Final Report
Environmental Priorities Initiative
Preliminary Assessment
Van Waters Rogers (VWR) Corporation
Wichita, Kansas
TDD #F-07-9001-010 PAN #FKS0283RA
Site #S02 Project #001
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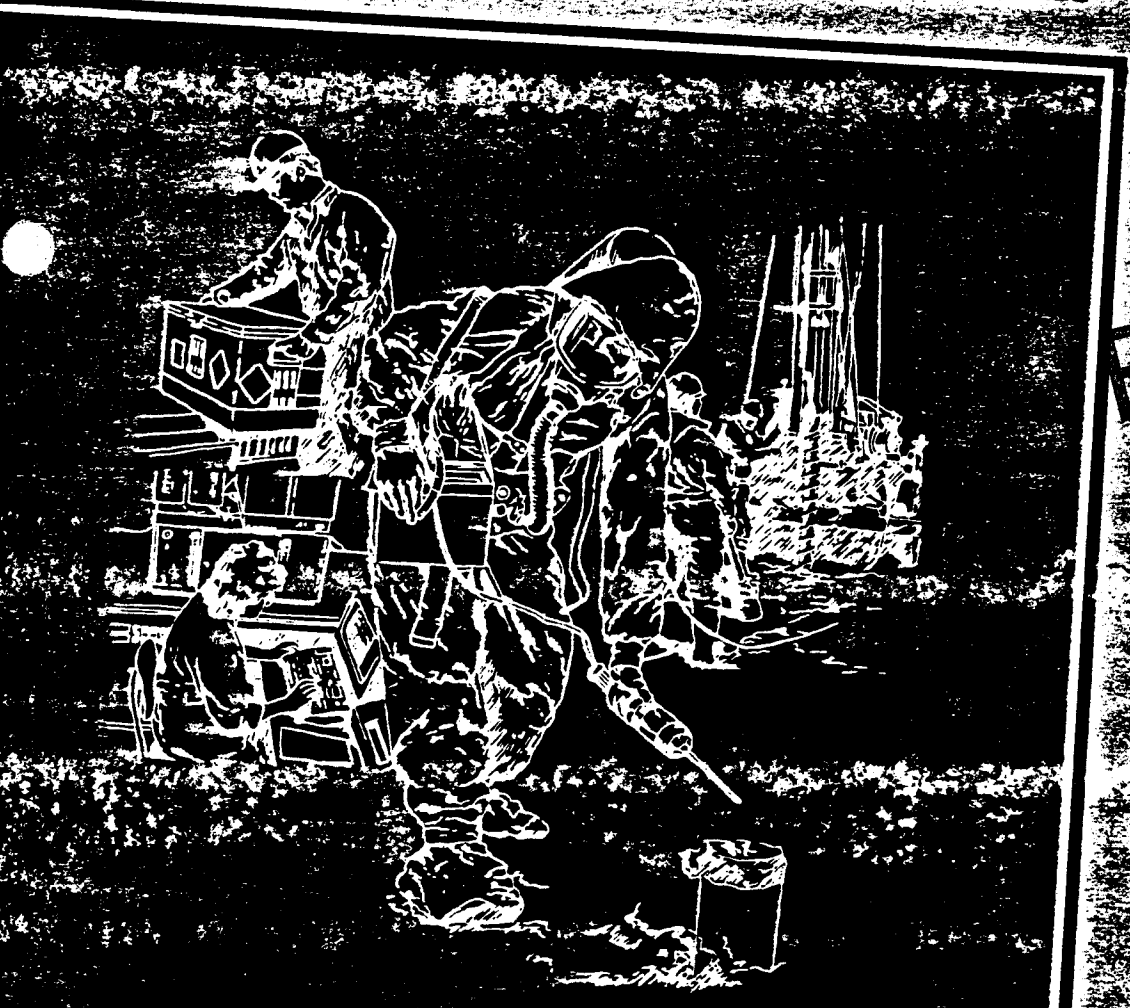
Date: October 1, 1990

EPA
HAZARDOUS
SITE
EVALUATION
DIVISION

02-0817
10607
8.1

Field Investigation Team Zone II

FINAL



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SECTION 1: INTRODUCTION

As part of the United States Environmental Protection Agency's (EPA) Environmental Priorities Initiative (EPI) program, EPA has requested the Ecology and Environment, Inc., Field Investigation Team (E & E/FIT) to conduct an EPI Preliminary Assessment (EPI/PA) of the Van Waters Rogers (VWR) facility located in Wichita, Kansas.

The EPI program integrates the Resource Conservation and Recovery Act of 1976 (RCRA), the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), and the Superfund Amendments and Reauthorization Act of 1986 (SARA) in order to set priorities for the cleanup of the most environmentally significant sites first. This EPI/PA is essentially equivalent to RCRA's Preliminary Review/Visual Site Inspection (PR/VSI) and identifies potential or actual releases at the facility and determines if remedial measures are necessary.

This report discusses information obtained from the EPA Region VII and Kansas Department of Health and Environment (KDHE) files and describes each Solid Waste Management Unit (SWMU). Observations obtained from the VSI conducted by E & E/FIT on May 15, 1990, are included along with site-specific information concerning the physical and environmental setting. Photographic documentation is included as Appendix A. Appendix B consists of EPA's Preliminary Assessment Form 2070-12. Waste characteristics Data Sheets are included as Appendix C.

SECTION 2: SITE LOCATION AND DESCRIPTION

2.1 SITE LOCATION

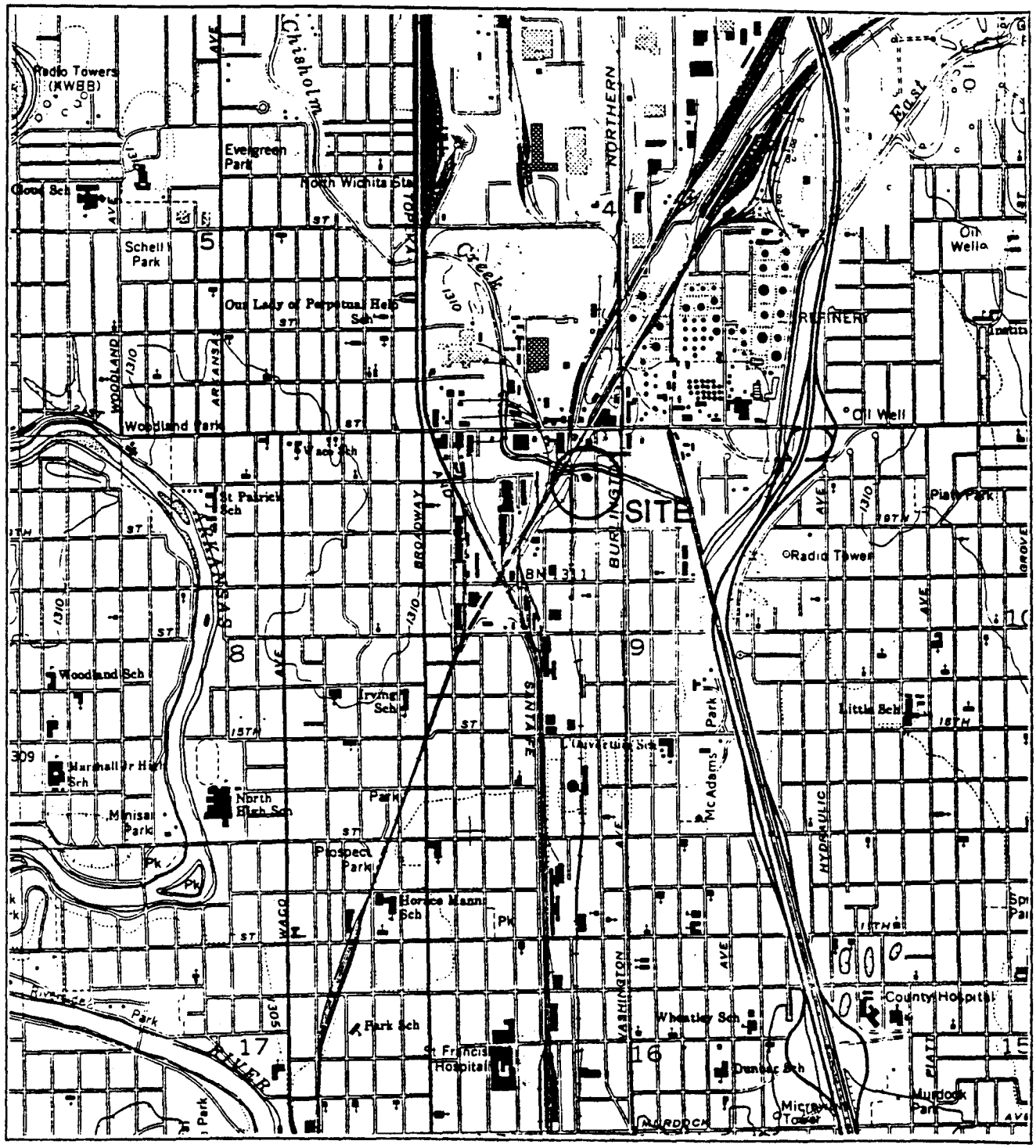
The VWR facility is located at 2041 N. Mosely and is situated in an industrial area of north-central Wichita, Kansas. The approximate legal description of the site is the NE 1/4, NW 1/4, Section 9, T.27S., R.1E Wichita East Quadrangle, Sedgwick County, Kansas. The coordinates of the site are latitude 37°43′15" North; longitude 097°19′38" West (Figure 2-1) (USGS 1982).

2.2 SITE DESCRIPTION/WASTE HANDLING

VWR is a division of Univar Corporation. VWR is a distributor of organic and inorganic chemicals for industrial use. Chemicals handled include solvents, acids, and caustics. Uses of these chemicals include water and sewage treatment; ice, dust, and rodent control; oil and gas drilling; petroleum refining, natural gas processing and petrochemical production; as paint ingredients; pest control; food production, processing, and packaging; mining, milling, plating and finishing, and electronics; laundry and dry cleaning; forestry, and pulp and paper manufacturing (Univar Corp 1986).

