone	2	0	3	0
Methyl Parathion in Xylene Solution	3	0Δ	3	2
Naphthalene	2	1	2	0
Nitric Acid	3	0	0	0
Parathion	3	0Δ	1	2
PCB	3	3	0Δ	0Δ
Petroleum, Kerosene (Fuel Oil No. 1)	3	1	2	0
Phenol	3	1	2	0
Sulfuric Acid	3	0	0	2
Toluene	2	1	3	0
Trichlorobenzene	2	3	1	0
α-Trichloroethane	2	2	1	0
Xylene	2	1	3	0

[1] Sax, N. I., Dangerous Properties of Industrial Materials, Van Nostrand Rheinhold Co., New York, 4th ed., 1975. The highest rating listed under each chemical is used.

[2] JRB Associates, Inc., Methodology for Rating the Hazard Potential of Waste Disposal Sites, May 5, 1980.

[3] National Fire Protection Association, National Fire Codes, Vol. 13, No. 49, 1977.

* Professional judgment based on information contained in the U.S. Coast Guard CHRIS Hazardous Chemical Data, 1978.

Δ Professional judgment based on existing literature.

TABLE 12

INCOMPATIBLE MATERIALS

In the lists below, the mixing of a Group A material with a Group B material may have the potential consequence as noted.

Group 1-A	Group 1-B
Acetylene sludge	Acid sludge
Alkaline caustic liquids	Acid and water
Alkaline cleaner	Battery acid
Alkaline corrosive liquids	Chemical cleaners
Alkaline corrosive battery fluid	Electrolyte acid
Caustic wastewater	Etching acid liquid or solvent
Lime sludge and other corrosive alkalies	Pickling liquor and other corrosive acids
Lime wastewater	Spent acid
Lime and water	Spent mixed acid
Spent caustic	Spent sulfuric acid

Potential consequences: Heat generation; violent reaction.

Group 2-A	Group 2-B
Aluminum	Any waste in Group 1-A or 1-B
Beryllium	
Calcium	
Lithium	
Potassium	
Sodium	
Zinc powder	
Other reactive metals and metal hydrides	

Potential consequences: Fire or explosion; generation of flammable hydrogen gas.

Group 3-A	Group 3-B
Alcohols	Any concentrated waste in Groups 1-A or 1-B
Water	Calcium
	Lithium
	Metal hydrides
	Potassium
	SO_2Cl_2, $SOCl_2$, PCl_2, CH_3, $SiCl_3$
	Other water-reactive waste

Potential consequences: Fire, explosion, or heat generation; generation of flammable or toxic gases.

Group 4-A	Group 4-B
Alcohols	Concentrated Group 1-A or 1-B wastes
Aldehydes	Group 2-A wastes
Halogenated hydrocarbons	
Nitrated hydrocarbons	
Unsaturated hydrocarbons	
Other reactive organic compounds and solvents	

Potential consequences: Fire, explosion, or violent reaction.

Group 5-A	Group 5-B
Spent cyanide and sulfide solutions	Group 1-B wastes

Potential consequences: Generation of toxic hydrogen cyanide or hydrogen sulfide gas.

Group 6-A	Group 6-B
Chlorates	Acetic acid and other organic acids
Chlorine	Concentrated mineral acides
Chlorites	Group 2-A wastes
Chromic acid	Group 4-A wastes
Hyphochlorites	Other flammable and combustible wastes
Nitrates	
Nitric acid, fuming	
Perchlorates	
Permanganates	
Peroxides	
Other strong oxidizers	

Potential consequences: Fire, explosion, or violent reaction.

Source: Hazardous Waste Management Law, Regulations, and Guidelines for the Handling of Hazardous Waste. California Department of Health, Sacramento, California, February 1975.

PCB INSPECTION REPORT
(FIRST VISIT UNDER THIS DOCKET NUMBER)

Martha C. Rose Chemicals, Inc.
PCB Division
500 W. McKissock
Holden, Missouri 64040

Date: February 26 and 27, 1986
Docket No. 07-86-T-384
Inspection No. 022686178101

Introduction

An inspection to monitor the above-named company's activities concerning PCBs was to begin on February 26, 1986, and continue, with repeated visits, through March 16, 1986. The purpose was to assure the firm's compliance with the PCB Rule, 40 C.F.R. Part 761.

Summary of Observations

I arrived at Holden, Missouri on February 26, 1986, at approximately 10:30 a.m. and parked at four different locations which provided a view of the facility. I observed people and vehicles entering and leaving the plant until about 12:40 p.m. At 12:45 p.m. I entered the facility and presented my credentials to Dwight Thomas, Director of R and D. I explained to Mr. Thomas that I was issuing a Notice of Inspection and Confidentiality Notice which would be good through March 16, 1986, and would allow repeated visits during that time period. He understood my intent and signed both Notices (attached). Mr. Thomas called in Patrick E. Perrin, Plant Manager, and Esco Taylor, Production Coordinator. The gentlemen told me they were having a staff meeting at 1:00 p.m. to tell their employees that everyone would be terminated at 4:30 p.m., Friday, February 28, 1986. Employees were given the opportunity of leaving after the meeting, if they wished.

Mr. Thomas explained that the plant would not be able to comply with the regulatory letters issued to them by the EPA on February 13, 1986. He said the site would probably require Superfund clean-up. Mr. Perrin said he and Sharon Hays would start working for another Carolan company, American Steel, which is adjacent to the PCB Division. Mr. Thomas said he would continue working for Rose Chemicals, in Kansas City. The mood of the employees at the facility was depression and anger.

Messrs. Thomas and Taylor accompanied me on a tour of the facility. Mr. Taylor showed me what had been done by the company since my January 7 inspection to get into compliance. A new door had been created to allow entry to the capacitor core room and 60 drums of cores in paper bags had been removed and packed for shipment (Photos 6 - 10). He said the drums had been dated by reviewing records and determining when cores were probably put in the room. He told me that RST #6 had been pumped out and that oil processed. He showed me a new label on the tank. He said that WST #3 had also been pumped out, but when we looked at that tank it still was dated 11-9-84. We observed three drums of material in the northwest corner of the air compressor room (Photos 1-5). Mr. Taylor said they contained a mixture of oil and water and he did not know what they would do with them. All were dated 6-5-84. The few employees working in the plant were sweeping the floor.

We looked at the area around the reactor preheat tank where the 2-14-86 spill occurred and Mr. Perrin provided two photocopies of the report that was sent to EPA (attached). I issued Mr. Perrin a receipt for those documents (attached).

On February 27, at 7:45 a.m., I returned to the facility. I visited with Mr. Thomas and Mr. Perrin. I requested and received a photocopy of the records showing how much fluid had been removed from RST #6 (attached) I also asked for an inventory of the PCB items in the plant. Mr. Perrin said they did not have an inventory but would have a record for each item. I told them I would like to go through the plant again, take photos, and count some of the items. They said for me to go ahead -- they did not see any reason to accompany me.

I toured the plant by myself and collected photos 11-64 (attached). Several employees were working unloading trucks, logging transformers, sweeping floors, and generally cleaning up the work areas. I counted the following items:

(1) 3,844/55 gallon drums containing miscellaneous solid waste, capacitor core paper, capacitor cores, oil, and capacitor oil,

(2) 492/64 cu. ft. wooden crates containing miscellaneous solid waste, capacitors, and capacitor cores,

(3) 10 paper bags of lab vials, etc.,

(4) 100 contaminated transformers (mixed drained and not drained),

(5) 300 PCB transformers (mixed drained and not drained), some as high as 400,000 ppm,

(6) 1 steel capacitor core bin (approximately 5,760 cu. ft.); full, and

(7) 1 capacitor core room that was previously estimated to contain 26,250/50 pound paper bags of capacitor cores for a total of about 1,312,500 pounds (60 drums had been filled from this room and were on hand).

I estimated there were probably another 1000 drums, 100 crates, and 100 transformers which I did not count. Other items include numerous storage tanks (as supposedly listed in the permit applications), numerous "empty" drums in the south warehouse, trucks, forklifts, pallets, and various tools and machinery.

I issued Mr. Thomas a receipt for the photos and RST #6 records. He requested a copy of my photos and I agreed to send them at a later date. I again asked Mr. Thomas and Mr. Perrin what the plans were for the facility and they said those decisions would be made by owners of the company. I pointed

out that this was only my first visit under this Notice of Inspection and that I might return at anytime prior to March 16. They understood that and said I was welcome but there might not be anyone present.

David A. Ramsey
Consumer Safety Officer

2/28/86
Date

Attachments: Notice of Inspection
Confidentiality Notice
Receipt for Samples (2)
Photos (64)
Photocopy of spill report (2)
RST #6 records (4 pp)

(FATES form not completed because inspection is ongoing).

HAZARDOUS WASTE QUANTITY

MARTHA C. ROSE CHEMICAL COMPANY SITE

Hazardous Waste Summary (Reference 8, p.2 and Reference 10, Attachment 1)

- 322,000 gallon bulk PCB contaminated oil
- 5000 55-gallon drums contaminated waste
- 400 transformers (drained and undrained) assume 200 full at 100 gallons each
- 4700 ft^3 of capacitor cores in steel bin
- 1.3 million pound capacitor cores in fifty pound paper bags

Waste Quantity Calculations

- 322,000 gallons x 7.5 lb/gallon oil = 2,415,000
- 5000 drums x 55 gallons x 7.5 lb/gallon = 2,065,000
- 200 transformers x 100 gallons x 7.5 lb/gallon = 150,000
- $4700\ ft^3 \times \frac{yd^3}{27ft^3} \times \frac{4\ drums}{yd^3} \times \frac{50\ gallons}{drum} \times 7.5\ lb/gallon$ = 261,111
- 1,300,000 pounds = 1,300,000

6,191,111 pounds

$6{,}191{,}111 \times \frac{1\ ton}{2000\ lbs}$ = 3095 tons

Reference 10

SCHIFF HARDIN & WAITE
A Partnership Including Professional Corporations

7200 Sears Tower, Chicago, Illinois 60606
Telephone (312) 876-1000 Twx 910-221-2463

WASHINGTON OFFICE:
1101 Connecticut Avenue, N.W., Washington, D.C. 20036
Telephone (202) 857-0600 Telex SHW 64590

September 23, 1986

FEDERAL EXPRESS

J. Scott Pemberton, Esq.
U. S. Environmental
Protection Agency
Region VII
726 Minnesota Avenue
Kansas City, Kansas 66101

Re: Rose Chemicals

Dear Scott:

Following our meeting yesterday, I am enclosing a copy of the latest draft of the Statement of Work approved by the Technical Subcommittee. The revisions from the prior draft attempt to follow the comments received from the Region and the suggestions of Mr. Hess. I am sure you will want Mr. Hess to review this. I am also enclosing for your information a copy of CSI's progress report.

