

A
PRELIMINARY ASSESSMENT REASSESSMENT (PAR)
REPORT FOR
RED PANTHER CHEMICAL COMPANY
MSD000272385
CLARKSDALE, MISSISSIPPI

PREPARED FOR:

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February 22, 1990

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This Preliminary Assessment Reassessment (PAR) Report Includes:

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Introduction

The following report is a preliminary assessment reassessment (PAR) of Red Panther Chemical Company in Coahoma County, Clarksdale, Mississippi. The original preliminary assessment was performed by the Bureau of Pollution Control (BPC) in June of 1984. A follow-up sampling inspection was performed in August of 1984.

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 & Hwy 49. Travel about 1/2 mile to SASSE Street. Take SASSE Street and travel west about .15 of a mile. Red Panther Chemical Company is adjacent to the street on the right side.

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Background

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 (Reference 1).

In 1980, Red Panther filed a RCRA notification for storage of wastewater and dirty solvents in drums and tanks. These wastes are generated from cleaning the process equipment. The wastewater contains pesticide and solvent residues. The dirty solvents contain pesticide residues (References 3 and 18).

In November of 1984, Red Panther obtained a RCRA Part B permit from the 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 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. 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.

At various times in the past, wastewater from the formulating process has apparently been discharged either directly to a ditch off-site or into an underground septic tank and drainfield on-site. Red Panther was issued a "no discharge" permit in 1984 by the BPC (References 1, 4, and 11).

Red Panther is currently classified as a hazardous waste generator (Reference 2).

Site Description

Red Panther Chemical Company is located in Clarksdale, Mississippi. The facility is fenced in and is not accessible to non-employees (Reference 18). The facility is bordered on the west by the Illinois Central Railroad tracks. Further west is a housing district. The rest of the facility is surrounded by commercial property (Reference 27).

The facility is approximately 6 1/2 acres in size. A septic tank and drainfield is located on the north side of the property. Three above ground hazardous waste storage tanks with total capacity of 33,000 gallons are located on the south side of the property (References 3 and 7). A small wastewater settling basin is located on the east central side of the property (Reference 8). Drums containing absorbent used for cleaning up process spills may also be buried on-site but the location is unknown (References 1 and 11). ←

Sampling History

In August, 1984, the BPC performed a sampling inspection at Red Panther Chemical Company (Reference 15). 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 Normandy Street and Patton Street. One water sample was taken where wastewater leaves the property and discharges into the off-site ditch. One subsurface composite soil sample was collected around the septic tank and drainage field. All these samples were analyzed for pesticides and total arsenic (References 12 and 17).

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

In November, 1985, due to the warehouse fire, a sample of contaminated runoff resulting from the fire-fighting effort was collected and analyzed for pesticides. None were detected (Reference 16).

Waste Description/Containment

Red Panther Chemical Company 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 is approximately 6318 kilograms. The estimated waste quantity is 259,044 kilograms (285 tons) based on a forty-one year history of operations (References 1 and 3).

In the past, contaminated wastewater has been discharged to an off-site drainage ditch and also to an on-site underground septic tank and drainfield with little or no containment. The depth of deposited waste is unknown, so a depth of six feet is assumed.

The hazardous substances of concern include arsenic, toxaphene, and dieldrin. Arsenic has a severe toxicity rating and is highly persistent (References 9 and 30).

Groundwater/Geology

Clarksdale is located in northwestern Mississippi in the Mississippi Delta. The stratigraphic units in this part of the state in descending order are as follows:

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

The Mississippi River Valley Alluvium (Alluvium Aquifer) 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 (Reference 19). The Alluvium Aquifer is one of the most prolific and widespread aquifers in northwestern Mississippi. Alluvial deposits blanket and underlie the entire Mississippi Delta (Reference 20).

The upper surface of the Alluvium Aquifer is the land surface and the base of the alluvium averages about 140 feet lower. Geophysical logs of wells in the site area indicate that the Alluvial Aquifer extends to a depth of approximately 125 feet below the land surface (References 21 and 25). 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 (Reference 22).

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 the vicinity of the site suggest that the Cook Mountain is approaching a stratigraphic pinch-out in the Clarksdale area. Therefore the Alluvial Aquifer and the Sparta are likely 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 (References 19, 21, and 25).

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 (References 19, 20, 22, and 25).

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 (References 19, 21, 22, and 25).

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 (References 19, 21, 22, and 25).

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 (References 19, 21, 22, and 25).

Aquifer of Concern

The Mississippi River Valley Alluvium and Sparta are apparently hydraulically connected in the site area and therefore are considered as one aquifer, the aquifer of concern (AOC). The depth to the water-bearing unit of the Alluvium is approximately 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 (References 20, 22, and 28).

The AOC provides drinking water for 24,700 people within a three-mile radius of the site. This is based on eleven public water supply wells (nine of which are in the three-mile radius) and numerous irrigation wells. All eleven of the public wells are connected, i.e., they provide water to the same distribution system (References 24 and 28).