A site reconnaissance of the VWR facility was conducted on May 15, 1990, by Anne Melia and Patty Roberts, E & E/FIT; Mark Matthews, EPA RCRA; and Paul Calhoun KDHE/RCRA.

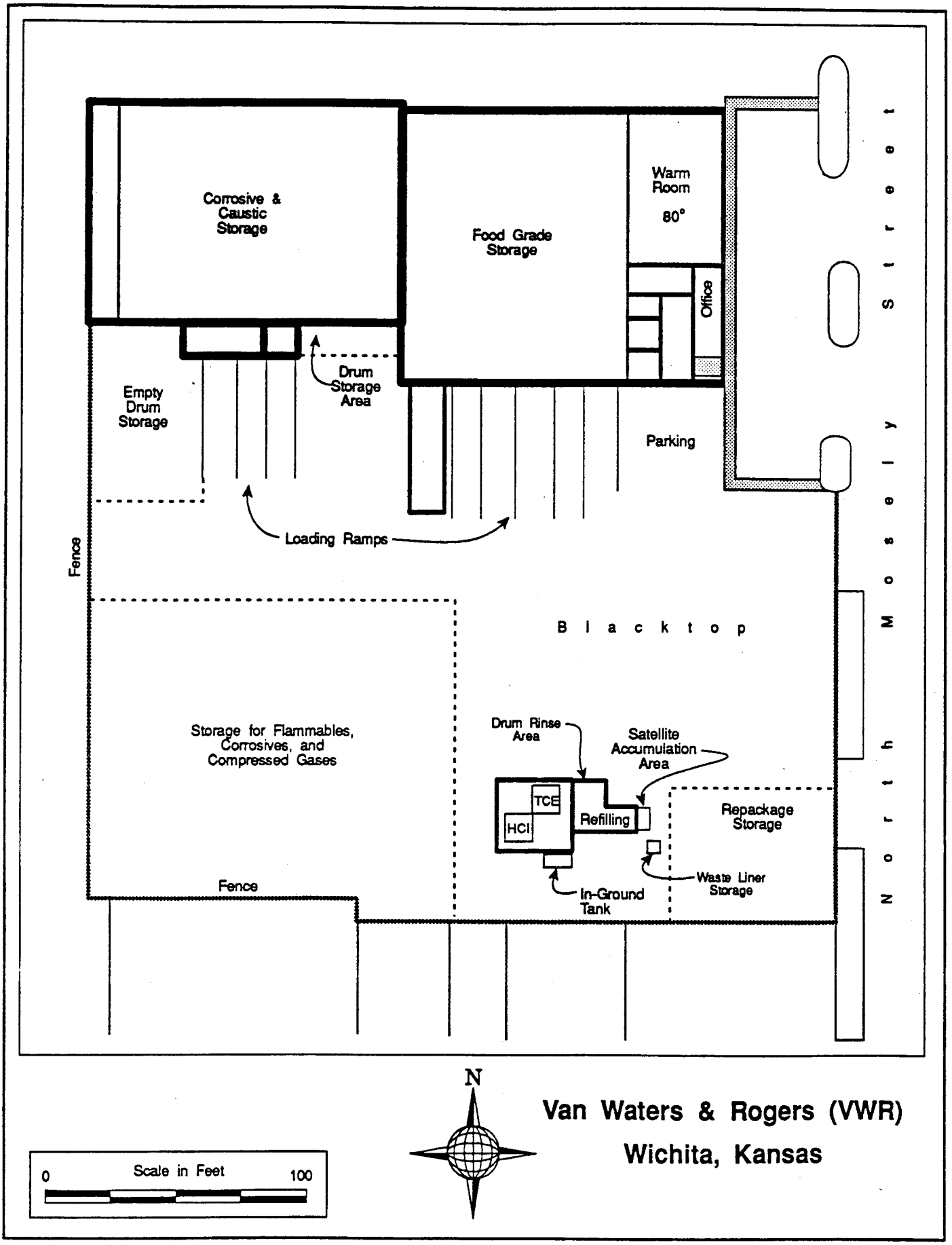
This VWR facility operates mainly as a distribution facility. It repackages a limited number of products from bulk into smaller packages. Chemicals repackaged include trichloroethene, triethanolamine, 1,1,1-trichloroethane, hexane, methanol, butyl cellosolve, hydrochloric acid, phosphoric acid, and sulfuric acid (E & E/FIT 1990). In the past, as a service to some of the customers, VWR also picked up and temporarily stored their spent solvent waste streams. Once a complete shipment was accumulated, the load was manifested and transported to a recycling facility (Stuckey 1989). For the past year, the majority of wastes VWR picks up from its customers are transported directly to Hydrocarbon Recyclers Incorporated (HRI); a new treatment, storage, and disposal



Van Waters & Rogers
Wichita, Kansas

Prepared by Lee Robertson
Ecology & Environment/FIT June 1990

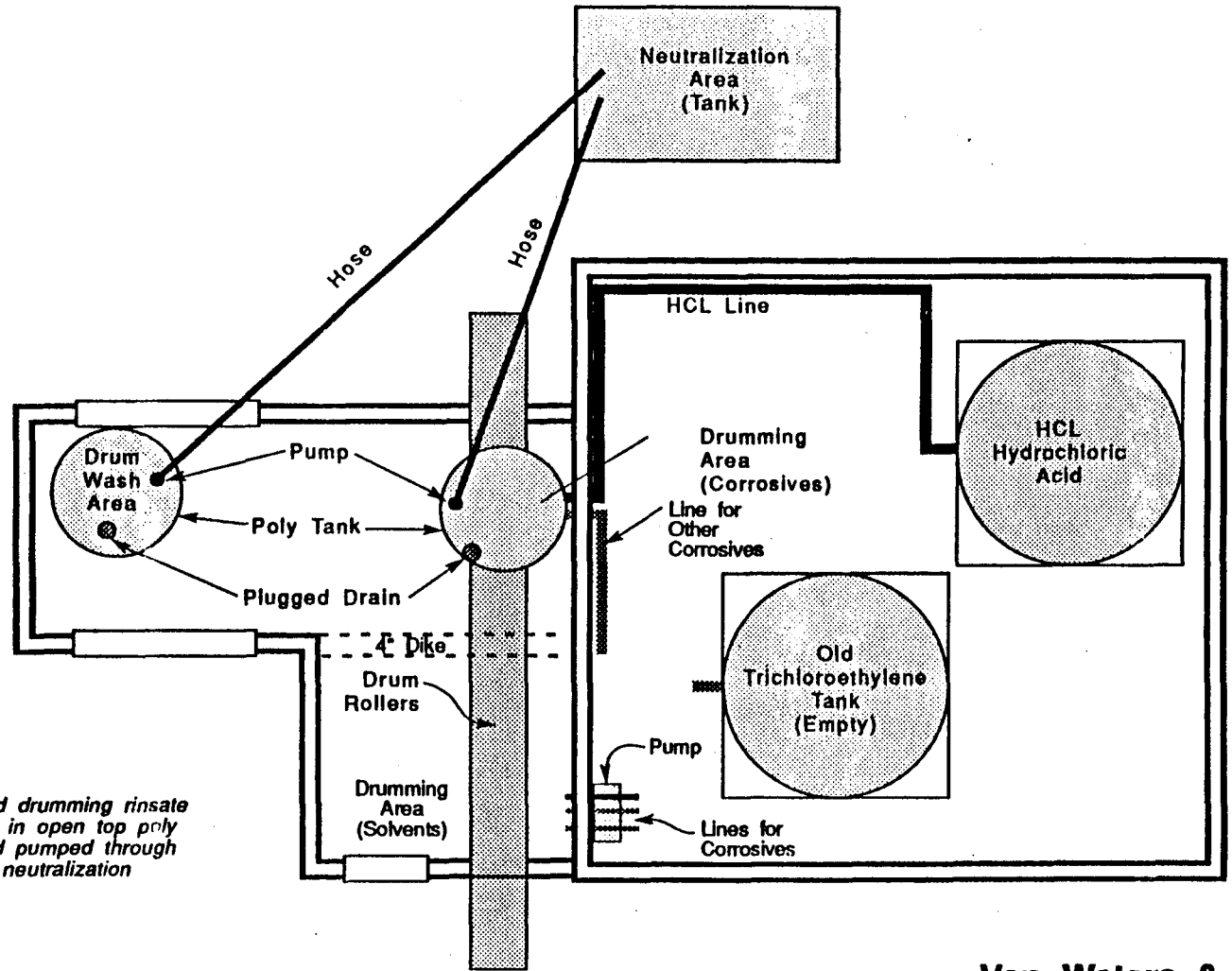
Waste Site Tracking #: KS028
Source: USGS 7.5' Topo, Wichita E., KS 19



Prepared by Lee Robertson
Ecology & Environment/FIT June 1990

Figure 2-2: SITE MAP

Waste Site Tracking #: KS0283
Source: Van Waters & Rogers



Note: Wash and drumming rinsate is caught in open top poly tanks and pumped through hoses to neutralization area.

Van Waters & Rogers
Wichita Branch
Rinsing & Filling Room

Prepared by Lee Robertson
Ecology & Environment/FIT September 1990
Waste Site Tracking #: KS0283
Source: Van Waters & Rogers, Inc. 1990

Figure 2-3: Chemical Repackaging & Drum Rinse Building

(TSD) facility located in Wichita. VWR no longer routinely stores these wastes on site (E & E/FIT 1990).

