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SCREENING SITE INSPECTION REPORT
RED PANTHER CHEMICAL COMPANY
COAHOMA COUNTY
CLARKSDALE, MISSISSIPPI 38614
MSD000272385

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FINAL REVISIONS

Jan 31, 1991

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1.0 INTRODUCTION

The Mississippi Department of Environmental Quality, Office of Pollution Control, has conducted a screening site inspection (SSI) at the Red Panther facility in Clarksdale, Coahoma County, Mississippi. The inspection was performed under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA). The field investigation was conducted on November 12 and 13, 1990.

1.1 Objectives

The objectives of the SSI were to determine the nature of contaminants present at the site and to determine if a release of these substances has occurred or may occur. Further, the SSI inspection sought to determine the possible pathways by which contamination could migrate from the site, and the populations and environments that could be potentially affected. Through these objectives, a recommendation was made regarding future CERCLA action at the site.

1.2 Scope of Work

The objectives were achieved through the completion of a number of specific tasks, as follows:

- Review background materials and topographic maps relevant to HRS scoring of the site;
- Evaluate target populations associated with the groundwater, surface water, air, and on-site exposure pathways;
- Verify the location and distance to the nearest drinking water well and irrigation well;
- Develop a site sketch and take photographs;
- Collect environmental samples.

2.0 SITE CHARACTERIZATION

2.1 Site Location and Contact Official (References 1 & 2)

Red Panther Chemical Company is located south of the intersection of Highway 61 and Highway 49, in Clarksdale, MS.

County Code 027

Congressional District: 01

Coordinates: Latitude: 34° 41' 20"
Longitude: 90° 33' 45"

Location: SW1/4 NW1/4 NE1/4 S25 -T27N -R4W

Directions to Site: Red Panther Chemical Company is reached by traveling south on Hwy 49 from the intersection of Hwy 61 and Hwy 49. Travel about 1/2 mile and turn right on Patton Street. Go to the end of Patton Street and turn left onto Leflore Avenue. Red Panther is on the west side of Leflore Avenue.

Contact Officials: Jim Thomas
Red Panther Chemical Company
P. O. Box 550
Clarksdale, Mississippi 38614
601-627-4731

John Duff, President
Red Panther Chemical Company
P. O. Box 550
Clarksdale, Mississippi 38614
601-627-4731

2.2 Site Background and History (References 1 and 2)

Red Panther Chemical Company is a pesticide formulating plant. The facility has been engaged in the formulation of liquid and powdered herbicides, insecticides, and fungicides since 1949. Former owners are Coahoma Chemical Company (the original owner), Riverside Chemical Company, and MFC Services.

In 1980, Red Panther filed a RCRA notification for storage of wastewater in tanks and dirty solvents in drums. These wastes are generated from cleaning the process equipment. The wastewater contains pesticide and solvent residues. The dirty solvents contain pesticide residues. The dirty solvents are generally reused in the formulating process.

In November of 1984, Red Panther obtained a RCRA Part B permit from the MS Bureau of Pollution Control (BPC) for storage of the above mentioned wastes.

In November of 1986, Red Panther's storage permit was terminated because Red Panther lost its liability insurance coverage that is required for long-term storage of hazardous wastes. At that time, Red Panther reverted to the status of a hazardous waste generator with short-term (less than ninety day) storage only.

In November of 1985, there was a fire at one of the Red Panther warehouses. Contaminated runoff resulting from the fire-fighting effort caused a fish kill in the nearby Sunflower River. The contaminant was Lorox, a slightly toxic herbicide. A large volume of the contaminated water was contained on site and later shipped to a commercial hazardous waste disposal facility.

During the investigation and cleanup after the fire, 382 old fiber drums were discovered in the crawlspace below the warehouse that burned. Two hundred and eighty-seven of the drums were empty. These drums were crushed and sent to the local municipal landfill. Ninety-five of the drums contained trace residues of technical grade dieldrin and were disposed of at a commercial hazardous waste facility. A new warehouse was built over this area in 1986.

At various times in the past, wastewater from the formulating process has apparently been discharged either directly to a ditch off-site along Leflore Avenue and Patton Street, or into an underground septic tank and drainfield on-site. Red Panther was issued a "no discharge" permit in 1984 by the BPC.

Red Panther is currently classified as a hazardous waste generator.