I meant to inquire yesterday, but it slipped my mind, on the status of our request (my letter of September 15) to obtain copies of data from USEPA. If there is some problem in making this information available please let me know.

Very truly yours,

Sheldon A. Zabel

SAZ/mab
Enclosures

DRAFT
SOW - INITIAL PHASE
ROSE CHEMICAL
September 19, 1986

STATEMENT OF WORK - INITIAL PHASE

ROSE CHEMICALS SITE, HOLDEN, MO.

The PRPs, through their Contractor * and with the oversight and assistance of Clean Sites Inc. (CSI), will perform the following initial response activities in connection with the stabilization and assessment of the Rose Chemicals Site.

1. Spill Assessment and Containment

The site shall be examined to determine the location and extent of any release or threatened release of PCBs or other hazardous materials which may pose an immediate danger to human health or welfare or the environment. With respect to any releases so identified, Contractor shall contain the release. This containment shall include, but not necessarily be limited to, the following:

(a) remove and containerize all free-flowing liquids resulting from the release;

(b) excavate and containerize any visually contaminated soils or other materials which have been contaminated as a result of the release, and which continue to pose an immediate danger;

(c) isolate the site from the external environment, as required, to prevent migration of contaminants off site (e.g. isolate and secure sewer drains and surface runoff).

2. Site Stabilization

The site shall be stabilized to reduce the risk of future threats to human health or welfare or the environment. To achieve said site stabilization, Contractor shall undertake the following activities:

---

* It is possible that more than one contractor will be involved in the work. The use of the term "Contractor" herein is generic, and refers to the specific contractor for the element of the work.

(a) Any drums, tanks, tanker trucks, or other containers which provided a source for a release identified pursuant to Paragraph 1 above or which provide an imminent threat of such a release shall be drained into a secure tank truck or other approved container(s);

(b) All tractor, trailer, and tanker trucks and any other unsecured tankage presently containing PCB or other contaminated oil located on the site shall be located inside an impermeable bermed area of sufficient capacity to contain the total capacity of all tankage so located, with a minimum freeboard of twelve (12) inches;

(c) Any other materials stored at the site which present an acute fire or explosion hazard shall be removed from the site and disposed of in accordance with all applicable Federal, state and local laws and regulations or secured in such a manner as to render the hazard non-acute.

3. Site Security

Measures shall be taken as necessary to restrict access and provide security to the site. These measures shall include the following:

(a) establishment of twenty-four (24) hour security onsite with the presence of trained security personnel at all times;

(b) the posting of warning signs adequate to warn the public of the presence of PCBs and other hazardous wastes, if any;

(c) establishment of warning and notification systems adequate to immediately warn local, state and federal authorities of any fire, spill or other release at the Holden facility; and

(d) construction of a complete chain link security fence surrounding the Holden facility.

4. Review of Existing Data

CSI, with assistance of Contractor, will assemble existing reports, studies, manifests, trip tickets, and other information available to initially characterize the Rose facility. Contractor will prepare a facility plan showing the location and character of any drains or other conduits of any description that could serve to transport contaminated liquids from the facility to the surrounding environment. To the extent possible, with available information, CSI with assistance of Contractor will determine the nature and amounts of contaminated materials within the facility boundaries. CSI with assistance of Contractor will evaluate the data and identify any additional information required to effect cleanup actions.

5. Site Survey (Inventory, S/A)

To the extent additional information on site conditions is determined to be necessary pursuant to Paragraph 4, studies shall be performed to determine the nature and extent of the problem at the site and to gather data necessary to determine and support final response activities. Related activities will include the further development of a site inventory as well as sampling and analysis needed to characterize the facility. Any activities undertaken pursuant to this paragraph shall be performed in accordance with the work plans described in Paragraph 6.

6. Work Plans

Plans will be developed by Contractor and will be reviewed by Clean Sites, Inc. These plans will guide activities conducted pursuant to this Statement of Work and will include the following:

(a) Health and Safety: Before any work is performed at the site, Contractor will prepare site-specific Health and Safety Plan. The plan will include, at a minimum:

(i) a designation of areas of contamination, decontamination, and project management;

(ii) types of protective clothing;

(iii) safe working practices;

(iv) contingency planning;

This plan will be consistent with any relevant guidance provided by the U.S. EPA documents "Guidance for Remedial Investigations under Superfund", and "The Interim Standard Operating Safety Guides" (September 1982 revision) and with applicable NIOSH/OSHA guidelines.

(b) Quality Assurance/Quality Control (QA/QC): Before any sampling or analytical work is performed pursuant to this Statement of Work, Contractor will prepare a plan describing the measures to be taken to assure the quality of any sampling and analysis of materials at the site. Similarly, before any materials are removed from the site for disposal, pursuant to this Statement of Work Section 2-(c), Contractor shall prepare a plan which shall describe the measures to be taken to ensure the proper destruction and/or other final disposition of said materials, if any. These plans will be consistent with guidance provided by relevant U.S. EPA guidance documents.

(c) Sampling/Analysis: Contractor will develop a plan describing procedures to be followed in the site survey and the characterization of the materials at the facility performed pursuant to this Statement of Work. The plan will describe the location of the samples, the reason for selecting this location and type of sample, the methods for obtaining and storing the samples, chain-of-custody procedures and the manner by which the results will be reported. This plan shall provide for a sampling and analysis program whereby the extent and magnitude of any PCB contamination of soils, sediments, surface or subsurface waters, or other portions of the environment, resulting from the release [as defined by 42 U.S.C. 9601(22)] of PCBs at or from the facility, will be determined.

(d) Inventory: Contractor will prepare a plan to conduct an inventory of all PCBs and PCB items presently located at the Rose Chemicals Site. This inventory shall include the identification of each PCB container and the contents of each container.

7. Reports, Notifications and Inspections

EPA shall have the right to inspect and observe any work performed in accordance with this Statement of Work. Within fourteen (14) days after completion of all work set forth in this Statement of Work, Respondents shall submit in writing to EPA certification of the completion of all activities called for by this Statement of Work.

During the performance of the work described in this Statement of Work, the Respondents shall provide periodic status reports to the EPA. These reports shall be provided monthly, or as otherwise agreed among the parties, until the completion of all work called for by this Statement of Work. These reports shall include descriptions of the work performed during the immediately previous reporting period and of the work planned for the following reporting period, and shall also include summaries of manifests and destruction reports.

Additionally, subsequent to completion of the activities called for in Paragraphs 4 and 5, Respondents shall submit to EPA a report summarizing the known site conditions. This report will provide a description of the site, including the total area of the site, the general nature of the facility and its contents, and the nature and extent of the problem. The report will include a site map showing all buildings, utilities, drains, paved areas, tanks, and other features. The map will be of sufficient accurancy and detail to locate and report all existing and future work at the site.

8. Schedule

Within fifteen (15) working days of the execution of this Consent Order, PRPs shall submit to EPA all Work Plans developed pursuant to Section 6 above for review and approval. Work Plans for inventory and for sampling/analysis shall each contain a schedule for implementation of all elements of the respective plan. Once EPA has approved said schedules, all work elements shall be completed within the approved schedule.

PROGRESS REPORT NO. 1

ROSE CHEMICALS SITE - HOLDEN, MISSOURI
THROUGH SEPTEMBER 12, 1986

A number of activities related to the security, stabilization, and characterization of the Rose Chemicals site at Holden, Missouri were undertaken by CSI and its contractors during the period September 2-12, 1986. This report describes these activities and additionally addresses activities anticipated during the rest of September.

In summary, the following activities took place during the period of this report:

- CSI and O.H. Materials (OHM) mobilized at site for initial project activities, and OHM has now demobilized since their work has been completed
- reactives were secured and removals are being arranged by OHM
- surveying of the site has been completed and the security perimeter fence is under construction by other contractors
- OHM has drained several pits of liquids within the main building of standing water and the contents have been containerized, and the pits patched to reduce or prevent future inflow of water
- miscellaneous drums and debris scattered around the site have been collected and staged inside the main building by OHM
- preliminary surface soil, sludge, and air sampling efforts on site, in the creek and at the city sewage plant have been completed by OHM under EPA and CSI oversight, and all analytical results are due during the week of September 15
- a number of other site safety and security measures have been completed
- proposals have been received from contractors bidding for work to be done under the Consent Order being developed, and CSI's bid review is in progress.

Each of these items is explained in more detail in the following pages.

CSI/OH Materials/EPA Onsite

A contract was executed between OHM and Clean Sites Inc. (CSI) in order to accomplish a number of the activities described in this report. OHM began mobilizing at site on September 2, and was fully demobilized on September 10. At peak, a work crew of eight OHM employees and a number of equipment pieces were active onsite. CSI project management representatives also were resident at site throughout the activities there, and CSI continues to maintain an office trailer at the site (PO Box 216, Phone 816-732-5529. Additionally, the EPA On-scene Coordinator (OSC) and a representative of the EPA TATS contractor, Roy F. Weston, were at site during sampling operations.