Figure 2-2 shows the layout of the entire facility. The VWR facility consists of a 20,200-square-foot metal and masonry building, of which 1,600 square feet is office space and the remainder is warehouse space (MCC 1984a). To the north of the office area is the Warm Room, which is maintained at 80°C. Here VWR stores chemicals that may freeze such as acetic acid, liquid sodium hydroxide, and formaldehyde. Beyond the Warm Room and the office area to the west is the Food Grade Storage area. Here VWR stores such chemicals as sodium nitrate and sodium benzoate. West of the Warm Room is the Caustic and Corrosive Storage area. The Hazardous Waste Drum Storage Area is located outside along the southern edge of the building. This storage area encompasses approximately 492 square feet; measuring 41 feet by 12 feet (Appendix A; Photos 1 through 3). No evidence of any releases in the product storage area was observed during the May 1990 VSI. A small spill of hydrofluoric acid occurred in April 1989, when a fork lift punctured a container. No evidence of this spill was visible in the corrosive storage area (E & E/FIT 1990).

VWR leases the blacktopped area southwest of the warehouse building from Clint Linsey of CW Feed Products to store some flammables, corrosives, and compressed gases such as chlorine, sulfur dioxide, and anhydrous ammonia (Appendix A; Photos 5 through 7). Of its 1-acre facility, VWR owns 0.75 acres and leases 0.25 acres (Matthews 1990). East of the compressed gas storage area is the Chemical Repackaging and Drum Rinse Building (Appendix A; Photos 8 and 11). VWR has two large aboveground tanks, one of which can hold hydrochloric acid and one which has contained TCE in the past (Appendix A; Photos 9 and 10). VWR no longer stores TCE in this tank (Matthews 1990). These tanks are in a containment area of unknown volume which lies immediately west of the Rinsing and Chemical Repackaging Building (Appendix A; Photo 9). VWR rinses empty drums and refills/repackages bulk chemicals in this room. There is a separate filling apparatus for the solvents, and the corrosives and caustics (Figure 2-3). The caustic and corrosive rinses previously flowed along the floor of the building into floor drains that lead to an in-ground tank. Because of cracks in the floor of the

building, VWR has plugged the floor drains and now catches all corrosive/caustic wash and repackaging rinsate in cut up poly tanks (Figure 2-3). Portable pumps and hoses are used to pump the rinsate into the in-ground tank (Figure 2-3). The contents of the in-ground tank are neutralized and released into the sanitary sewer (Appendix A; Photo 10). HCl flows by gravity through the line shown on Figure 2-3 into a drum located in the drumming area. Other corrosives are repackaged from bulk storage on tanker trucks. These chemicals flow by air pressure from the tanker trucks; the lines are illustrated on Figure 2-3 (Linos 1990b).

A 4-inch dike separates the corrosive area from the solvent area (Figure 2-3). The solvents are repackaged only from bulk stored on tanker trucks. Three lines attached to a pump extend out from the building for the solvent repackaging. Drum rollers extend from the south to the north ends of the building. Empty drums are brought in from the south end, filled, moved along the rollers, off-loaded at the south end by fork lifts, and taken to the repackage storage area (Linos 1990b) (Figure 2-3; Photo 8).

The solvent rinses are drummed, accumulated in a Satellite Accumulation Area just east of the Rinsing and Repackaging Building, and eventually shipped out for recycling. East of the Drum Rinse and Repackaging Building, VWR stores the repackaged chemicals (Appendix A; Photo 8). VWR plans to discontinue repackaging operations in early 1991 (Sims 1990). No evidence of release of hazardous constituents from this area was noted during the May 1990 VSI. Because VWR no longer allows corrosive rinsate to flow into the floor drains, potential environmental releases of corrosives through the cracks in the floor have been reduced. Also, as VWR plans to discontinue these operations all together by early 1991; the likelihood of a release from this building and its operation is minimal.

The entire outside storage area adjacent to the facility is surrounded by a 6-foot-high chain-link fence topped with three strands of barbed wire that extend an additional foot above the chain-link. There are two 15-foot gates along Mosely Street that allow access to the loading and unloading dock area. Generally, only the north gate is open during working hours of 0730 hours to 1700 hours (Matthews 1990). The south gate is routinely padlocked. The north gate is padlocked during

non-working hours. A vehicle gate along the south perimeter of the property provides access to an alley leading to 19th Street but is never used during normal facility operation. It is padlocked at all times (MCC 1983).

2.3 SITE CONTACTS

Persons familiar with operations or who have regulatory involvement with the VWR facility include:

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SECTION 3: SITE BACKGROUND AND HISTORY

3.1 GENERAL HISTORY

The N. Mosely facility began operations on October 1, 1959, as the McKesson Chemical Company (MCC). The operations of MCC were similar to those of VWR; MCC distributed industrial chemicals, repackaged some chemicals from bulk, and picked up spent solvents from customers for recycling. MCC did not manufacture or recycle solvents at this facility (Butter 1980). In 1986, MCC was sold to VWR, a division of Univar. The ownership, including all RCRA permits, was officially transferred from MCC to VWR on October 31, 1986. VWR currently has 12 employees, five of whom are involved in the hazardous waste management enterprise (E & E/FIT 1990).

3.2 NON-REGULATORY PAST INVESTIGATIONS

None known or reported to date.

3.3 PERMIT AND REGULATORY ACTIONS SUMMARY

8/18/80 MCC notified EPA of hazardous waste activity and submitted a Part A notification.

11/17/80 MCC submitted a revised Part A notification to allow them to act as a transporter of hazardous waste. MCC picked up spent solvents from off-site customers, stored them on site, and eventually transported the waste to a recycling facility (Minor 1980).

8/4/82 MCC notified of the need to submit a closure plan and cost estimate, and a post-closure plan and cost estimate within 15 days. An inspection of the facility was to follow the submittal of the plans (Morby 1982).

9/7/82 Scott Helmke of MCC was notified by the EPA that the facility had received RCRA interim status (Wagoner 1982).

9/13/82 MCC notified by EPA and KDHE to submit a Part B permit application by March 13, 1983 (Kamath 1982).

5/16/83 MCC submits original Part B permit application, and several written revisions are required.

6/22/83 A joint RCRA/KDHE compliance inspection was conducted by Robert B. Dona, EPA Field Investigation Section, and Dale Stuckey, KDHE Wichita Field Office. MCC was represented by Helmke, Branch Manager; Tom Nisler, Regional Warehouse Manager; and Alex Maslow, Operations Manager. Five minor violations were noted: 1) transporter information was missing from one hazardous waste transportation manifest; 2) the waste analyses plan did not include parameters to be analyzed, rationale for analysis, or analytical methods to be used; 3) site security was provided for only the 10-hour working day; security was then provided only with locked gates. The fence was only 6 feet high topped with three strands of barbed wired; 4) the inspection log did not contain dates and had other discrepancies; and 5) some hazardous waste drums to be reshipped had two labels because the old one had not been removed. At the time of the compliance inspection, MCC had 44 drums in the drum storage area. They indicated that drums were to be shipped when 60 drums accumulated (Dona 1983; Stuckey 1983).

8/31/83 MCC submitted revised Part B permit application.

11/3/83 EPA and KDHE conducted a Part B inspection at MCC. Present were Karen Flournoy, EPA; John Paul Goetz, KDHE; and Helmke and Nisler of MCC. KDHE and EPA concluded that the MCC Part B permit application be processed with minor modifications (Flournoy 1983; KDHE 1983).

2/1/84 EPA/KDHE sent a letter to Nisler of MCC outlining comments on the revised Part B permit application submitted on August 31, 1983, and the Part B inspection conducted in November 1983 (Wagoner 1984a). MCC was allowed until March 7, 1984, to respond by submitting another revised Part B application, and was granted an extension until March 16, 1984 (Flournoy 1984a).

3/15/84 MCC submitted a revised permit to EPA and KDHE (Nisler 1984a).

3/27/84 MCC representatives Don Black and Nisler met with Lyndell Harrington and Flournoy of EPA, and Dan Tschirgi of the Missouri Department of Natural Resources (MDNR) to discuss remaining problems with the MCC Part B permit. The major problem was dealing with precipitation or other liquids accumulating in the waste storage containment area (Flournoy 1984b).

4/6/85 EPA issued an official Notice of Deficiency/Letter of Warning (NOD/LOW) to MCC concerning their Part B application; MCC was required to submit an approvable Part B permit application by April 13, 1984. The main deficiency was the issue of disposal of accumulated liquids in the waste storage containment area (Wagoner 1984b).

4/13/84 MCC responded to the NOD/LOW on April 6, 1984 (Nisler 1984b).

4/30/84 The draft Part B permit application went before public comment for 45 days (Wagoner 1984c).

7/10/84 EPA notified MCC that a final permit decision had been made; it was to become effective on August 16, 1984 (Wagoner 1984d). KDHE notified MCC on August 24, 1984, of their decision to issue a Part B permit. The permit with KDHE was to be effective September 24, 1984, until September 25, 1994 (Murphy 1984).

8/28/84 KDHE performed a RCRA compliance inspection and noted three violations: 1) An improperly labeled drum of waste TCE was observed; 2) triethanolamine was labeled improperly as a hazardous waste when it is not considered a waste under RCRA or DOT; and 3) a discrepancy was found in the listing of waste xylene as being generated off-site. KDHE informed MCC that if waste xylene is not generated now or in the future, MCC needed to notify KDHE (Stuckey 1984). MCC notified KDHE on November 15, 1984, that xylene should be retained in the Part B permit as it might be generated in the future (Stuckey 1984b).

3/11/85 A joint RCRA compliance inspection was performed by KDHE. MCC was found to be out of compliance with state and federal regulations concerning the following items: 1) an operating record (40 CFR §264.73) was not being maintained; 2) a discontinued shipping name was still being used on some hazardous waste manifests; 3) a dented drum was noted in the storage area; 4) a bent fence post along the southern perimeter allowed unauthorized entry, and MCC had no way to control access between its property and the adjoining veterinary supply; and 5) MCC had no detailed waste analysis on file for a paint booth cleanup waste obtained from Fuller Brush. MCC was found to be in indirect violation of their Part B permit for the following items: 6) MCC was not noting on its manifests the number of drums from which samples were being collected or a color description of the waste. MCC was also using a hand pump and a flask to do the visual check, rather than a clear thief tube as described in the permit; 7) no waste analyses verifications were on file; and 8) the most recent weekly "In House Container" and "TSD Facility and Equipment " checklist had not been completed. MCC was told to correct items 2, 3, and 8 immediately; mitigate items 6 and 7 by the next incoming shipment of waste; and remedy items 1, 4, and 5 by May 1, 1985 (Stuckey 1985; Boskey 1985).