2.3 Site Description (References 1, 2, & 5)

Red Panther Chemical Company is located off of Highway 49 South in Clarksdale, MS. The surrounding land use is mainly commercial. The facility is surrounded by a fence and is not accessible to non-employees. It is bordered on the west by East Tallahatchie Avenue, and also by a spur track that connects with the Illinois Central railroad track located just west of the avenue. West of the main track is a residential area. A school, Washington School, is located about 2,000 feet west of the facility. The property north, east, and south of the facility is commercial. Leflore Avenue borders the facility on the east.

The facility is about six and one-half acres in size. Buildings on the property include formulating plants, warehouses, a maintenance building, boiler room, and the main office. There are also two tank farms on site. Various raw materials and products are stored in the tanks. One tank in the south tank farm is used for storage of wastewater. There is also a wastewater collection pit at this location. An abandoned, underground septic drain/drainfield is located in the north tank farm area.

In the past, contaminated wastewater has been discharged to an off-site drainage ditch along Leflore Avenue and also to the underground septic drain/drainfield with little or no containment. The depth of contaminated soil is unknown, so a depth of six feet is assumed.

2.4 Waste Quantity/Containment

The total quantity of hazardous substances deposited at the site is not known. However, based on elevated levels of toxaphene, DDT, and several other compounds that were detected in soil/sediment samples collected during the SSI, releases have occurred, probably as a result of spills and inadequate containment practices in the past. Therefore, a minimum waste quantity of ten cubic yards can be assumed. Toxaphene has a severe toxicity rating and is highly persistent (Reference 4).

Red Panther generates wastewater and spent solvents from the formulating process. The total annual quantity of hazardous waste reported in the Red Panther 1980 RCRA hazardous waste notification was approximately 6318 kilograms. The facility has been operating for about forty years (Reference 1).

3.0 GEOLOGY AND HYDROLOGY

3.1 Stratigraphic Units (References 1)

The stratigraphic units in this part of the state in descending order are as follows:

Mississippi River Valley Alluvium, Cook Mountain, Sparta, Zilpha, Winona, Tallahatta, Meridian-Upper Wilcox, Lower Wilcox.

The Mississippi River Valley Alluvial Aquifer is one of the most prolific and widespread aquifers in northwestern Mississippi. It is primarily a water table aquifer. The formation dips gently to the south and is exposed at the surface over its entire area of occurrence. Alluvial deposits blanket and underlie the entire Mississippi Delta.

The upper surface of the Alluvial Aquifer is at land surface and the base of the alluvium averages about 140 feet lower. A layer of clay at land surface confines or semiconfines the water in most of the aquifer when the water is near land surface. Geophysical logs of wells in vicinity of the facility indicate that the Alluvial Aquifer extends to a depth of about 125 feet below the land surface in this area. The lower part of the Alluvial Aquifer consists of coarse sand and gravel which grades upward through coarse sand, fine sand, silt, and clay. Results from aquifer tests indicate hydraulic conductivities of 170 to 190 ft/day or 6.7×10^{-2} cm/sec.

The Cook Mountain is composed of clay and shale with an estimated permeability of 10^{-5} cm/sec. In some areas of northwestern Mississippi, the Cook Mountain confines the underlying Sparta aquifer. However, geophysical logs of wells in vicinity of the facility suggest that the Cook Mountain pinches out in the Clarksdale area. Therefore, the Alluvial Aquifer and the Sparta are probably hydraulically connected in this area.

The Sparta is composed of rounded, well-sorted quartz grains in two or three thick beds separated by beds of clay. Regionally, water in the Sparta moves from east to west. The unit dips to the west at about 25 feet per mile. Lithologic data and geophysical logs of wells in the surrounding area indicate that the Sparta Aquifer is approximately 500 feet in thickness and occurs at a depth of approximately 155 feet below the land surface in this area. The average hydraulic conductivity of the Sparta is 67 ft/day.

The Zilpha and Winona occurs approximately 655 feet below the land surface and underlies the Sparta Aquifer. The Zilpha consists of dark-brown clay which overlies the Winona and prevents movement of water between the Winona and the Sparta. The Winona consists of glauconitic fossiliferous sands and clays.

The Tallahatta is hydraulically connected with the overlying Winona. The Tallahatta contains several thick to very thin sand beds that are separated by clay. The aquifer dips to the west and southwest. The aquifer tests on wells in the Winona-Tallahatta Aquifer indicate a hydraulic conductivity of 6.7 ft/day. The base of the Winona/Tallahatta Aquifer is approximately 1120 feet below the land surface.