Reactives Secured/Removal Being Pursued

Reactive chemicals, previously identified onsite, were consolidated within a separate area inside the main warehouse building by OHM. The materials were segregated by type to minimize the risk of reactions, and all drums were placed on pallets and covered with plastic sheeting. There are 95 drums of miscellaneous materials including lab packs containing the materials previously located in the laboratory, as well as 102 empty sodium drums and one partially-full drum. The former appear to include acids, bases, organics, and three gas cylinders (one freon and two carbon disulfide). Additionally, two five-gallon buckets and two one-gallon cans of sodium metal were secured in a locked metal locker in the same area. All containers of sodium metal were marked with warning stickers and/or highly-visible fluorescent paint.

OHM has submitted drum samples for all materials except the sodium to the laboratory for compatibility analysis prior to arranging for disposal of these materials. Results are expected during the week of September 15. OHM also will be arranging for proper disposal in parallel with efforts by the PRPs to obtain proper legal authority to be able to remove these materials from the site. OHM estimates 4-10 weeks will be required to arrange for disposal of any materials which must go to a RCRA site.

CSI has arranged for one of the sodium vendors who had supplied sodium to Rose to prepare a plan/proposal for removing the sodium drums and containers of sodium metal from the site for reclaiming and reprocessing of the residual sodium once the proper legal authority to do so has been obtained. It is expected that this proposal will be submitted to CSI during the week of September 15. This vendor visited the site on September 10 to gather the information needed to prepare the proposal. During this visit, the safety precautions taken to protect the sodium were reviewed with the vendor, and it was agreed that, short of removal, largely all had been done that could be done to minimize risks.

Security Fence Around Site

The site was surveyed in preparation for the installation of a perimeter security fence to be built to standard EPA specifications (i.e., six-foot, chain link, 3-strands of barbed wire). This work which was done by Sherman & Bowers Survey Co., Harrisonville, MO, under contract to CSI, indicated the existing fenceline to be within 2-3 feet of the property line with only one significant exception. That exception is the extreme southwest corner of the property, which the survey shows to be approximately 175 feet south of the existing fence cornerpost.

It was decided that the new fence generally would follow the existing fenceline. The new fence will not be run to the southwest corner in order to avoid "bridging" the creek.

On the north and west edges of the property where the survey indicates the existing fence to be slightly outside the property line, the new fence will be built on the property line. Conversely, the fence immediately adjacent to Route 58 on the southside will be moved out slightly to the property line. On the east side, where the property line is 2-3 feet beyond the existing fence, the new fence will be built on the existing fenceline.

Brown Fence Co. was selected by CSI through competitive bidding to build the fence. Seven area contractors were asked to bid on a unit rate basis, and all provided proposals.

By September 12, all posts for the new fence had been set, and the fence fabric will be installed commencing September 15. Completion is expected later in the week.

Sumps Drained/Liquids Containerized

The pit in the process room was drained by OHM of the 22,000 gallons of water it contained, and the water was pumped into tanks onsite with available capacity. It appeared that the water had entered through a small sump located in a corner of the pit. OHM poured concrete into this sump to seal it. Conditions in the pit will be monitored to determine if any additional leakage occurs, and action will be taken to drain and seal the pit if it does.

Two smaller pits (sumps) full of water in the adjoining room also were pumped out by OHM, and the contents stored in the same tankage. A hole which appeared to allow water to enter the pits was sealed by OHM.

Tanks Patched/Inventoried

Tank No. DST-5 (OHM numbered this tank T-005) near the catwalk outside the rear of the building was found to have a hole in the top. Liquid was pumped from this tank by OHM to a nearby unnumbered tank (OHM tank numbering T-011) to provide approximately one foot of freeboard, and the hole was patched and sealed. Also, the hole in the bottom of the silver-colored tank truck sitting on the loading dock was patched and sealed by OHM.

OHM also visually examined all tanks on the site, both indoors and outdoors, for leakage and to assess capacity, volume of contents, and both phase and appearance of the contents. No additional leakage or potential sources of leakage were observed. The details of OHM's tankage survey are provided in Attachment 1 to this report.

In summary, OHM estimates that the 56 tanks identified contain approximately 320,000 gallons of materials, primarily liquids. This is more than 90% of the total tank capacity of approximately 350,000 gallons identified onsite.

Drums/Debris Contained

Nine drums and miscellaneous debris were removed from the creek and brought into the main warehouse. Also, open drums of liquids, apparently used to collect liquids dripping from the tank truck which caused the release in May (now repaired), were sealed and staged in the warehouse.

Sampling/Analysis

OHM, working with CSI's analytical consultant and the EPA's OSC, took a total of 72 solid and liquid samples from the Rose site and the nearby city sewage treatment plant. The sampling plan implemented by OHM was developed with CSI and was reviewed with the EPA OSC and the TAT representative prior to implementation and edited as they requested. Splits of certain of the samples taken were provided to the OSC as directed by him.

The samples taken by OHM include (1) surface soil and sediment samples from the site, the creek, the sewerlines, the sludge drying beds at the sewer plant, and various "background" locations; (2) core samples from the creek, (3) samples from the sludge tank at the sewer plant (largely liquid), and (4) samples of the sewer plant influent and effluent. Additionally, eight air samples were taken at points on the site's perimeter.

Some preliminary, and as yet unvalidated, analytical reults for some samples have been received by phone from Langston Laboratories indicating low levels of PCBs. The complete data from the laboratories are expected to be reported early during the week of September 15. A full report on the results will then be issued by CSI based on the OHM and the Langston reports to CSI.

Other Site Safety and Security Measures

A number of other measures were taken during the subject period to enhance site safety and security. These included the following:

- temporary power was run to the existing external security lights onsite. These lights now illuminate the site from dusk-to-dawn

- CSI purchased a used tractor with a "brush-hog" and a snow plow attachment to be kept on site throughout the project for maintenance work. It was used by OHM to mow the "waist-high" weeds covering the site, which were beginning to present a fire hazard. This vegetation will continue to be cut back as necessary

- the 24-hour security-guard coverage at the site was increased to have two guards onsite at all times during

the period when the fence is under construction. Once the new fence is fully secure, double-coverage will be provided from 10 p.m. to 6 a.m. only

- OHM, working with CSI and the site security service onsite supervisor, assessed the security of the buildings onsite and took certain measures to make improper entry more difficult. Additional chains and locks were installed on doors, as needed, and abandoned equipment and a lean-to were moved away from the building to eliminate easy access to roof openings

- two abandoned vehicles and numerous railroad ties scattered around the site were collected and moved to the rear of the site into the area where an abandoned truck trailer and other debris were already located.

Contracting for AOC Work

On September 8, proposals were received from contractors bidding for the security, stabilization and characterization work remaining to be done at the Rose Chemicals site. This work is expected to include considerably more site stabilization work, an inventory of materials at site, and more comprehensive sampling and analysis of site conditions. A review of the commercial, technical and project execution aspects of the proposals is underway by CSI. It is intended that CSI will be in a position to award the contract for this work, and have its selected contractor mobilize at the site, soon after an Administrative Order on Consent (AOC) is executed between the EPA and the PRPs.