4/4/86 KDHE performed a RCRA compliance inspection, and noted one permit violation; MCC did not have the original lab analysis for a KG & E waste on file. MCC was required to provide proof of compliance by May 26, 1986 (Stuckey 1986).

10/31/86 VWR acquired the assets of MCC, filed an updated Part A permit, and had the facility Part B permit transferred to the new name (Thompson 1986). On November 17, 1986, KDHE received all the documents necessary to insure VWR's compliance with RCRA requirements for closure and liability financial assurance. MCC was notified of release from financial assurance requirements at the Wichita facility on December 11, 1986 (Clark 1986). VWR was also notified on that date of complete transfer of all documents (Rogers 1986). EPA noted the transfer request on November 25, 1986 (Sanderson 1986).

1/21/87 KDHE performed a RCRA compliance inspection, and noted that VWR was out of compliance in the following areas: 1) an alternate disposal facility should have been listed on the manifest or instructions given to the transporter to return the waste to the generator if undeliverable; 2) a severely dented drum of waste cyclohexanone was in storage; 3) three drums of waste flammable liquid in storage lacked beginning accumulation dates; 4) the railroad tie dike around the waste storage area was deteriorated and needed repair (Stuckey 1987a). KDHE informed VWR to correct these violations by March 26, 1987.

3/20/87 VWR poured a new concrete dike around the waste containment area (Goossen 1987).

4/10/87 KDHE conducted a follow-up compliance inspection and found VWR to be in compliance with state or federal hazardous waste regulations (Stuckey 1987).

1/10/88 KDHE performed a RCRA compliance inspection. The only non-compliance item noted was that improper waste codes were labeled on drums (Stuckey 1988).

2/2/89 A RCRA compliance inspection was performed by KDHE, and VWR was found to be out of compliance for three items: 1) a drum of waste TCA was mislabeled; 2) a reportable quantity was missing from a manifest; 3) and the most recent closure cost estimate on file for the facility was from 1987; an updated cost form, revised to reflect inflation, was required (Stuckey 1989).

SECTION 4: ENVIRONMENTAL SETTING

4.1 CULTURAL AND ENVIRONMENTAL SETTING

VWR is located in an industrial area of north-central Wichita, Kansas. Most of the land within a one-half to one mile radius of the facility is used for industrial/commercial business. Residential areas exist one-half mile to the east, south, and west. The nearest residence would be approximately one-half mile to the south.

Chisholm Creek is located approximately 300 to 350 feet north of the facility. Because the creek is located in an industrial area, it is not likely to be used for recreation. The Little Arkansas and Arkansas rivers are west of the VWR facility within a two-mile radius of the site. Several parks are located along the river banks. These rivers are used for other types of recreation such as waterskiing, boating, and fishing. The nearest park is approximately one-half mile southeast of VWR.

There are no known sensitive environments within four miles of the facility. Industrial, commercial, residential, and agricultural land use occurs within a four-mile radius.

4.2 TOPOGRAPHY AND DRAINAGE

The nearest surface water feature is Chisholm Creek which lies 300 to 350 feet north of the facility property line. The creek lies outside the 100-year floodplain boundary, and thus should not pose a flooding threat to the facility. The surface elevation of the creek is 1,300 feet. The surface elevation of the site is 1,310 feet.

The site topography is generally flat, exhibiting a maximum slope of approximately 1 percent (USGS 1982). Surface drainage from the asphalt yard area will flow from the north to the southeast. The drainage ultimately flows into a storm sewer located along the south property line (MCC 1983).

4.3 SOILS

The soils at the VWR site are of the Elandco Series (USDA 1979). The Elandco Series lies on a nearly level, and occasionally to frequently flooded landscape. In Wichita, these soils are protected from flooding by the Wichita-Valley Center floodway. Elandco soils are deep, well drained and moderately permeable (0.6 to 2.0 inches/hour). The surface layer of this series is a silt loam. These soils are formed in silty, alluvial sediments on 0 to 3 percent slopes and are highly erodible by fluvial and eolian processes (USDA 1979).

4.4 STRATIGRAPHY

The VWR site is situated in the Arkansas River lowlands section of the Central Lowlands physiographic province. The topography consists of the extremely flat, broad, Arkansas River Valley and the gently rolling slopes that rise to the uplands adjacent to the valley (Lane 1965).

The bedrock that underlies the VWR site area belongs to the Permian-age Wellington Formation, which consists of approximately 550 feet of gray and blue shale interbedded with thin beds of maroon shale, impure limestone, gypsum, and anhydrite. The thick Hutchinson Salt Member is present near the middle of the Wellington Formation in western Sedgwick County (Lane 1965).

The Wellington Formation is unconformably overlain by the Pleistocene-age Ogallala Formation, which consists of approximately 150 feet of lenticular beds of calcareous, gray to pink-tan silt and clay, fine to coarse sand, and fine to coarse gravel. These deposits are of alluvial origin. The Ogallala Formation is overlain unconformably by approximately 400 feet of deposits representing at least four major depositional cycles of the Pleistocene Series; the Kansan, Nebraskan, Illinoisan, and Wisconsinan glaciations. The deposits consist of unconsolidated clay, silt, sand, and gravel. The present soil horizons overlie these Pleistocene-age deposits (Figure 4-1)(Lane 1965).

4.5 GROUND WATER

The potable water supply for the city of Wichita, Kansas, is obtained from three well fields located in Sedgwick and Harvey counties. These well fields tap the prolific aquifer, locally called the "equus

System	Series	Subseries	Stratigraphic units used in this report	Maximum thickness, feet	Physical character	Water supply
Neogene	Pleistocene	Upper Pleistocene	Dune sand (Recent)	5	Composed of fine to medium, silty sand.	Lies above the water table and thus yields no water to wells.
			Alluvium and terrace deposits (Wisconsinan to Recent)	45	Composed of fine to coarse sand and fine to very coarse arkosic gravel containing only minor amounts of silt and clay that grade upward into clayey silt. Clay balls up to one foot in diameter are common in the sand and gravel.	Comprises the most widely used aquifer in the County and yields large supplies of very hard water to many wells. Well yields up to 2,000 gpm can be developed locally. Adjacent to the Arkansas River the water is too highly mineralized for many uses.
			Colluvium (Illinoisan to Recent)	30	A heterogeneous mixture of silt, clay, sand, gravel, and bedrock fragments deposited by slope processes.	Generally above the water table and thus yields no water to wells. Where deposits are thick and contain sand and gravel lenses, wells yielding a few gpm may be possible but would be subject to failure in dry years.
			Loess (Illinoisan to Recent)	74	Wind-deposited tan to pink-tan, calcareous silt, containing zones of caliche nodules and some sandy zones.	Generally above water table, but locally the basal part is saturated and sandy zones may yield some water to wells.
			Terrace deposits (Illinoisan)	75	Composed of fine to coarse sand and fine to coarse arkosic gravel that grades upward into sandy silt. Sand and gravel beds locally contain silt and clay lenses, and clay balls up to one foot in diameter are common.	Well yields of 500 gpm of good quality water are generally available from the deposits, and locally yields up to 1,000 gpm can be obtained.
		Lower Pleistocene	Undifferentiated deposits (Nebraskan and Kansan)	157	Composed of light tan to light gray, commonly sandy, silt and clay, fine to coarse sand, and fine to coarse arkosic gravel. Locally contains a lenticular bed of volcanic ash, the Pearlette ash bed of late Kansan age.	Yield large quantities of good quality water to wells in the Arkansas Valley that are screened in multiple porous zones and penetrate the complete section of unconsolidated rocks. The water is highly mineralized locally near the Arkansas River. Where present in the uplands west of the Arkansas Valley, well yields up to 50 gpm are possible locally.
	Pliocene		Ogallala(?) Formation	150 ±	Composed of lenticular beds of calcareous, gray to pink-tan silt and clay, fine to coarse sand, and fine to coarse gravel. The sediments reflect two sources; arkosic sand and gravel beds derived from the west are interfingered in the northern part of the County with sand and gravel beds composed of gray to tan quartz and ironstone derived from Cretaceous rocks to the north. In subsurface only.	Contributes large supplies of good quality water to many municipal, irrigation, and industrial wells screened in multiple porous zones and penetrates the complete section of unconsolidated rocks.
Permian	Lower Permian		Ninnescah Shale	175 ±	Composed of alternating beds of brownish-red silty shale and siltstone, and a few thin beds of gray-green silty shale in lower part. Some gypsum is present as thin, cross-cutting and intersecting vein fillings.	Yields small quantities of water to many stock and domestic wells in the western part of the County. Water obtained from the weathered zone in the formation is generally of good quality. Water from deeper zones is generally highly mineralized but usable.
			Wellington Formation	550 ±	Calcareous gray and blue shale containing several thin beds of impure limestone and thin beds of gypsum and anhydrite. Some beds of maroon and gray-green shale near top of Formation. The thick Hutchinson Salt Member is present near the middle of the Formation in the western part of the County.	Yields small quantities of highly mineralized water to many stock and domestic wells east of the Arkansas River valley and in south-central part of County. Moderately large water supplies of as much as 350 gpm are available from solution zones in gypsum beds near east County line. The water is highly mineralized but usable.

Generalized Section of Geologic Formations in Sedgwick County, Kansas and Their Water Bearing Properties.