The Meridian Sand of the Tallahatta, together with uppermost sand beds of the Wilcox Group, is an aquifer throughout the area. These units are regarded as one aquifer because they are hydraulically connected.

The Meridian Sand is a massive unit consisting of fine-to-coarse micaceous sand. The Upper Wilcox Aquifer consists of a less permeable sandy clay that dips west to southwest at 28 to 40 ft/mile. The configuration of the top of the Meridian-Upper Wilcox Aquifer occurs approximately 1120 feet below the land surface and is approximately 300 feet in thickness. Hydraulic conductivity of the aquifer ranges between 30 to 68 ft/day.

The Lower Wilcox is the deepest aquifer underlying the region. The Lower Wilcox consists of a thick sand unit containing over 60 percent sand. The aquifer dips about 50 ft/mile to the southwest in the southern part of the region. Multiple clay beds in the overlying part of the Wilcox hydraulically separate the Lower Wilcox Aquifer from overlying aquifers. The Lower Wilcox Aquifer occurs approximately 1900 feet below the land surface and extends to a depth of approximately 2100 feet in the site area. Hydraulic conductivity of the aquifer ranges from 29 to 64 ft/day.

3.2 Aquifer of Concern (References 1 and 2)

The Alluvial Aquifer and the Sparta are probably hydraulically connected in the Clarksdale area. Therefore, they are considered as one aquifer, the aquifer of concern (AOC). The estimated depth to the water table is about 30 feet below the land surface. The Alluvium is composed of silt, clay, and loam in the upper part and coarse sand and gravel in the lower part. The estimated permeability of the unsaturated zone of the Alluvium is 10^{-4} cm/sec.

Public (city of Cleveland) wells within a three mile radius of the site provide drinking water to 6,500 connections or 24,700 people. Water from these wells is distributed through the same system.

The nearest drinking water well is a public well located about 1,100 feet south of Red Panther at the Lewis Wilkens Generating Station, a city-owned electric generating plant. This well is screened at about 592 feet below land surface in the Sparta. There are also nine industrial wells at this station that provide cooling water for the plant operation. These wells are screened in the Alluvial Aquifer. There are also a number of irrigation wells within the three-mile radius.

3.3 Precipitation (Reference 1)

Northwestern Mississippi has a humid subtropical climate influenced by the Gulf of Mexico. Mean annual precipitation is approximately 51 inches of which about one-third runs off and about one-third seeps into the ground. Evapotranspiration accounts for the remaining third. Most of the water that seeps into the ground is later released to the streams. Approximately less than 5% of the rainfall goes into storage in the aquifers. January is the wettest month and October is the driest.

The mean annual lake evaporation for the area is approximately 42 inches. The net annual precipitation of the area is about 9 inches. The one-year, twenty-four-hour rainfall is approximately 3.5 inches.

3.4 Surface Water (Reference 1 and 2)

The facility and surrounding area is nearly flat. Some surface runoff and/or discharge from the facility drains into the drainage ditch along Leflore Avenue and Patton Street east of the facility. This ditch drains into another ditch along Highway 49, which intersects an intermittent stream about 22,400 stream feet southeast of the facility. This intermittent stream flows in a westerly direction for about 4,000 stream feet before entering the Sunflower River. The fifteen-mile migration pathway ends in the Sunflower River.

There is another (shorter) potential migration pathway to the Sunflower River via storm drains located on the west side of the facility along East Tallahatchie Avenue. These storm drains flow directly into the Sunflower River about 3,000 feet west of the facility, bypassing the city POTW plant.

In November 1985, contaminated runoff from a warehouse fire at the facility caused a fish kill in the Sunflower River. This contaminated water likely drained through the above mentioned storm drains into the Sunflower River.

4.0 SENSITIVE ENVIRONMENTS

There are no national wildlife refuges, critical habitats of federal endangered species, or wetlands along the extended surface water migration pathway (Reference 1).

5.0 FIELD INVESTIGATION

5.1 Sampling History (Reference 1)

In August, 1984, a contractor performed a sampling inspection at Red Panther for the MS OPC. Environmental samples were collected around the site to determine and characterize any hazardous substances present. Two composite soil samples were taken from the off-site ditch along Leflore Street and Patton Street. One water sample was taken where wastewater leaves the property and discharges into the above mentioned ditch. One subsurface composite soil sample was collected from the underground septic tank/drain field area. All these samples were analyzed for pesticides and total arsenic.

The test results of the soil and sediment samples indicated elevated levels of toxaphene, arsenic, and several other pesticides.