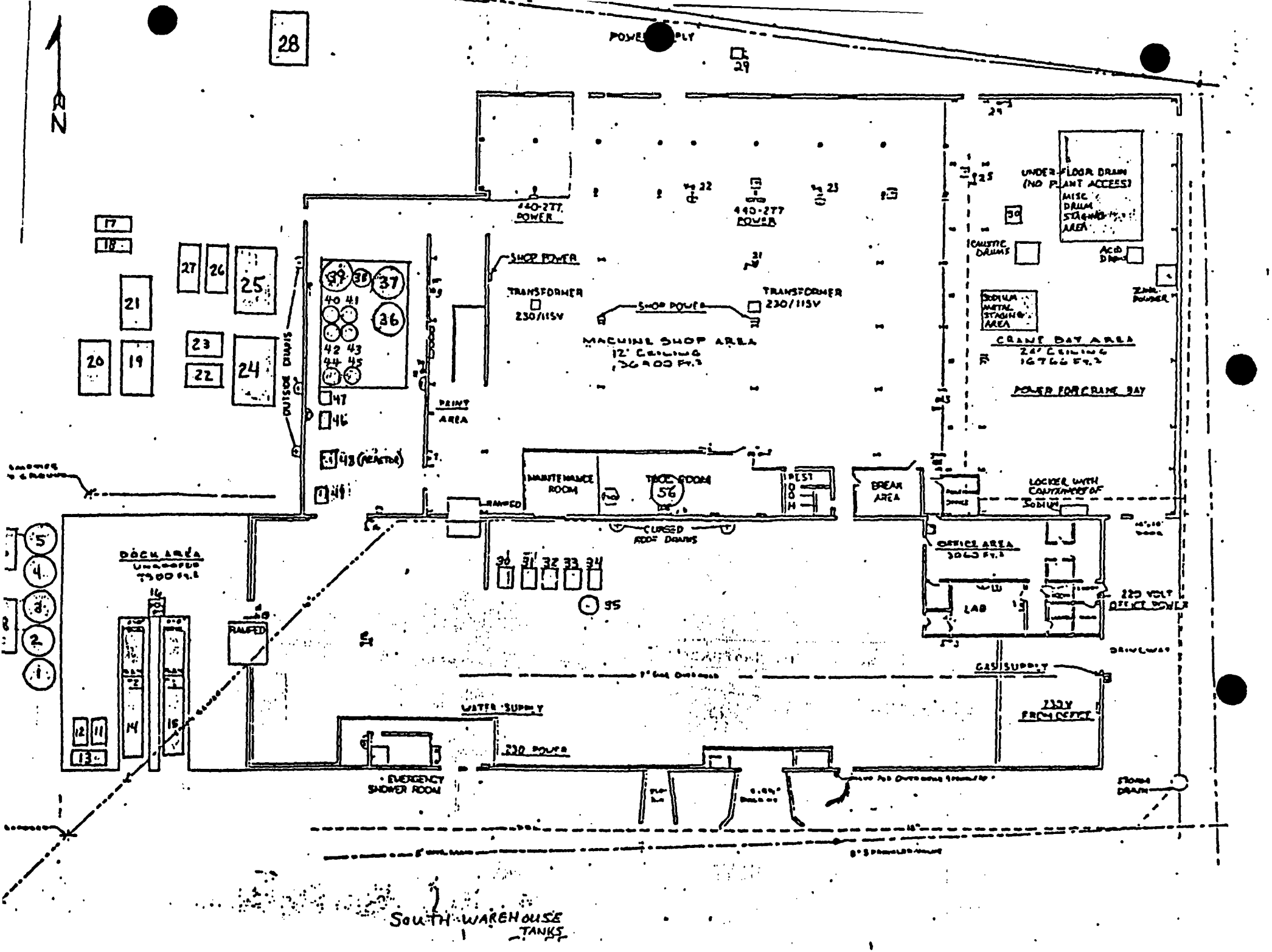
ATTACHMENT 1

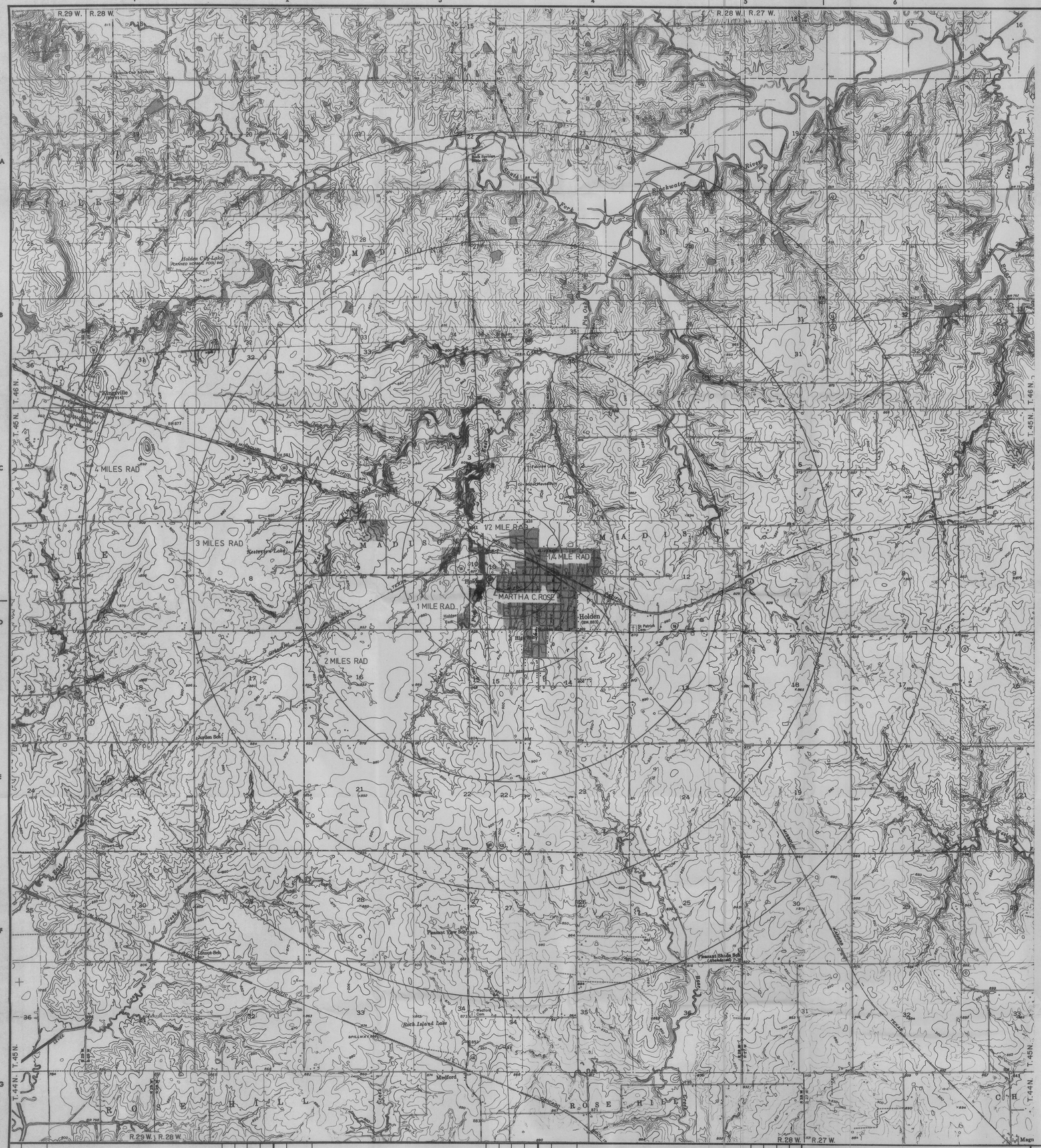
PRELIMINARY TANKAGE INVENTORY
ROSE CHEMICALS SITE - WOLDEN, MISSOURI

TANK NO.(1)	DESCRIPTION ON TANK	APPROXIMATE DIMENSIONS DIAMETER (Ft.)	LENGTH (Ft.)	VOLUME (Gal.)	CONTENTS OF TANKS (APPROXIMATE) % FILLED	VOLUME (Gal.)	VISUAL DESCRIPTION (2)
T-001	DST-1 <10000 PCB	10	17	10000	100	10000	yellow
T-002	DST-2 <10000 PCB	10	17	10000	100	10000	yellow/3" black
T-003	DST-3 <10000 PCB	10	17	10000	100	10000	yellow
T-004	DST-4 <10000 PCB	10	17	10000	100	10000	yellow
T-005	DST-5 <10000 PCB	10	17	10000	100 (3)	9400	yellow/2" black
T-006	DST-6 <10000 PCB	8	27	10000	100	10000	yellow
T-007	DST-7 >10000 PCB	8	27	10000	100	10000	black
T-008	DST-8 <10000 PCB	8	27	10000	80	8000	yellowish brown/12" black
T-009	DST-9 <10000 PCB	6	14	2800	100	2800	yellowish brown/12" black
T-010	DST-10 <10000 PCB	6	14	2800	100	2800	yellowish brown/12" black
T-011		6	14	2800	60 (4)	1800	yellow/black
T-012		8	21	7700	0	0	empty (holes in bottom)
T-013		6	14	2800	100 (5)	2800	yellow/6" black
T-014	Tank trailer:325-A/T461	5	36.5	3200			light brown
T-015	Tank trailer:MO-003/350-1605	5	36.5	3200	0	0	empty
T-016		2.75	2.75	260	100	260	yellow
T-017		6	14	2800	100 (6)	2800	clear
T-018		5	14	2300	100 (6)	2300	clear
T-019	9 >10000 PCB	10.5	24	14000	100	14000	yellow/12" brown
T-020	10 <10000 PCB	10.5	24	14000	100	14000	yellow/brown/24" water
T-021	8 >10000 PCB	10.5	24	14000	100	14000	dark brown
T-022	RST 3 <10000 PCB	8	16	5900	100	5900	yellow/12" brown
T-023	RST 4 <10000 PCB	8	16	5900	90	5310	yellow
T-024	RST < 50 PCB	10	28	16500	100 (7)	16500	dark brown
T-025	RST 2 <10000 PCB	10	28	16500	100	16500	dark brown
T-026	RST 5 <10000 PCB	5	24	4000	100	4000	yellow/12" brown
T-027	RST 6 <10000 PCB	5	24	4000	100	4000	yellow
T-028	RST 7 <10000 PCB	10	17	10000	100 (8)	10000	light brown 12"/clear
T-029		2	7.5	500	0	0	empty
T-030	WHST 1 <10000	6	29	5000	100	5000	dark brown
T-031	WHST 2 <10000	6	29	5000	100	5000	reddish brown
T-032	WHST 3 <10000	6	29	5000	100	5000	reddish brown
T-033	WHST 4 <10000	9	21	9000	100	9000	light brown
T-034	WHST 5 <10000	8	16	6000	100	6000	dark brown
T-035	WHST 6 <10000	6	14	2500	0	0	yellowish brown
T-036	PST 3 <10000	10	27	15000	67	10050	greenish brown
T-037	PST 1 >10000	10	29	15000	67	10050	greenish brown
T-038	PST 4 <10000	7	15	3000	100	3000	yellowish brown
T-039	PST 2 <10000	7	15	3000	100	3000	yellow/6" black
T-040	PST 6 <10000	7	15	3000	100	3000	yellow
T-041	PST	7	15	3000	100	3000	yellow/3" brown
T-042	PST 5 <10000	7	15	3000	100	3000	yellow
T-043	PST	7	15	3000	100	3000	yellow/12" black/red residue
T-044		5	6	1000	67	670	clear yellowish
T-045		5	5	800	25	200	yellow
T-046	(part of reactor)	5	6	1000	100	1000	yellowish brown
T-047	(part of reactor)	5	6	1000	100	1000	yellowish brown
T-048	(reactor)	5	6	1000			yellowish brown
T-049	(gas tank)			20			yellowish brown
T-050		3	6	500			clear
T-051	SBST 1 <10000 PCB	10	20	12000	100	12000	yellow
T-052	SBST 2 >10000 PCB	10	20	12000	100	12000	light brown
T-053	SBST 3 >10000 PCB	10	15	9000	100	9000	black
T-054	SBST 4 <10000 PCB	10	15	9000	100	9000	black
T-055	SBST 5 <10000 PCB	10	17	10000	100	10000	black
T-056				2000	100	2000	clear
TOTAL				355780		322140	