Van Waters & Rogers (VWR)

Wichita, Kansas

Prepared by Lee Robertson
Ecology & Environment/FIT June 1990

Waste Site Tracking #: KS0283
Source: LANE 1965

Figure 4-1: Generalized Geologic Section

beds," which includes all of the unconsolidated water-bearing deposits of Sedgwick County. These deposits are composed principally of Pleistocene-age sediments and yield up to 55 million gallons of water per day (MGD). Figure 4-1 outlines the water-bearing properties of the strata in Sedgwick County (Lane 1965).

The configuration of the water table in the vicinity of the site is a subdued version of the surface topography. The ground water in the bedrock is under artesian conditions in certain areas and its relationship to the piezometric surface in the unconsolidated deposits is unknown (Lane 1965).

The water table in the Arkansas Valley has a generally uniform southeasterly slope of about 7 feet per mile. Locally, however, the slope varies from 5 to 10 feet per mile. Ground water movement is in the direction of the water table slope or at right angles to the piezometric contours. In the valley the ground water moves toward the Little Arkansas River, and toward the Arkansas River below the confluence of these two rivers. In some areas, and at various depths, the ground water movement may be slightly different than the water table gradient as a result of localized conditions. However, the resultant direction of ground water movement is to the southeast (Lane 1965).

The majority of the City of Wichita drinking water comes from a well field approximately 25 miles northwest of Wichita where wells are finished in the equus beds, and from Cheney Reservoir located 21 miles west of Wichita. Wichita also has several wells approximately 2 1/2 miles southwest of the VWR site. These wells are used only in times of high water demand when the main well field and Cheney Reservoir cannot meet the demand. Yields range from a few gallons per minute (gpm) up to 2,000 gpm and come mainly from the unconsolidated Neogene deposits. The ground water is moderately hard to very hard and in some areas contains high concentrations of dissolved iron and salts. Due to extensive pumping at the Wichita well fields, especially of the equus beds, the ground water contours may be altered. The ground water elevation at the VWR site is approximately 1,290 feet above mean sea level or 20 feet below the ground surface (Lane 1965).

SECTION 5: DESCRIPTION OF INDIVIDUAL SOLID WASTE MANAGEMENT UNITS

5.1 HAZARDOUS WASTE DRUM STORAGE AREA

5.1.1 Information Summary

The hazardous waste drum storage area (Appendix A; Photos 1 through 3) consists of a 41.5-foot by 12.1-foot concrete pad with a 3.5-inch concrete dike around the west, south, and east perimeters. The north perimeter of the storage area is the VWR warehouse. The storage area appears to be in good condition. The concrete pad was poured in 1970 or 1971; however, hazardous waste handling activities began at a later time (Schmid 1990). The concrete dike was poured on March 20, 1987 (MCC 1984; Goossen 1987; E & E/FIT 1990). MCC and VWR have used this area at least since they notified EPA of hazardous waste activity under RCRA in August 1980 (Butter 1980). In the past, MCC and now VWR have picked up and stored customers' spent solvents in this hazardous waste drum storage area until a load of approximately 60 drums had been accumulated. VWR also stores accumulated solvent rinses, generated through repackaging of bulk products, in this area. Currently VWR picks up and transports customers' spent solvents directly to HRI, a solvent recycling company in Wichita (E & E/FIT 1990). Only accumulated solvent rinses generated by the repackaging of bulk products are currently stored in this area (Sims 1990).

The drum storage area has a design capacity of 96 drums or approximately 5,184 gallons. The designed containment capacity of the storage area, including the displacement caused by the floor pallets, is 926 gallons. This is within the 10 percent required under RCRA (MCC 1984a). Information concerning the wastes transported and stored in the drum storage area, including quantity transported or stored per month, is provided in Table 5-1. This information is from the February 2, 1989, compliance inspection and is current (Stuckey 1989; E & E/FIT 1990). All the wastes detailed in Table 5-1, with the exception of trichloroethene, are generated by VWR customers. Waste trichloroethene is generated by the VWR repackaging process.

At the time of the E & E/FIT Visual Site Inspection, VWR had two drums of n-propanol, one drum of mixed toluene/ xylene, one drum of trichloroethene, and one drum of methylene chloride (dichloromethane) in the Hazardous Waste Drum Storage Area for a total of five drums (Appendix A; Photos 2 and 3).

Table 5-1
Hazardous Wastes Handled by VWR

Waste Description	RCRA No.	Average Quantity Handled in Drums per Month
Dichloromethane	F002	13
1,1,1-Trichloroethane	F001	29
Trichloroethene	F001	2
Acetone/Cyclosolve	F002	23
Tetrahydrofuran/Cyclohexanone	F003	1
Xylene, paint	F003	1
Toluene, Methylethyl Ketone	F005	65
Freon TMS	F002	1
Fluorocarbon TMC	F002	1
Xylene/Mineral Spirits	F003	2
Naphtha	D001	15
1,1,1-TCA (30%)/Mineral Spirits (70%)	F001	5

The containment feature of the Hazardous Waste Drum Storage Area does not allow for precipitation run-on to enter, but accumulation can occur. VWR evaluates the presence of precipitation and other liquids accumulated in the containment area based on layering, discoloration, foreign matter, and odor. If the liquid in the containment area is determined not to be contaminated, a portable pump is placed in the southeast corner of the storage area. The liquid (water) will flow into the paved area in a westerly direction to within 10 feet of the fence line. It will then flow southeasterly across the yard to a municipal storm sewer located along the south property line. This drainage flow path is dictated by the on-site topography (Sims 1990). If the liquid appears to be contaminated, it will be sampled and analyzed by a laboratory for RCRA-listed and characteristic waste. If the liquid is found by analyses to be clean, it will be pumped out as described above. If it is contaminated, it will be pumped into drums or absorbed by an industrial absorbent and properly disposed (MCC 1984b).

VWR visually inspects the concrete pad daily for cracks. This is a RCRA-regulated unit.

At the time of the E & E/FIT VSI on May 15, 1990, a small amount of water due to precipitation was present in the drum storage area. The hazardous waste drum storage area is in good condition and the drums stored in the area were also were in good condition. The likelihood of a release from this unit is very minimal.

5.1.2 Further Information Needs

No information is required at this time.

5.2 ELEMENTARY NEUTRALIZATION TANK

5.2.1 Information Summary

This unit is an in-ground tank (Appendix A; Photo 10) used for the accumulation of various mineral acids and caustics which result from the rinsing and refilling of reusable/returnable sulfuric, hydrochloric, and phosphoric acid, caustic soda, and bleach containers (Nisler 1981a). The tank is located in the southeastern part of the blacktopped area of the facility (Figure 2-2). The tank was constructed in 1976 (Schmid 1990).

The tank is made of concrete and has a 65-mL thick replaceable blanket-like polyvinyl chloride (PVC) liner. According to VWR, the tank has always been used with a liner (Schmid 1990). This liner is changed periodically to prevent the contents of the tank from contacting the concrete wall of the tank. The spent PVC liners are triple rinsed, cut up, and placed in poly-drums. The tank has no outlets through its concrete walls. It has a design capacity of 1,500 gallons and is fully covered by a wooden top (Nisler 1981a). During the May 1990 VSI, VWR removed the top of the tank, revealing the liner. The concrete below the liner could not be seen. The portions of the unit that were visible appeared to be in good condition.

The likelihood of a release from this unit is high, if cracks are present in the concrete of the tank and its contents are allowed to contact the concrete. However, the tank has always been used with the liner, thus reducing the likelihood of damage to the concrete resulting

from the contact with corrosive materials. Therefore, the likelihood of a release from this unit is low.

The effluent generated by the rinsing and refilling process is pumped directly into the tank and is held until 8 to 10 inches of freeboard remains. The pH of this effluent initially ranges from 2 to 12 and is neutralized to between 6 and 7. After neutralization, the waste is pumped out from the top by means of a portable pump into the local sanitary sewer. This waste is considered hazardous prior to neutralization because it has the characteristic of corrosivity, a D002 waste (Nisler 1981a). VWR generates approximately 900 gallons of rinsing/refilling effluent every two weeks (KDHE 1989). VWR does not regularly inspect the concrete of the tank. A visual inspection is performed when the liner is changed, but it is not known how thorough this inspection is. This unit is a SWMU, but it is not regulated under RCRA because elementary neutralization units are exempted.

5.2.2 Further Information Needs

No information is required at this time.

5.3 SATELLITE ACCUMULATION AREA

5.3.1 Information Summary

VWR maintains a small satellite accumulation area directly to the east of the Chemical Repackaging and Drum Rinsing Building (Appendix A; Photo 12). VWR drums solvent rinsate generated from the rinsing and refilling of reusable solvent drums. At the time of the VSI on May 15, 1990, VWR had two 55-gallon (green) drums in this area. One drum contained waste isopropyl alcohol, a D001, flammable characteristic waste. The other drum contained waste trichloroethene, an F001 waste. VWR stores only two drums at a time in this area (Sims 1990). None of the VWR representatives were sure the length of time that a drum might remain in this area (Sims 1990; Linos 1990). These drums are moved to the hazardous waste storage area, manifested, and transported off site to HRI for recycling (E & E/FIT 1990). This area has no containment. This unit is a SWMU, but it is not regulated under RCRA.

5.3.2 Further Information Needs

No information is required at this time.

5.4 WASTE LINER STORAGE AREA

5.4.1 Information Summary

This storage area is located south of the Satellite Accumulation Area (Figure 2-2). This unit consists of two poly-drums used to store the spent liners from the in-ground neutralization tank. The liner in the in-ground tank is periodically changed. After the liner is removed, it is triple rinsed, cut up, and placed in the poly-drums. One liner fills approximately two drums. No more than one liner (two drums) is stored on site at a time. The poly-drums are transported to HRI and are ultimately disposed in a hazardous waste landfill. There is no containment for this unit, but because the liners are triple rinsed before storage, the likelihood of a release from this unit is very low. This unit is a SWMU because it handles solid waste, but it is not regulated under RCRA.

5.4.2 Further Information Needs

No information is required at this time.

SECTION 6: SUMMARY

The E & E/FIT was tasked under the U.S. EPA's EPI program to conduct a background review and VSI of the VWR site located in Wichita, Kansas. The VSI was conducted on May 15, 1990, in coordination with RCRA and company officials.