The nearest drinking water well in the AOC is a public well located about 1100 feet south of the center of the site. This well is identified as #J-102 on the USGS printout and overlay sheet (Reference 28).

Precipitation

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 (Reference 19).

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 (Reference 9).

Surface Water

The site and surrounding area is flat with a slight gradient to the east. The site slope is about 0.6% and the slope of the intervening terrain is about 0.1%. The nearest perennial surface water is the Sunflower River (Reference 27).

Some surface runoff and/or discharge from the facility probably drains into a roadside ditch east of the site. The ditch flows inter-mittently in an easterly and southerly direction and intersects an intermittent stream approximately 22,440 stream feet southeast of the site. The intermittent stream flows in a westerly direction for approximately 3,960 stream feet before entering the Sunflower River, the nearest perennial surface water. The Sunflower River is located approximately 26,400 stream feet from the site and flows in an southerly direction (Reference 27). The Sunflower River is used for irrigation, industrial and/or commercial purposes, and recreation (Reference 26).

Environmental Concerns

There are no national wildlife refuges, critical habitats of federal endangered species, or wetlands within one mile of the site along the surface water migration pathway (References 27 and 29).

Conclusions and Recommendations

A site screening investigation is recommended on a medium priority basis.

REFERENCES

1. Potential Hazardous Waste Site Preliminary Assessment of Red Panther Chemical Company, Prepared by Mississippi Bureau of Pollution Control, April, 1984.
2. EPA HWDMs Database List of RCRA Hazardous Waste Generators in Mississippi.
3. RCRA Hazardous Waste Part A Permit Application for Red Panther Chemical Company, October, 1980.
4. State of Mississippi Water Pollution Control "No Discharge" Permit, Issued August 1, 1984.
5. Letter Submitted to Mississippi Department of Natural Resources From Red Panther Chemical Company, April 4, 1986, Concerning Ongoing Issues at Red Panther Chemical Company.
6. 1987 Hazardous Waste Biennial Report by Red Panther Chemical Company.
7. Site Diagram of Red Panther Chemical Company.
8. Mississippi Manufacturers Association Committee on Air & Water Quality Questionnaire Completed by Red Panther Chemical Company for the Mississippi Bureau of Pollution Control.
9. EPA HRS Guidance Manual.
10. Not Applicable
11. Investigation Report by Mississippi BPC August 1975.
12. Potential Hazardous Waste Site Inspection Report and Field Notes Concerning Red Panther Chemical Company.
13. Not Applicable.
14. Article from the Clarion Ledger/Jackson Daily News, December 1, 1986, Concerning Fish Kill in Sunflower River.
15. Letter of August 14, 1984, From Mississippi Bureau of Pollution Control, Jim Hardage, to Red Panther Chemical Company, Concerning Sampling Inspection.
16. Laboratory Results from November 1985, Sampling Concerning Warehouse Fire at Red Panther.
17. Laboratory Results from the Mississippi BPC Sampling Investigation in 1984.
18. RCRA Permit Inspection Checklist Part I, September 26, 1985, by Jim Hardage, Mississippi BPC.

19. Water for Industrial and Agricultural Development in Coahoma, DeSoto, Panola, Quitman, Tate, and Tunica Counties, Mississippi, By G. J. Dalsin and J. M. Bettendorff, 1976, pp. 3, 4, 8, 9, 10, 11, 15, 41, 42, 43, 44, 45, 46, 47, 48, and 49.
20. Water Resources of Mississippi, Bulletin 113, by Thad N. Shows, Mississippi Biological, Economic, and Topographical Survey, 1970, pp. 18, 19, 20, 21, 77, 78, 79, 84, 85, 86, and 87.
21. Sources for Water Supplies in Mississippi, by B. E. Wasson, 1986, 18, 19, 20, 21, 48, 49, 50, 51, 52, 53, 60, 61, 62, 63, 64, and 65.
22. Gandl, L. A., Characterization of Aquifers Designated as Potential Drinking Water Sources in Mississippi, Jackson, Mississippi, 1982, pp. 11, 12, 12, 21, 32, 33, 34, 41, 42, 43, 44, and 45.
23. Information on Groundwater and Surface Water Use from the Mississippi Bureau of Land and Water Resources, Jackson, Mississippi.
24. Collection Log, Water Supply Division, Mississippi State Department of Health.
25. Geophysical Logs of Wells Near Red Panther Chemical Company Site, Clarksdale, Mississippi.
26. Information of Groundwater and Surface Water Use from the Mississippi Bureau of Land and Water Resources, Jackson, Mississippi.
27. Composite Topographic Map of Red Panther Chemical Company:
 Clarksdale Mississippi Quadrangle 7.5 Minute Series,
 Sabino, Mississippi Quadrangle 7.5 Minute Series,
 Sherard, Mississippi Quadrangle 7.5 Minute Series.
28. Printout and Overlay Sheet from U. S. Geological Survey Data Base of All Wells Within a Four-mile Radius of Red Panther Chemical Company.
29. U. S. Fish and Wildlife Service, Vicksburg Office, Species List by County and Endangered Species Maps.
30. Integrated Risk Information System (IRIS).