NOTES:
(1) O.H. Materials numbering system (see layout diagram attached)
(2) From top to bottom of tank
(3) Approx. 600 gallons transferred to T-011
(4) Approx. 600 gallons transferred from T-005
(5) Was empty; now filled with 2800 gal. water from sump
(6) Topped off with water from sump
(7) Had 8700 gal. with 8700 gal. water from sump added

RLVI


N
POWER SUPPLY
440-277 POWER
440-277 POWER
SHOP POWER
TRANSFORMER 230/115V
TRANSFORMER 230/115V
SHOP POWER
MACHINE SHOP AREA
12' CEILING
PAINT AREA
OUTSIDE DRAINS
43 (REACTOR)
MAINTENANCE ROOM
TOOL ROOM
56
REST ROOM
BREAK AREA
CURBED ROOF DRAINS
UNDER-FLOOR DRAIN (NO PLANT ACCESS)
MISC DRUM STAGING AREA
CAUSTIC DRUMS
ACID DRUM
ZINC POWDER
SODIUM METAL STAGING AREA
CRANE BAY AREA
24' CEILING
POWER FOR CRANE BAY
LOCKER WITH CONTAINMENT OF SODIUM
OFFICE AREA
LAB
220 VOLT OFFICE POWER
DRIVEWAY
GAS SUPPLY
232V FROM OFFICE
DOCK AREA
RAMPED
WATER SUPPLY
230 POWER
EMERGENCY SHOWER ROOM
STORM DRAIN
SOUTH WAREHOUSE TANKS



LEGEND

BASE MAP: US GEOLOGICAL SURVEY TOPOGRAPHIC MAPS 7.5 MINUTE SERIES

- PITTSVILLE QUADRANGLE
- KINGSVILLE QUADRANGLE
- ELM QUADRANGLE
- HOLDEN QUADRANGLE

CONTOUR INTERVAL 10 FEET

- OCCUPIED BUILDING
- ABANDONED BUILDING

QUADRANGLE LOCATION

NO	DATE	REVISIONS	DWN	CK	ACC	APP

N

0 1/2 1 MILE

SCALE: 1:24,000

FOUR-MILE RADIUS MAP
POPULATION COUNT

BLACK & VEATCH
CONSULTING ENGINEERS

PROJECT 64580

MARTHA C. ROSE CHEMICAL COMPANY SITE
HOLDEN, MISSOURI

HAZARD RANKING SYSTEM SCORING (HRS)

B&V DWG NO. REFERENCE 11

REV.

CENSUS OF POPULATION AND HOUSING, 1980--SUMMARY TAPE FILE 3A

(FOR DEFINITION OF ITEMS AND FOOTNOTES, SEE TECHNICAL DOCUMENTATION)

SUMMARY LEVEL: 12 STATE: MISSOURI COUNTY: JOHNSON MCD/CCD: MADISON

PLACE: TRACT/BNA: BG: ED:

URBAN/RURAL: CD: URBANIZED AREA: WARD: SMSA:

INDIAN RESERVATION/ANV: INDIAN SUBRESERVATION: SCSA:

1. PERSONS BY URBAN AND RURAL [50]

TOTAL	2850
INSIDE URBANIZED AREAS	-
RURAL	2850

2. UNWEIGHTED SAMPLE COUNT OF PERSONS 1196

3. 100-PERCENT COUNT OF PERSONS [38] 2825

4. HOUSING UNITS (INCLUDING VACANT SEASONAL AND MIGRATORY UNITS) BY URBAN AND RURAL [1,50]

TOTAL	1175
INSIDE URBANIZED AREAS	-
RURAL	1175

5. UNWEIGHTED SAMPLE COUNT OF HOUSING UNITS (INCLUDING VACANT SEASONAL AND MIGRATORY UNITS) [1] 507

6. 100-PERCENT COUNT OF HOUSING UNITS (INCLUDING VACANT SEASONAL AND MIGRATORY UNITS) [1,38] 1172

7. PERSONS IN RURAL AREAS BY FARM RESIDENCE (CURRENT FARM DEFINITION) [2]

RURAL FARM	171
NONFARM	2679

8. PERSONS IN RURAL AREAS BY FARM RESIDENCE (1970 CENSUS FARM DEFINITION) [2]

RURAL FARM	322
NONFARM	2528

9. FAMILIES 786

10. HOUSEHOLDS [3] 1084

11. YEAR-ROUND HOUSING UNITS BY OCCUPANCY STATUS

TOTAL	1175
OCCUPIED [3]	1080
VACANT	95

12. PERSONS BY RACE

WHITE	2790
BLACK	45
AMERICAN INDIAN, ESKIMO AND ALEUT:	
AMERICAN INDIAN	11
ESKIMO	-
ALEUT	-
ASIAN AND PACIFIC ISLANDER: [4]	
JAPANESE	2
CHINESE	-
FILIPINO	-
KOREAN	-
ASIAN INDIAN	-
VIETNAMESE	-
HAWAIIAN	-
GUAMANIAN	-
SAMOAN	-
OTHER [47]	-
OTHER (RACE, N.E.C.): [5]	
SPANISH [6,47]	-
NOT SPANISH [47]	2

13. PERSONS BY SPANISH ORIGIN AND RACE

NOT OF SPANISH ORIGIN	2846
MEXICAN	4
PUERTO RICAN	-
CUBAN	-
OTHER SPANISH:	
WHITE, BLACK, AMERICAN INDIAN, ESKIMO, ALEUT, AND ASIAN AND PACIFIC ISLANDER [4]	-
OTHER (RACE, N.E.C.) [5]	-

14. PERSONS OF SPANISH ORIGIN BY RACE

TOTAL	4
WHITE	4
BLACK	-
AMERICAN INDIAN, ESKIMO, ALEUT, AND ASIAN AND PACIFIC ISLANDER [4]	-
OTHER (RACE, N.E.C.) [5]	-

15. PERSONS BY SEX BY AGE

	TOTAL	FEMALE
UNDER 1 YEAR	54	31
1 AND 2 YEARS	59	13
3 AND 4 YEARS	86	49
5 YEARS	41	21
6 YEARS	34	16
7 TO 9 YEARS	153	64
10 TO 13 YEARS	209	92
14 YEARS	55	21
15 YEARS	59	35
16 YEARS	56	24
17 YEARS	59	34
18 YEARS	47	27
19 YEARS	50	24
20 YEARS	45	22
21 YEARS	46	19
22 TO 24 YEARS	121	64
25 TO 29 YEARS	167	83
30 TO 34 YEARS	161	87
35 TO 44 YEARS	324	164
45 TO 54 YEARS	208	107
55 TO 59 YEARS	117	58
60 TO 61 YEARS	57	45
62 TO 64 YEARS	94	44
65 TO 74 YEARS	240	138
75 TO 84 YEARS	223	163
85 YEARS AND OVER	87	53

16/17. PERSONS OF SPECIFIED RACES AND SPANISH ORIGIN BY SEX BY RACE AND SPANISH ORIGIN BY AGE [14]

	TOTAL	FEMALE
WHITE:		
UNDER 5 YEARS	190	89
5 TO 14 YEARS	479	210
15 TO 59 YEARS	1430	735
60 TO 64 YEARS	147	87
65 YEARS AND OVER	544	356
BLACK:		
UNDER 5 YEARS	9	4
5 TO 14 YEARS	9	2
15 TO 59 YEARS	19	11
60 TO 64 YEARS	4	2
65 YEARS AND OVER	4	2
AMERICAN INDIAN, ESKIMO AND ALEUT:		
UNDER 5 YEARS	...	...
5 TO 14 YEARS	...	...
15 TO 59 YEARS	...	...
60 TO 64 YEARS	...	...
65 YEARS AND OVER	...	...
ASIAN AND PACIFIC ISLANDER: [4]		
UNDER 5 YEARS	...	...
5 TO 14 YEARS	...	...
15 TO 59 YEARS	...	...
60 TO 64 YEARS	...	...
65 YEARS AND OVER	...	...
SPANISH ORIGIN (OF ANY RACE):		
UNDER 5 YEARS	...	...
5 TO 14 YEARS	...	...
15 TO 59 YEARS	...	...
60 TO 64 YEARS	...	...
65 YEARS AND OVER	...	...

18. HOUSEHOLDS BY PERSONS IN HOUSEHOLD [7]

1 PERSON	292
2 PERSONS	360
3 PERSONS	153
4 PERSONS	139
5 PERSONS	98
6 OR MORE PERSONS	42

22. MEAN NUMBER OF OWN CHILDREN BY FAMILY TYPE [10]

IN MARRIED-COUPLE FAMILY	1.1
IN FAMILY WITH MALE HOUSEHOLDER, NO WIFE PRESENT	1.1
IN FAMILY WITH FEMALE HOUSEHOLDER, NO HUSBAND PRESENT	.9

19. PERSONS BY HOUSEHOLD TYPE AND RELATIONSHIP

IN FAMILY HOUSEHOLD:	
HOUSEHOLDER	786
SPOUSE	712
OTHER RELATIVES [8]	1021
NONRELATIVES [9]	[illegible]
IN NONFAMILY HOUSEHOLD:	
MALE HOUSEHOLDER	68
FEMALE HOUSEHOLDER	230
NONRELATIVES [9]	6
IN GROUP QUARTERS:	
INMATE OF INSTITUTION	14
OTHER	-

20PT/21PT. FAMILY HOUSEHOLDS BY PRESENCE OF OWN CHILDREN BY RACE AND SPANISH ORIGIN OF HOUSEHOLDER BY FAMILY TYPE [10,11,21]