VWR is a distributor of organic and inorganic chemicals for industrial use. The major chemicals handled by VWR include solvents, corrosives, and caustics. Only a limited amount of repackaging occurs at this facility. Most chemicals are distributed in the form in which they are received.

In the past, as a service to some of its customers, VWR also picked up and temporarily stored spent solvent waste streams. Once a complete shipment of 60 drums was accumulated, the load was transported off site to a recycling facility. Currently most of the wastes VWR picks up from its customers are transported directly to a recycling facility and are not stored on site.

VWR generates some waste caustic and corrosive waste as well as some solvent waste from its repackaging operations. The caustic and corrosive waste flows into an in-ground tank where it is eventually neutralized and pumped into the sanitary sewer. The solvent waste is drummed, manifested, and transported off site for recycling. VWR plans to discontinue repackaging operations in the near future.

During the May 15, 1990, VSI, no evidence of spillage, improper waste management practices, or other problems were observed. The VWR facility and its operations appeared to be very clean. VWR is currently regulated under RCRA and has been since the facility notified EPA of hazardous waste activity under RCRA on August 18, 1980. The facility began operations on October 1, 1959, as the McKesson Chemical Company. On October 31, 1986, MCC was sold to VWR, a division of the Univar Corporation. VWR has continued similar operations at the facility.

A RCRA Part B permit was prepared by MCC in 1983, and was approved by EPA in August 1984 and by KDHE in September 1984. The permits are

effective until September 1994. KDHE is the lead agency for the facility and performs annual RCRA compliance inspections.

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APPENDIX A

SITE PHOTOGRAPHS

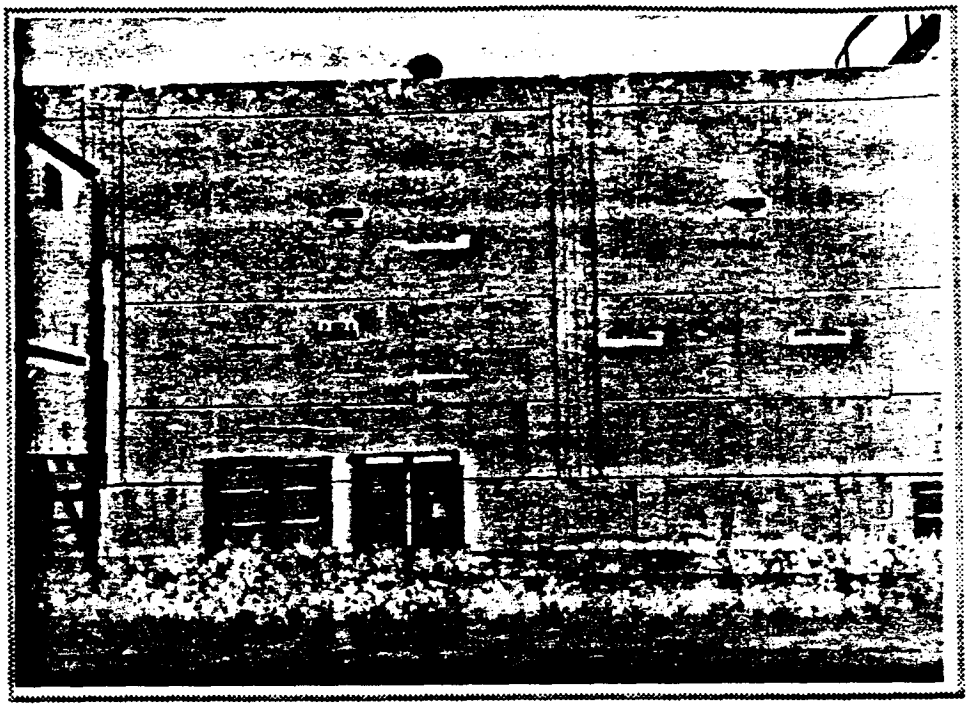
ecology and environment, inc.

PHOTOGRAPHIC RECORD

SITE NAME: VWR
SITE LOCATION: Wichita, KS
TDD/PAN#: F-07-9001-010/ FKS0283RA

No.: 1
Subject
Hazardous waste drum storage area.

Photographer
P. Roberts
Witness
A. Melia
Date/Time
05/15/90 12:45 hrs.
Direction
North

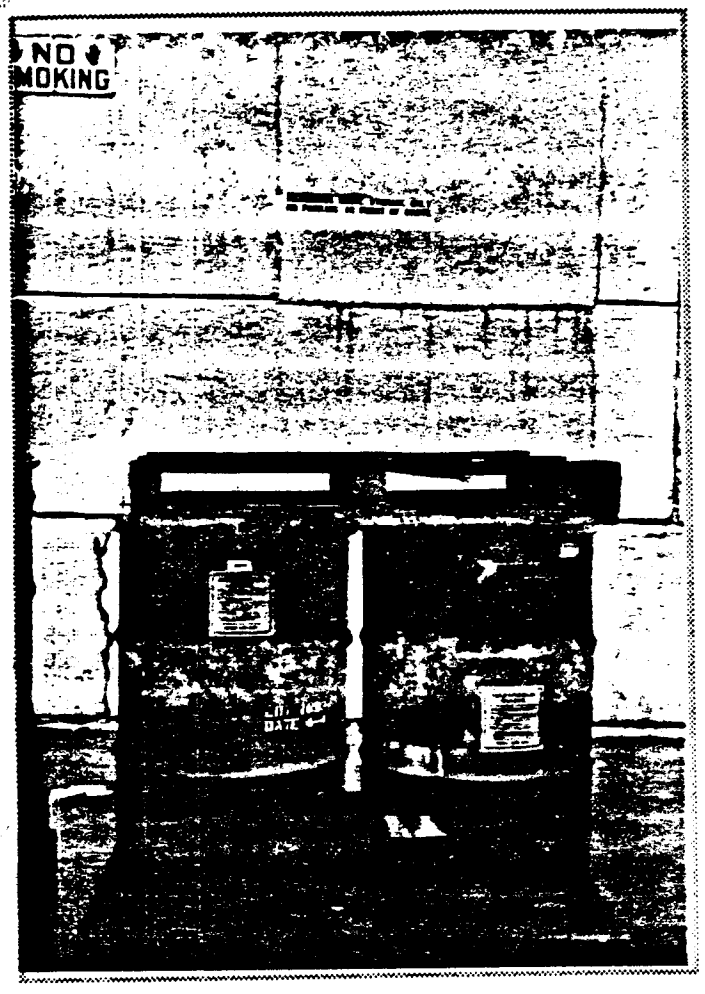


No.: 2
Subject
Drums in hazardous waste storage area
(2 drums of waste N-propanol
1 drum of waste toluene/xylene)

Photographer
P. Roberts
Witness
A. Melia
Date/Time
05/15/90 12:47 hrs.
Direction
North

ecology and environment, inc.

PHOTOGRAPHIC RECORD



SITE NAME: VWR
SITE LOCATION: Wichita, KS
TDD/PAN#: F-07-9001-010/ FKS0283RA

No.: 3
Subject

Drums in hazardous waste storage area
(1 drum of trichloroethene
1 drum of methylene chloride)

Photographer

P. Roberts
Witness

A. Melia
Date/Time

05/15/90 12:49 hrs.
Direction

North

No.: 4
Subject

Empty drum storage.

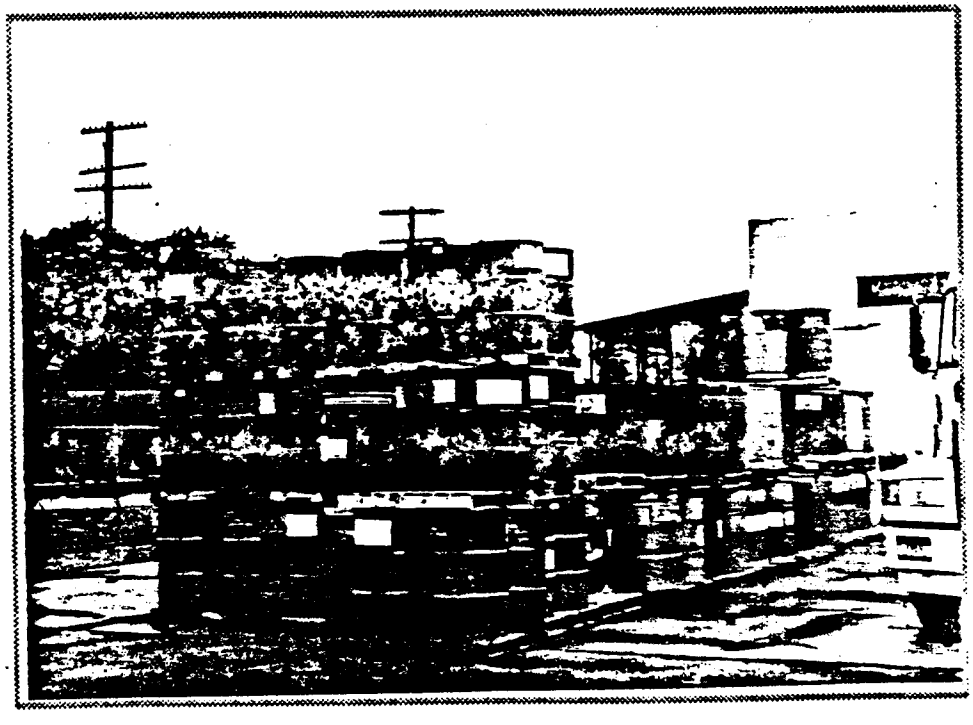
Photographer

P. Roberts
Witness

A. Melia
Date/Time

05/15/90 12:52 hrs.
Direction

Northwest



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PHOTOGRAPHIC RECORD

SITE NAME: VWR
SITE LOCATION: Wichita, KS
TDD/PAN#: F-07-9001-010/ FKS0283RA

No.: 5
Subject
Compressed gas storage.