5.2 Sample Collection Methodology

All sample collection, preservation, and chain-of-custody procedures used during the 1990 SSI were in accordance with the standard operating procedures specified in Sections 3 and 4 of the Engineering Support Branch Standard Operating Procedures and Quality Assurance Manual; United States Environmental Protection Agency, Region IV, Environmental Services Division, April 1, 1986.

5.3 Description of Samples and Sample Locations

The purpose of the field investigation was to characterize the chemical composition of sediment, subsurface soil, and surface water samples collected from potentially contaminated areas. The selection of sample locations was based on visual observations and historical information. Background soil samples were collected. Groundwater samples were also collected to determine if

site-related contaminants have impacted either the groundwater below the facility or the nearest drinking water well.

A total of nine (9) samples were collected during the SSI: four surface soil/sediment samples, two subsurface soil samples, and three groundwater samples. A trip blank was also included. Sample codes and descriptions are shown in Table A of the Appendix.

5.4 Analytical Support and Methodology

All samples were analyzed for the compounds listed in the EPA Target Compounds List (TCL). Analyses were performed by Mississippi State Chemical Laboratory (MSCL), Starkville, Mississippi.

The analyses were performed in accordance with the standard procedures and protocols specified in the USEPA manual SW-846, "Test Methods for Evaluating Solid Waste," second edition, or equivalent procedures.

5.5 Mississippi State Chemical Laboratory AQ/QC Procedures

Internal QC for analytes consists of the analysis of surrogate spikes, matrix spikes, matrix blanks, and internal standards with each set of environmental samples of a specific matrix type. Samples are submitted for analysis in small groups typically containing less than 12 samples of any one type, so only one of each of the above QC samples is normally analyzed with each set of samples of a specific matrix. All analytical data are subjected to a QA review to determine their acceptability. Percent recoveries are calculated from matrix spikes for each class of analytes and matrix type. Those data are accepted as valid for which recoveries of 70-130% are obtained. Reported analytical results are flagged for which applicable surrogate recoveries are outside acceptable limits, as suggested in SW-846. Data for sample sets where matrix spike recoveries are not acceptable are deemed invalid, in which case the sample set, including surrogates, blanks, and spikes, are reanalyzed. Standard deviations and coefficients of variation are calculated from recovery data for sets of matrix spikes for specific analytes accumulated over a period of months or even years, illustrating the continuous performance of a particular analytical method for a matrix-analyte pair.

5.6 Analytical Results (References 2 and 3)

Analytical results are discussed below and also summarized in Tables 1-5 in the Appendix.

Sediment Samples

One composite sediment sample (RPC-SD-06) was collected from the drainage ditch along the east side of Leflore Avenue (Leflore Avenue borders the east side of the facility). Another composite sediment sample (RPC-SD-07) was collected where a concrete drain on Red Panther property discharges into the ditch along the west side

of Leflore Avenue. A culvert connects this drainage with the ditch on the east side of the avenue.

High levels (1,270 & 1,130 ppm) of toxaphene, and elevated levels of several other pesticides, were detected in these samples. Elevated levels of several volatile and semivolatile organic compounds were also detected in these two samples, especially in RPC-SD-06, which contained 16,000 ug/kg (ppb) of xylenes, 1,600 ug/kg of ethyl benzene, 790 ug/kg of 2-methylnaphthalene, and several other compounds.

One grab sediment/soil sample (RPC-SD-08) was collected from a low area by a large, stormdrain pipe on the west side of the facility (the pipe has a cut-off valve). The sample contained elevated levels of several pesticides, including 428 ppm of toxaphene, 321 ppm of p,p'-DDT, and 47 ppm of dieldrin.

Soil Samples

Two background soil samples were collected from commercial property north of Red Panther. RPC-SDS-03 was a surface sample and RPC-SDS-04 was a subsurface sample. Trace amounts of DDE, DDT, and dieldrin were detected in RPC-SD-03.

One subsurface grab soil sample (RPC-SB-09) was collected next to the wastewater collection pit at a depth of two to three feet. The collection pit is located next to the south tank farm.

This sample contained a number of pesticides, volatile organic compounds, and semivolatile organic compounds, including 1,130 ppm toxaphene, 245 ppm p,p'-DDT, 1,650,000 ug/kg of xylenes, and 250,000 ug/kg of ethyl benzene. The sample also contained 480 ppm of barium and 9.7 ppm of cyanide.