	WITH OWN CHILDREN	WITHOUT OWN CHILDREN
TOTAL:		
MARRIED-COUPLE FAMILY	336	363
FAMILY WITH MALE HOUSEHOLDER, NO WIFE PRESENT	14	4
FAMILY WITH FEMALE HOUSEHOLDER, NO HUSBAND PRESENT	37	32
WHITE:		
MARRIED-COUPLE FAMILY	331	359
FAMILY WITH MALE HOUSEHOLDER, NO WIFE PRESENT	12	4
FAMILY WITH FEMALE HOUSEHOLDER, NO HUSBAND PRESENT	37	32
BLACK:		
MARRIED-COUPLE FAMILY	4	2
FAMILY WITH MALE HOUSEHOLDER, NO WIFE PRESENT	2	-
FAMILY WITH FEMALE HOUSEHOLDER, NO HUSBAND PRESENT	-	-
AMERICAN INDIAN, ESKIMO, AND ALEUT:		
MARRIED-COUPLE FAMILY	...	...
FAMILY WITH MALE HOUSEHOLDER, NO WIFE PRESENT	...	...
FAMILY WITH FEMALE HOUSEHOLDER, NO HUSBAND PRESENT	...	...
ASIAN AND PACIFIC ISLANDER: [4]		
MARRIED-COUPLE FAMILY	-	-
FAMILY WITH MALE HOUSEHOLDER, NO WIFE PRESENT	-	-
FAMILY WITH FEMALE HOUSEHOLDER, NO HUSBAND PRESENT	-	-
SPANISH ORIGIN (OF ANY RACE):		
MARRIED-COUPLE FAMILY	-	-
FAMILY WITH MALE HOUSEHOLDER, NO WIFE PRESENT	-	-
FAMILY WITH FEMALE HOUSEHOLDER, NO HUSBAND PRESENT	-	-

20PT/21PT. NONFAMILY HOUSEHOLDS BY RACE AND SPANISH ORIGIN OF HOUSEHOLDER [11,21]

TOTAL	298
WHITE	288
BLACK	8
AMERICAN INDIAN, ESKIMO, AND ALEUT	...
ASIAN AND PACIFIC ISLANDER [4]	-
SPANISH ORIGIN (OF ANY RACE)	-

23/24/25. SUBFAMILIES BY SUBFAMILY TYPE AND PRESENCE OF OWN CHILDREN [10]

MARRIED-COUPLE SUBFAMILY:	
WITH OWN CHILDREN	2
MEAN NUMBER OF OWN CHILDREN	1.0
WITHOUT OWN CHILDREN	-
FATHER-CHILD SUBFAMILY	1
MOTHER-CHILD SUBFAMILY	5
PERSONS PER SUBFAMILY	2.7

26. PERSONS 15 YEARS AND OVER BY SEX BY MARITAL STATUS

	MALE	FEMALE
SINGLE	176	190
NOW MARRIED, EXCEPT SEPARATED	702	721
SEPARATED	1	12
WIDOWED	31	207
DIVORCED	58	61

104. PERSONS IN OCCUPIED HOUSING UNITS BY TENURE BY UNITS IN STRUCTURE

	TOTAL	RENTER
1, DETACHED	2474	436
1, ATTACHED	23	6
2	63	41
3 OR 4	57	48
5 OR MORE	61	57
MOBILE HOME OR TRAILER, ETC. [25]	123	85

105. YEAR-ROUND HOUSING UNITS BY STORIES IN STRUCTURE

1 TO 3	1175
4 TO 6	-
7 TO 12	-
13 OR MORE	-

106. YEAR-ROUND HOUSING UNITS IN STRUCTURE WITH 4 OR MORE STORIES BY PASSENGER ELEVATOR

WITH ELEVATOR	-
NO ELEVATOR	-

107. YEAR-ROUND HOUSING UNITS BY SOURCE OF WATER

PUBLIC SYSTEM OR PRIVATE COMPANY	988
INDIVIDUAL WELL:	
DRILLED	35
DUG	71
SOME OTHER SOURCE	81

108. YEAR-ROUND HOUSING UNITS BY SEWAGE DISPOSAL

PUBLIC SEWER	936
SEPTIC TANK OR CESSPOOL	217
OTHER MEANS	22

109. YEAR-ROUND HOUSING UNITS BY TENURE AND OCCUPANCY STATUS BY YEAR STRUCTURE BUILT

TOTAL:	
1979 TO MARCH 1980	11
1975 TO 1978	74
1970 TO 1974	102
1960 TO 1969	159
1950 TO 1959	131
1940 TO 1949	144
1939 OR EARLIER	554
TOTAL OCCUPIED:	
1979 TO MARCH 1980	7
1975 TO 1978	70
1970 TO 1974	102
1960 TO 1969	155
1950 TO 1959	130
1940 TO 1949	125
1939 OR EARLIER	491
RENTER OCCUPIED:	
1979 TO MARCH 1980	-
1975 TO 1978	2
1970 TO 1974	24
1960 TO 1969	31
1950 TO 1959	36
1940 TO 1949	38
1939 OR EARLIER	103

110. OCCUPIED HOUSING UNITS BY TENURE BY YEAR HOUSEHOLDER MOVED INTO UNIT

	TOTAL	RENTER OCCUPIED
1979 TO MARCH 1980	198	106
1975 TO 1978	297	76
1970 TO 1974	178	34
1960 TO 1969	181	13
1950 TO 1959	117	2
1949 OR EARLIER	109	3

111. YEAR-ROUND HOUSING UNITS BY HEATING EQUIPMENT

STEAM OR HOT WATER SYSTEM	71
CENTRAL WARM-AIR FURNACE	549
ELECTRIC HEAT PUMP	20
OTHER BUILT-IN ELECTRIC UNITS	30
FLOOR, WALL, OR PIPELESS FURNACE	132
ROOM HEATERS WITH FLUE	279
ROOM HEATERS WITHOUT FLUE	13
FIREPLACES, STOVES, OR PORTABLE ROOM HEATERS	67
NONE	14

112. OCCUPIED HOUSING UNITS BY HOUSE HEATING FUEL

UTILITY GAS [26]	868
BOTTLED, TANK, OR LP GAS	94
ELECTRICITY	70
FUEL OIL, KEROSENE, ETC.	-
COAL OR COKE	-
WOOD	48
OTHER FUEL	-
NO FUEL USED	-

113. OCCUPIED HOUSING UNITS BY COOKING FUEL

UTILITY GAS [26]	538
BOTTLED, TANK, OR LP GAS	83
ELECTRICITY	459
OTHER [27]	-
NO FUEL USED	-

114. OCCUPIED HOUSING UNITS BY WATER HEATING FUEL

UTILITY GAS [26]	828
BOTTLED, TANK, OR LP GAS	78
ELECTRICITY	163
FUEL OIL, KEROSENE, ETC.	-
OTHER [27]	-
NO FUEL USED	11

115. YEAR-ROUND HOUSING UNITS BY KITCHEN FACILITIES

COMPLETE KITCHEN FACILITIES	1134
NO COMPLETE KITCHEN FACILITIES	41

116. YEAR-ROUND HOUSING UNITS BY TENURE AND OCCUPANCY STATUS BY BEDROOMS

TOTAL:	
NONE	1
1	138
2	446
3	448
4	130
5 OR MORE	12
TOTAL OCCUPIED:	
NONE	1
1	129
2	410
3	402
4	128
5 OR MORE	10
RENTER OCCUPIED:	
NONE	1
1	75
2	78
3	52
4	23
5 OR MORE	5

117. YEAR-ROUND HOUSING UNITS BY TENURE AND OCCUPANCY STATUS BY BATHROOMS

TOTAL:	
NO BATHROOM OR ONLY A HALF BATH	51
1 COMPLETE BATHROOM	816
1 COMPLETE BATHROOM PLUS HALF BATH(S)	149
2 OR MORE COMPLETE BATHROOMS	159
TOTAL OCCUPIED:	
NO BATHROOM OR ONLY A HALF BATH	38
1 COMPLETE BATHROOM	739
1 COMPLETE BATHROOM PLUS HALF BATH(S)	145
2 OR MORE COMPLETE BATHROOMS	158
RENTER OCCUPIED:	
NO BATHROOM OR ONLY A HALF BATH	7
1 COMPLETE BATHROOM	212
1 COMPLETE BATHROOM PLUS HALF BATH(S)	12
2 OR MORE COMPLETE BATHROOMS	3

118. OCCUPIED HOUSING UNITS BY TENURE BY TELEPHONE IN HOUSING UNIT

TOTAL:	
WITH TELEPHONE	979
NO TELEPHONE	101
RENTER OCCUPIED:	
WITH TELEPHONE	179
NO TELEPHONE	55

119. OCCUPIED HOUSING UNITS WITH HOUSEHOLDERS OF SELECTED AGE GROUPS BY AGE OF HOUSEHOLDER BY TELEPHONE IN HOUSING UNIT

HOUSEHOLDER 60 TO 64 YEARS:	
WITH TELEPHONE	82
NO TELEPHONE	4
HOUSEHOLDER 65 YEARS AND OVER:	
WITH TELEPHONE	319
NO TELEPHONE	26

120. YEAR-ROUND HOUSING UNITS BY AIR CONDITIONING

NONE	563
CENTRAL SYSTEM	253
1 INDIVIDUAL ROOM UNIT	284
2 OR MORE INDIVIDUAL ROOM UNITS	75

121/122. OCCUPIED HOUSING UNITS WITH NO VEHICLE AVAILABLE BY RACE AND SPANISH ORIGIN OF HOUSEHOLDER [11,21,28]

TOTAL	126
WHITE	124
BLACK	2
AMERICAN INDIAN, ESKIMO, AND ALEUT	...
ASIAN AND PACIFIC ISLANDER [4]	-
SPANISH ORIGIN (OF ANY RACE)	-