Photographer
P. Roberts
Witness
A. Melia
Date/Time
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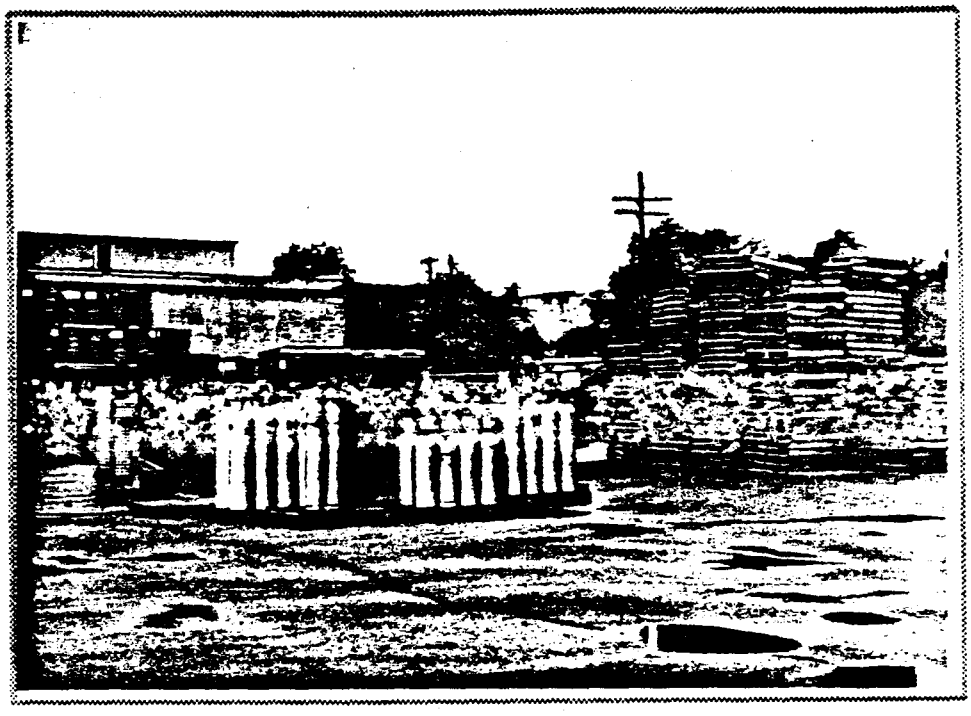
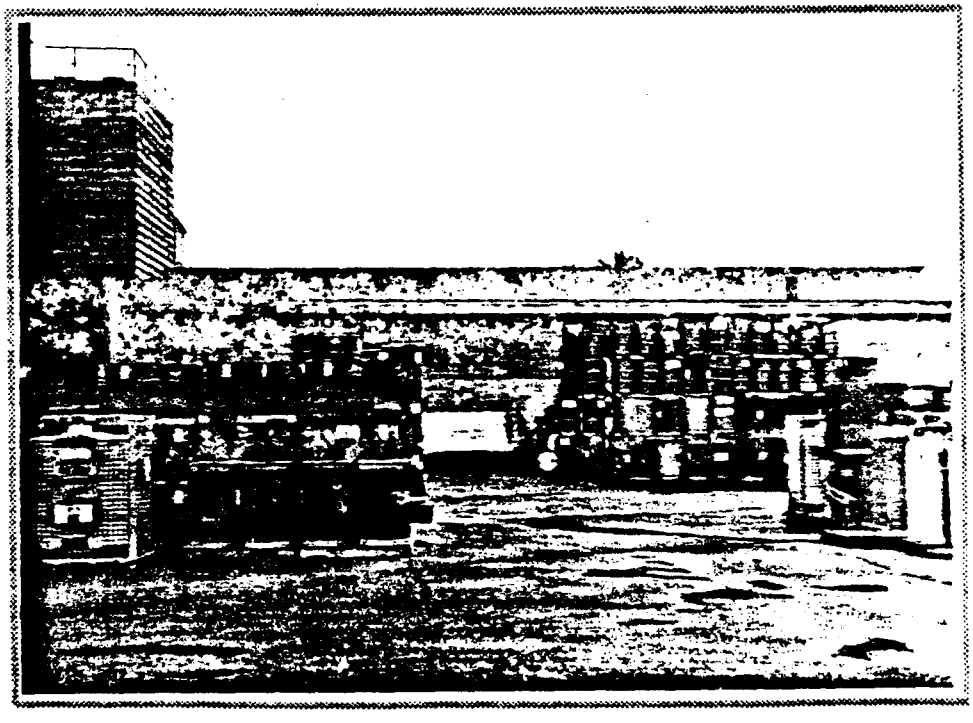
Direction
Southwest



No.: 6
Subject
Flammable and corrosive product storage.

Photographer
P. Roberts
Witness
A. Melia
Date/Time
05/15/90 13:10 hrs.
Direction
South



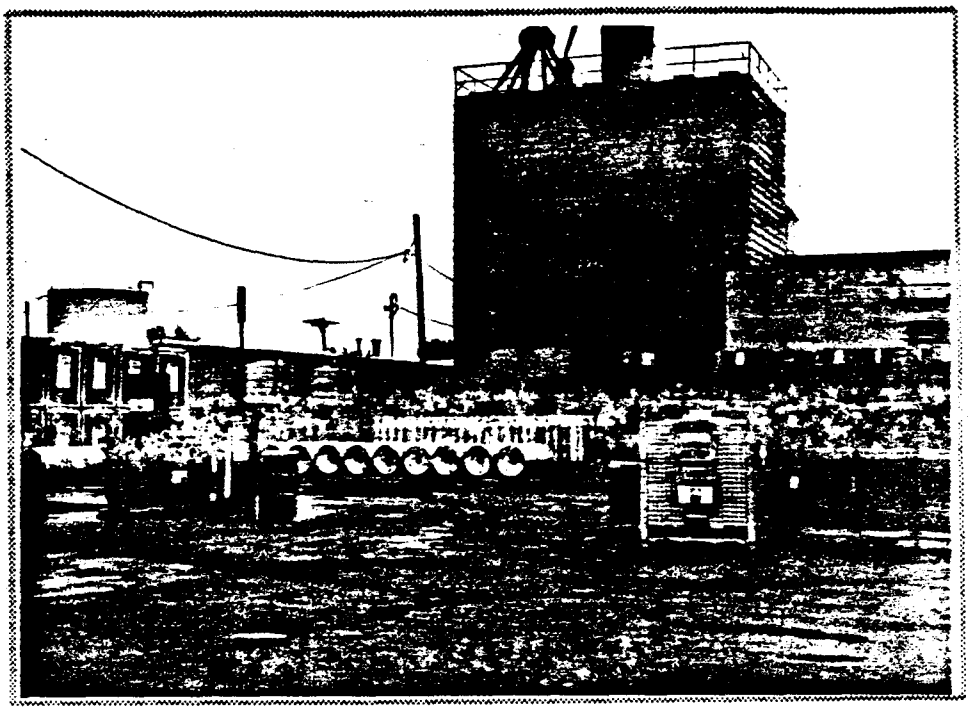
ecology and environment, inc.

PHOTOGRAPHIC RECORD

SITE NAME: VWR
SITE LOCATION: Wichita, KS
TDD/PAN#: F-07-9001-010/ FKS0283RA

No.: 7
Subject
Product and compressed gas storage.

Photographer
P. Roberts
Witness
A. Melia
Date/Time
05/15/90 13:12 hrs.
Direction
Southeast



No.: 8
Subject
Repackaged product storage.

Photographer
P. Roberts
Witness
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Date/Time
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Direction
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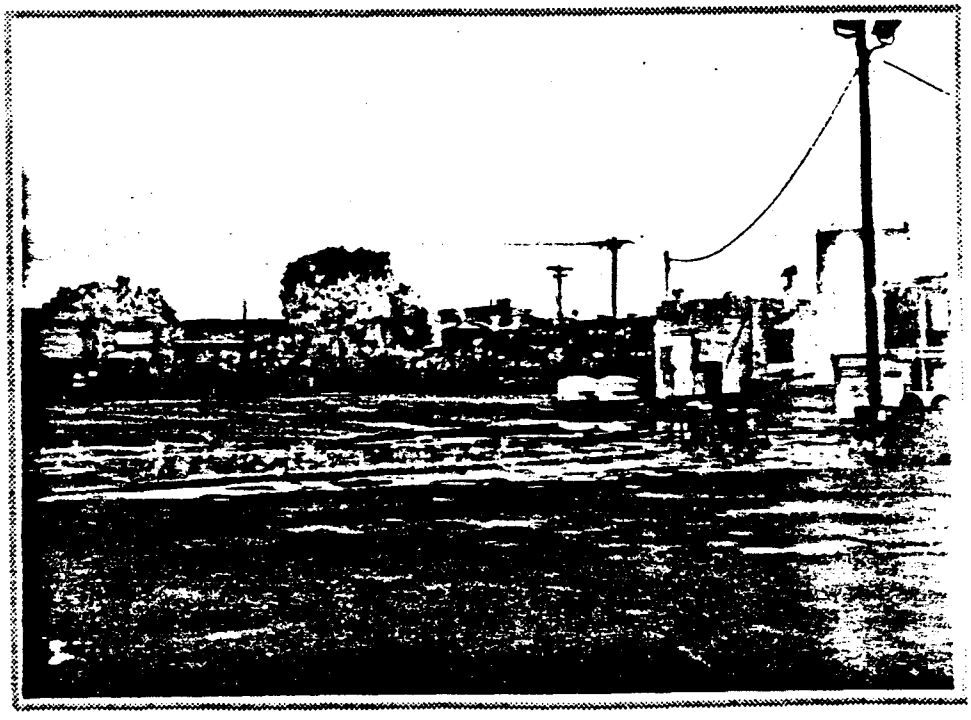

ecology and environment, inc.