*1,650 ppm
Xylenes
250
Ethyl Benzene*

Groundwater Samples

Two groundwater samples were collected from wells at the Lewis Wilkens Generating Station. One of the samples (RPC-PW-02) was collected from Clarksdale public well #8 located at the station. The depth of this well is about 700 feet and the screened interval is about 590 to 690 feet.

The second water sample (RPC-CW-01) was collected from another well at the station (well #2). This well, and a number of other wells at the station, provide cooling water to the station and are screened in the Alluvial Aquifer.

No pesticides, PCBs, or organic compounds were detected in these samples. Barium (0.2 ppm), manganese (0.55 ppm) and magnesium (60 ppm) were detected in the cooling water sample. Manganese (0.04 ppm) and magnesium (32 ppm) were detected in the drinking water sample. All other metals were below detection limits.

The (secondary) drinking water standard for manganese is 0.05 ppm. There is no drinking water standard for magnesium.

A shallow monitoring well at Red Panther was also sampled. This well was installed in 1989 by Southern Farmers Association, a company that was interested at the time in purchasing Red Panther (Reference 6).

No pesticides, PCBs, or organic compounds were detected in this sample (RPC-MW-05).

6.0 RECOMMENDATIONS

The MS OPC recommends that an LSI evaluation be conducted on a medium priority basis.

RECONNAISSANCE CHECKLIST FOR HRS2 CONCERNS

Instructions: Obtain as much "up front" information as possible prior to conducting fieldwork. Complete the form in as much detail as you can, providing attachments as necessary. Cite the source for all information obtained.

Site Name: Red Panther Chemical Co.

City, County, State: Clarksdale, Coahoma, Mississippi

EPA ID No.: MSD000272385

Person responsible for form: Ken Whitten, Jim Hardage, Mississippi Bureau of Pollution Control

Date: February 22, 1990
Revised January 31, 1991

Air Pathway

Describe any potential air emission source onsite: N/A

Identify any sensitive environments within 4 miles: N/A

Identify the maximally exposed individual (nearest residence or regularly occupied building workers do count): N/A ?

Groundwater Pathway

Identify any areas of karst terrain: N/A

Identify additional population due to consideration of wells completed in overlying aquifers to the AOC:

Not applicable. The (surficial) Alluvial Aquifer is hydraulically connected to the (deeper) Sparta Aquifer in the Clarksdale area.

Do significant targets exist between 3 and 4 miles from the site?

There are numerous irrigation wells and home between 3 and 4 miles from the site.

Is the AOC a sole source aquifer according to Safe Drinking Water Act: (i.e. is the site located in Dade, Broward, Volusia, Putnam, or Flager County, Florida)

No.

Surface Water Pathway

Are there intakes located on the extended 15-mile migration pathway?

Yes, there are about 12 surface water intakes in the Sunflower River along the extended pathway. These intakes are used for about 383 acres of cotton, 806 acres of soybeans, and 90 acres of rice (Reference: MS Bureau of Land and Water Resources).

Are there recreational areas, sensitive environments, or human food chain targets (fisheries) along the extended pathway?

No. (References: Topo maps; U.S. Fish and Wildlife maps of endangered species).

Onsite Exposure Pathway

Is there waste or contaminated soil onsite at 2 feet below land surface or higher?

Yes. Results of 1990 SSI indicate on-site soil contamination and off-site sediment contamination in nearby ditches.

Is the site accessible to non-employees (workers do not count)?

No. Facility is fenced and access is controlled.

Are there residences, schools, or daycare centers onsite or in close proximity?

There is a school about 2,000 feet west of the site. There are residences west of the site.

Are there barriers to travel (e.g., a river) within one mile?

Yes. The Sunflower River is west of the facility. The above mentioned residences lie between the site and the Sunflower River.

REFERENCES

1. Preliminary Assessment Reassessment for Red Panther Chemical Company by Kenneth Whitten, MS OPC, February 22, 1990.
2. Field Notes and Photographs of the 1990 Screening Site Inspection at Red Panther Chemical Company by MS OPC.
3. Mississippi State Chemical Laboratory Analytical Report for the Red Panther Chemical Company SSI.
4. Data Collection and Documentation Techniques for HRS Scoring of Hazardous Waste Sites, March 1987, NUS Corp./EPA.
5. Diagram of the Red Panther Facility; Diagrams of the North and South Tank Farms.
6. Information Concerning Monitor Well at Red Panther, Provided by Southern Farmers Association, Little Rock, AR.