123. OCCUPIED HOUSING UNITS WITH VEHICLE AVAILABLE BY VEHICLES AVAILABLE [28]

1	348
2	389
3 OR MORE	217

124. SPECIFIED RENTER-OCCUPIED HOUSING UNITS BY GROSS RENT [29]

LESS THAN $60	11
$60 TO $79	6
$80 TO $99	14
$100 TO $119	8
$120 TO $149	35
$150 TO $169	16
$170 TO $199	40
$200 TO $249	37
$250 TO $299	11
$300 TO $349	-
$350 TO $399	1
$400 TO $499	-
$500 OR MORE	-
NO CASH RENT	23

125/126. SPECIFIED RENTER-OCCUPIED HOUSING UNITS WITH HOUSEHOLDER OF SPECIFIED RACES AND SPANISH ORIGIN BY RACE AND SPANISH ORIGIN BY GROSS RENT [11,21,29]

WHITE:	
LESS THAN $100	31
$100 TO $199	99
$200 TO $299	48
$300 OR MORE	1
NO CASH RENT	23
BLACK:	
LESS THAN $100	-
$100 TO $199	-
$200 TO $299	-
$300 OR MORE	-
NO CASH RENT	-
AMERICAN INDIAN, ESKIMO, AND ALEUT:	
LESS THAN $100	-
$100 TO $199	-
$200 TO $299	-
$300 OR MORE	-
NO CASH RENT	-
ASIAN AND PACIFIC ISLANDER: [4]	
LESS THAN $100	-
$100 TO $199	-
$200 TO $299	-
$300 OR MORE	-
NO CASH RENT	-
SPANISH ORIGIN (OF ANY RACE):	
LESS THAN $100	-
$100 TO $199	-
$200 TO $299	-
$300 OR MORE	-
NO CASH RENT	-

JOHNSON COUNTY, MISSOURI

DATE OF PHOTOGRAPHY: NOV 1980 SCALE: 1" = 100' SW 1/4 SEC 11 T 45 N R 28 W

SURDEX
520 SPIRIT OF ST. LOUIS BLVD.
CHESTERFIELD, MO. 63017
314-532-3427

OWNERSHIP MAP

JOHNSON COUNTY, MISSOURI
PREPARED UNDER THE SUPERVISION OF
STATE TAX COMMISSION OF MISSOURI
AND
WILLIAM R. BRENNER - TAX ASSESSOR
PREPARED BY
WILLIAMS & WORKS - MO., INC.
404 VANDIVER DRIVE COLUMBIA, MISSOURI 65202

REVISIONS

DATE	BY	CHANGES OR ADDITIONS

SUBDIVISION INDEX

SUBD. NO.	SUBDIVISION NAME	PLAT BOOK	PAGE
1	ORIGINAL TOWN OF HOLDEN	1	13-A
2	PEGGY'S ADD TO HOLDEN	4	2
3	BRUNI'S ADD TO HOLDEN	1	15
4	W. MI. COVENTRY'S 2ND ADD TO HOLDEN	1	60
5	W. MI. COVENTRY'S ADD TO HOLDEN	1	78
6	M. W. MIZE'S ADD TO HOLDEN		
7	MIZE'S & COVENTRY'S ADD TO HOLDEN		
8	BARNEY'S ADD TO HOLDEN		

THIS PROPERTY OWNERSHIP MAP IS FOR TAX PURPOSES ONLY. IT IS NOT INTENDED FOR CONVEYANCES.

LEGEND

STATE LINE	AREA (FROM DEED)	10.5 Ac
COUNTY LINE	AREA (CALCULATED)	10.5 Ac
CORPORATION LINE	DIMENSION (FROM DEED)	66
DISTRICT LINE	DIMENSION (SCALED)	66
R/W LINES	SUBDIVISION LOT NUMBER	23
SECTION LINE	PARCEL NUMBER	45
PROPERTY LINE	WATER	
ORIGINAL LOT LINE	INTERSTATE HIGHWAY	70
LAND HOOK	US HIGHWAY	5
ORIGINAL BLOCK NO.	STATE HIGHWAY	5
ORIGINAL SUBD. LIMIT	COUNTY HIGHWAY	33
MAP BLOCK NO.	ROADS, STREETS, CHURCHES, ETC.	BY NAME
MAP BLOCK LIMIT		
WHERE APPLICABLE	SECTION CORNERS	

TOWNSHIP LOCATOR

R29 W R28 W R27 W R26 W R25 W R24 W

T48N	(09)	(02)	(01)		
T47N	(04)				
T46N	(15)				
T45N	(16)				
T44N	27				

MAP SHEET INDEX

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

1/4 SECTION INDEX

2	1
3	4

SEC. 11 SW 1/4 TWP 45 RNG 28

MAP NO. 044-17-01-11 3

SCALE 1" = 100'
DATE OF MAP 3-83
DATE OF PHOTOGRAPHY 11-80
AERIAL PHOTO NO.

JOHNSON COUNTY, MISSOURI

DATE OF PHOTOGRAPHY: NOV 1980 SCALE: 1" = 100' NW 1/4 SEC 11 T 45 N R 28 W

OWNERSHIP MAP

JOHNSON COUNTY, MISSOURI

PREPARED UNDER THE DIRECTION OF

STATE TAX COMMISSION OF MISSOURI

AND

WILLIAM R. BRENNER - TAX ASSESSOR

PREPARED BY

WILLIAMS & WORKS - MO., INC.

409 VANDIVER DRIVE COLUMBIA, MISSOURI 65202

REVISIONS

DATE	BY	CHANGES OR ADDITIONS

SUBDIVISION INDEX

SUBD. NO.	SUBDIVISION NAME	PLAT BOOK	PAGE
1	SMITH'S ADD TO HOLDEN	1	87
2	W. M. COVENTRY'S 3RD ADD TO HOLDEN	1	15
3	PLAT OF NORTH HOLDEN	1	11
4	KELLEY'S ADD TO HOLDEN	1	66
5	LONGVIEW ADD		
6	TOWN OF HOLDEN		

THIS PROPERTY OWNERSHIP MAP IS FOR TAX PURPOSES ONLY. IT IS NOT INTENDED FOR CONVENIENCE

LEGEND

STATE LINE		AREA (FROM DEED)	10.5 Ac
COUNTY LINE		AREA (CALCULATED)	10.5 Ac (C)
CORPORATION LINE		DIMENSION (FROM DEED)	16.5
DISTRICT LINE		DIMENSION (SCALED)	66(s)
R/W LINES		SUBDIVISION LOT NUMBER	23
SECTION LINE		PARCEL NUMBER	45
PROPERTY LINE		WATER	
ORIGINAL LOT LINE		INTERSTATE HIGHWAY	70
LAND HOOK	1	U.S. HIGHWAY	5
ORIGINAL BLOCK NO.	2	STATE HIGHWAY	5
ORIGINAL SUBD. LIMIT	2 3	COUNTY HIGHWAY	33
MAP BLOCK NO.	"003"	ROADS, STREETS, CHURCHES, ETC.	BY NAME
MAP BLOCK LIMIT	"003"		

TOWNSHIP LOCATOR

R29W R28W R27W R26W R25W R24W

T48N, T47N, T46N, T45N, T44N

MAP SHEET INDEX

1/4 SECTION INDEX

SEC 11 NW 1/4 TWP 45 RNG 28

MAP NO. 044-17-01-11-2

SCALE 1" = 100'

DATE OF MAP 4-83

DATE OF PHOTOGRAPHY 11-80

AERIAL PHOTO NO.

N

JOHNSON COUNTY, MISSOURI

DATE OF PHOTOGRAPHY: NOV 1980 SCALE: 1" = 100'

SE 1/4 SEC 10 T 45 N R 28 W

OWNERSHIP MAP

JOHNSON COUNTY, MISSOURI

PREPARED UNDER THE DIRECTION OF

STATE TAX COMMISSION OF MISSOURI

BY

WILLIAM R BRENNER - TAX ASSESSOR

PREPARED BY

WILLIAMS & WORKS - MO, INC

409 VANDIVER DRIVE COLUMBIA, MISSOURI 65202

REVISIONS

DATE	BY	CHANGES OR ADDITIONS

SUBDIVISION INDEX

SUBD NO	SUBDIVISION NAME	PLAT BOOK	PAGE
1	SEC. HITLER		
2	HENRY'S ADDITION		
3	HOLDEN ADDITION		
4	HAGGETT ADDITION		
5	ROBERTS & SOLLOR ADDITION		

THIS PROPERTY OWNERSHIP MAP IS FOR TAX PURPOSES ONLY. IT IS NOT INTENDED FOR CONVEYANCES.

LEGEND

STATE LINE	AREA (FROM DEED) 10.5 Ac
COUNTY LINE	AREA (CALCULATED) 10.5 Ac
CORPORATION LINE	DIMENSION (FROM DEED) 60'
DISTRICT LINE	DIMENSION (SCALED) 66(s)
R/W LINES	SUBDIVISION LOT NUMBER 2 3
SECTION LINE	PARCEL NUMBER 45
PROPERTY LINE	WATER
ORIGINAL LOT LINE	INTERSTATE HIGHWAY (70)
LAND HOOK 1	U.S. HIGHWAY (5)
ORIGINAL BLOCK NO 2	STATE HIGHWAY (5)
ORIGINAL SUBD. LIMIT 2 3	COUNTY HIGHWAY 33
MAP BLOCK NO. "003"	ROADS, STREETS, CHURCHES, ETC. BY NAME
MAP BLOCK LIMIT "003"	
(WHERE APPLICABLE) "004"	SECTION CORNERS

TOWNSHIP LOCATOR

R29W R28W R27W R26W R25W R24W

T48N (04) T47N (05) T46N (16) T45N (27) T44N

(09) (08) (01)

05 06 07 08 09

04 03 02 01 10

17 18 19 20 21

26 25 24 23 22

MAP SHEET INDEX

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36

1/4 SECTION INDEX

1 2 3 4

SEC 10, SE 1/4 TWP 45 RNG 28

MAP NO 044-17-02-10-4

SCALE 1" = 100'

DATE OF MAP 04-83

DATE OF PHOTOGRAPHY 11-80

AERIAL PHOTO NO

N

17-02-10-4

JOHNSON COUNTY, MISSOURI   DATE OF PHOTOGRAPHY: NOV 1980   SCALE: 1"= 100'   NE 1/4 SEC 10 T 45 N R 28 W

OWNERSHIP MAP

JOHNSON COUNTY, MISSOURI

PREPARED UNDER THE DIRECTION OF

STATE TAX COMMISSION OF MISSOURI

AND

WILLIAM R BRENNER - TAX ASSESSOR

PREPARED BY

WILLIAMS & WORKS - MO., INC

409 VANDIVER DRIVE   COLUMBIA, MISSOURI 65202

REVISIONS

DATE	BY	CHANGES OR ADDITIONS

SUBDIVISION INDEX

SUBD NO	SUBDIVISION NAME	PLAT BOOK	PAGE
1	WILLIAM B. NICHOLS ADDITION	1	61
2	FINNEY ADDITION		
3	FINNEY ROW		

THIS PROPERTY OWNERSHIP MAP IS FOR TAX PURPOSES ONLY. IT IS NOT INTENDED FOR CONVEYANCES.

LEGEND

STATE LINE	AREA (FROM DEED) 10.5 Ac
COUNTY LINE	AREA (CALCULATED) 10.5 Ac (C)
CORPORATION LINE	DIMENSION (FROM DEED) 66.5'
DISTRICT LINE	DIMENSION (SCALED) 66(s)
R/W LINES	SUBDIVISION LOT NUMBER 23
SECTION LINE	PARCEL NUMBER 45
PROPERTY LINE	WATER
ORIGINAL LOT LINE	INTERSTATE HIGHWAY 70
LAND HOOK	U.S. HIGHWAY 5
ORIGINAL BLOCK NO	STATE HIGHWAY 5
ORIGINAL SUBD LIMIT	COUNTY HIGHWAY 33
MAP BLOCK NO "003"	ROADS, STREETS, CHURCHES, ETC. BY NAME
MAP BLOCK LIMIT "003" (WHERE APPLICABLE) "004"	SECTION CORNERS

TOWNSHIP LOCATOR

MAP SHEET INDEX

1/4 SECTION INDEX

SEC 10, NE 1/4   TWP 45   RNG 28

MAP NO 044-17-02-10-1

SCALE 1"=100'
DATE OF MAP 4-83
DATE OF PHOTOGRAPHY 11-80
AERIAL PHOTO NO.

POPULATION COUNT - 0-4 MILE RADIUS

MARTHA C. ROSE CHEMICALS, HOLDEN, MISSOURI

HOLDEN CITY POPULATION: 2195 persons (Ref. 12)

POPULATION WITHIN 1.0 MILES:

Outside City Limits: 85 houses (Ref. 11) x 3.8 Persons/House = 323 persons

City of Holden:	2195
Outside City Limits	323
	2518 Persons Within 1.0 Mile Radius

POPULATION WITHIN 4.0 MILES

3-4 Mile Radius:	97 houses
2-3 Mile Radius:	75 houses
1-2 Mile Radius:	58 houses
	230 houses (Ref. 11)

230 Houses x 3.8 Persons/House = 874 Persons, Radius 1-4 miles

2518 Persons, 1.0 mile Radius

Total 3392 Persons Within 4.0 Mile Radius

POPULATION WITHIN 0.25 MILES

161 House Within 0.25 mile Radius (Ref. 13)

161 Houses x 3.8 mile Radius = 612 Persons Within 0.25 Mile Radius

TOPOGRAPHIC MAP HOUSE COUNT (Reference 11)

2-3 MILE RADIUS

TOWNSHIP 46, RANGE 28

Section	# of Houses
25	1
26	10
27	2
28	1
32	1
33	6
34	6
35	4
36	5
Subtotal	36 Houses

TOWNSHIP 46, RANGE 27

Section	# of Houses
31	1
Subtotal	1 House

TOWNSHIP 45, RANGE 27

Section	# of Houses
6	4
7	2
18	3
19	1
Subtotal	10 Houses

TOWNSHIP 45, RANGE 28

Section	# of Houses
1	1
4	1
5	3
8	3
13	0
16	2
17	3
20	0
21	1
22	1
23	5
24	4
25	0
26	1
27	2
28	1
Subtotal	28 Houses

2-3 MILE RADIUS

Total: 75 Houses

TOPOGRAPHIC MAP HOUSE COUNT (Reference 11)

0-1 MILE RADIUS
(Outside City Limits)

TOWNSHIP 45, RANGE 28

Section	# of Houses
2	5
3	3
10	10
11	31
14	28
15	8
Subtotal	85 Houses

0-1 MILE RADIUS
Total: 85 Houses

1-2 MILE RADIUS

TOWNSHIP 46, RANGE 28

Section	# of Houses
33	1
34	2
35	2
36	0
Subtotal	5 Houses

TOWNSHIP 45, RANGE 28

Section	# of Houses
1	1
2	2
3	2
4	6
9	3
10	0
11	2
12	7
13	4
14	13
15	4
16	3
21	0
22	2
23	4
24	0
Subtotal	53 Houses

1-2 Mile Radius
Total: 58 Houses

AERIAL PHOTO HOUSE COUNT

HOLDEN, MISSOURI

¼ - MILE RADIUS
(From Ref. 13)

SW ¼, Section 11,
Township 45N, Range 28W

Block	# of Houses
005	Business
006	3
007	7
008	8
009	7
018	3
019	9
Subtotal	37 Houses

SE ¼, Section 10,
Township 45N, Range 28W

Block	# of Houses
001	6
002	6
003	3
004	9
005	3
006	4
007	5
008	5
009	5
010	5
011	4
012	3
013	0
014	1
015	4
016	3
017	4
Subtotal	70 Houses

NW ¼, Section 11,
Township 45N, Range 28W

Block	# of Houses
002	2
004	3
005	6
006	6
007	3
015	Business
016	0
018	4
019	1
020	0
021	Business
025	Business
026	2
027	4
Subtotal	31 Houses

NE ¼, Section 10,
Township 45N, Range 28W

Block	# of Houses
003	1
006	1
007	1
008	0
009	4
010	4
011	1
012	0
013	Business
014	2
015	9
Subtotal	23

¼ Mile Radius
SW - 37
SE - 70
NW - 31
NE - 23
Total 161 Houses

161 houses x 3.8 person/house = 612 persons

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Columbia Field Office
P.O. Box 1506
Columbia, Missouri 65205

IN REPLY REFER TO:

October 1, 1986

Hubert Wieland
Black & Veatch
Engineers-Architects
P.O. Box 8405
Kansas City, Missouri 64114

Dear Mr. Wieland:

This responds to your September 23, 1986 request for information regarding wildlife habitat near the city of Holden, Johnson County, Missouri. The specific questions are addressed by the following remarks:

- There are no freshwater wetlands of 5 acres or greater within 1 mile of the point of interest.
- There are no federally endangered or threatened species listed for Johnson County, Missouri.
- There are no National Wildlife Refuges within 1 mile of the point of interest.
- There are no national or state parks, or forest or wildlife reserves within 2 miles of the point of interest.

If you have any questions regarding this response or if we can be of any further assistance, please contact Richard R. Szlemp, Columbia Field Office, P. O. Box 1506, Columbia, Missouri 65205, (314)875-5374 or (FTS)276-5374.

Sincerely yours,

Joe Tieger

Joe Tieger
Field Supervisor

MISSOURI DEPARTMENT OF CONSERVATION

MAILING ADDRESS:
P.O. Box 180
Jefferson City, Missouri 65102-0180

STREET LOCATION:
2901 West Truman Boulevard
Jefferson City, Missouri

Telephone 314/751-4115
LARRY R. GALE, Director

October 3, 1986

Mr. Hubert Wieland
Black & Veatch
P. O. Box 8405
Kansas City, Missouri 64114

Dear Mr. Wieland:

I am responding to your letter of September 23 requesting environmental information near Holden, Missouri.

The county highway map indicates there is a pond along the Missouri Pacific Railroad tracks in Sec. 12, T45N, R28W just east of the city. Old railroad watering ponds have often silted in, with the ensuing shallow water becoming excellent wetlands/marshes. We do not know the status of this pond.

Mead's milkweed, a state endangered species and a candidate for federal listing, occurs within 2.5 miles of the city. Baltic rush, a state endangered species, occurs within 3 miles. There are no parks or refuges within a 4 mile radius.

Thank you for the opportunity to review and comment.

Sincerely,

Dan F. Dickneite

DAN F. DICKNEITE
ENVIRONMENTAL SERVICES OFFICER

COMMISSION

JEFF CHURAN
Chillicothe

JOHN POWELL
Rolla

JOHN B. MAHAFFEY
Springfield

RICHARD T. REED
East Prairie

MEMORANDUM

B&V Project No. 64580
September 30, 1986

To: File

From: H. Wieland

Subject: Use of East Pin Oak Creek

Mr. Don McCoy, 100 N. Buffalo Street, Holden, Missouri, stated that the East Pin Oak Creek, downstream of the Martha C. Rose facility, is frequently used for fishing. Mr. McCoy lives approximately 100 feet east of the M.C. Rose facility gate. Mr. McCoy has lived around Holden all his life.

jdb

TELEPHONE MEMORANDUM

DATE Oct. 14, 1986

(TO) (FROM) Mrs. Genevena Salsbury TELEPHONE 816/747-6438 TIME 11:40 AM ~~PM~~

COMPANY Johnson County Historical Society - Missouri CC:

RECORDED BY Hubert Wieland

PROJECT Martha C. Rose PROJ. NO. 64580

SUBJECT Historical Sites in Holden, MO FILE NO.

Mrs. Salsbury is a former president and current board member of the Johnson County Missouri Historical Society. She stated that there are no places in Holden that are on the National Register of Historic Places.

jdb