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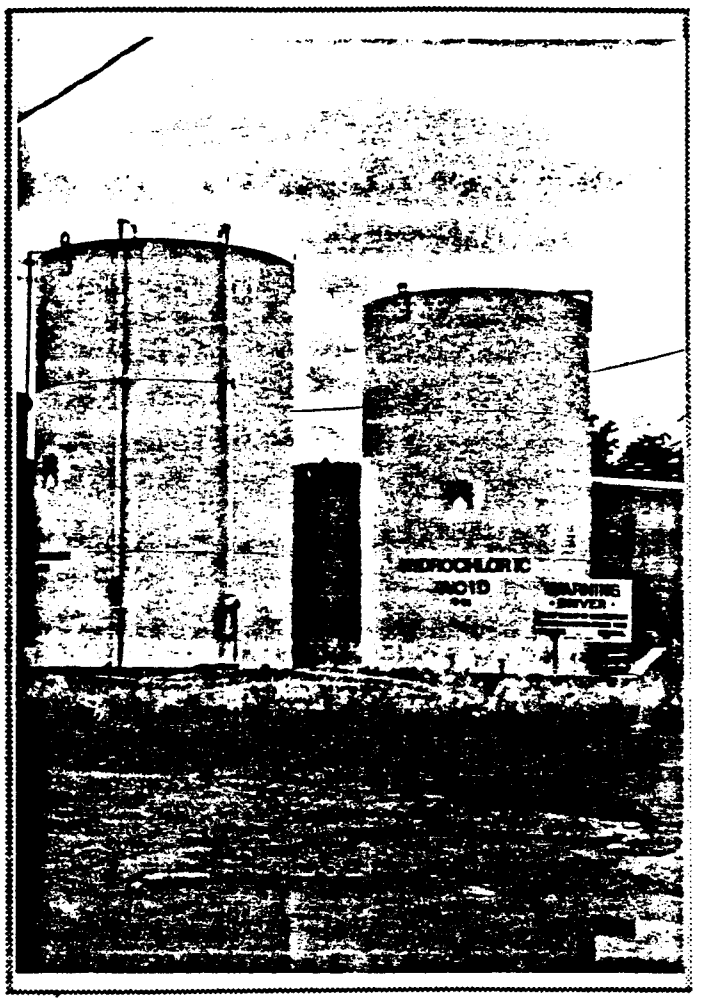

SITE NAME: VWR
SITE LOCATION: Wichita, KS
TDD/PAN#: F-07-9001-010/ FKS0283RA

No.: 9
Subject
Bulk product storage.

Photographer
P. Roberts
Witness
A. Melia
Date/Time
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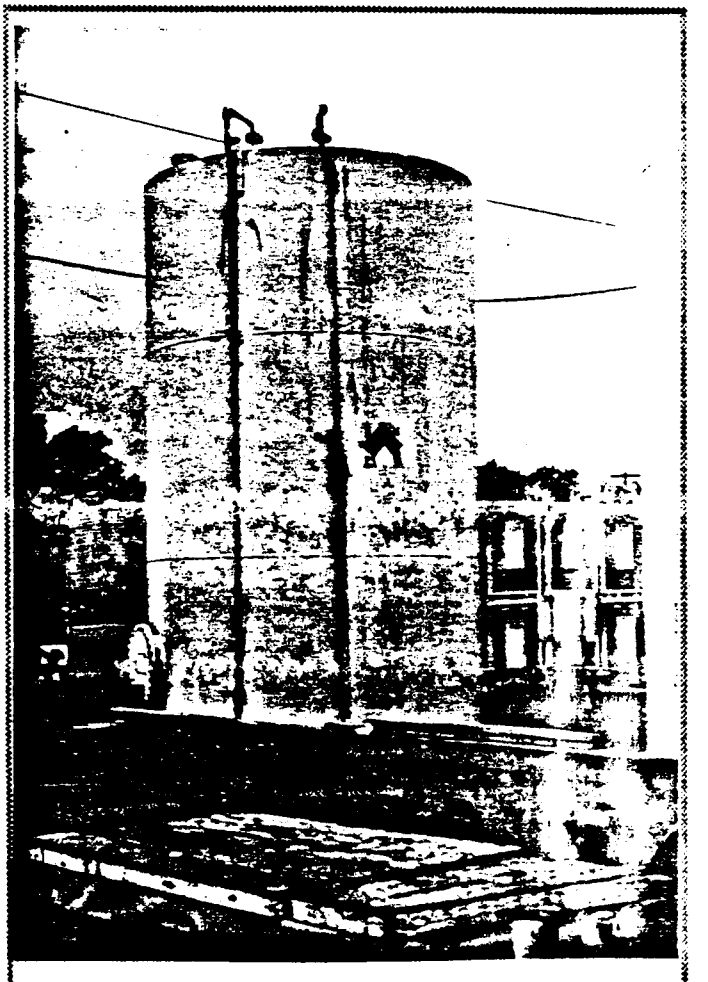
Direction
South

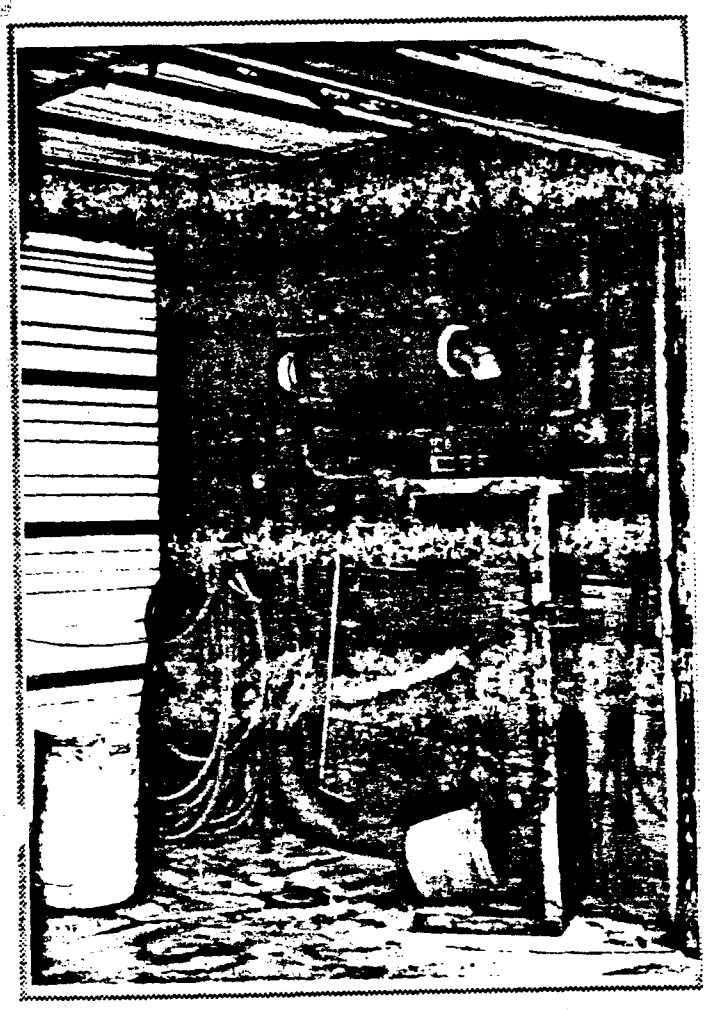


No.: 10
Subject
Elementary neutralization tank.

Photographer
P. Roberts
Witness
A. Melia
Date/Time
05/15/90 13:27 hrs.
Direction
North

ecology and environment, inc.

PHOTOGRAPHIC RECORD



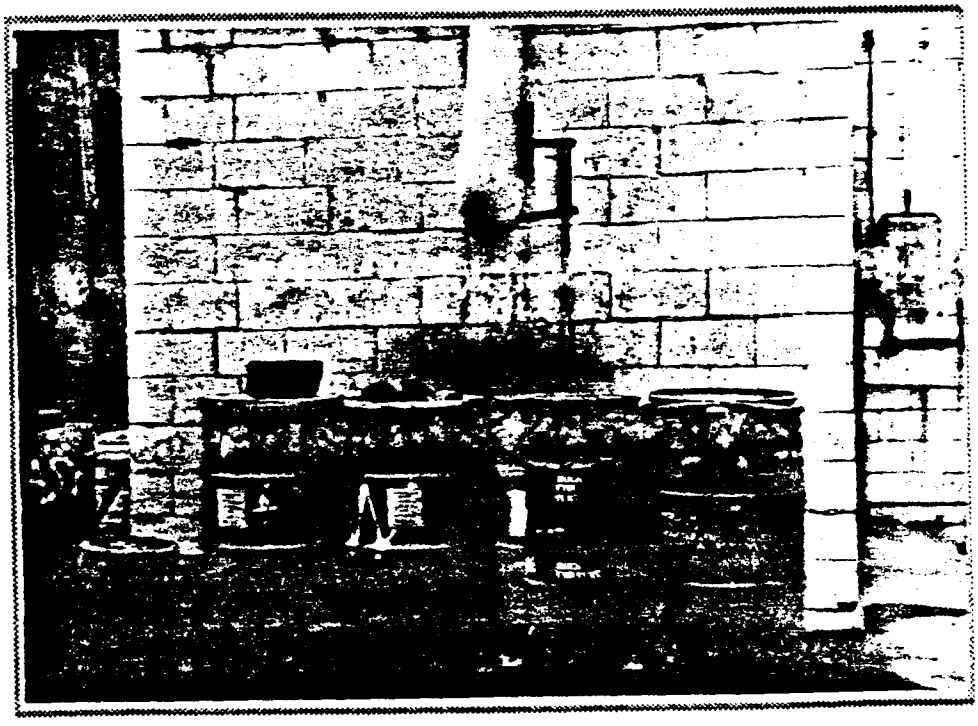
SITE NAME: VWR
SITE LOCATION: Wichita, KS
TDD/PAN#: F-07-9001-010/ FKS0283RA

No.: 11
Subject
Repackaging area building.

Photographer
P. Roberts
Witness
A. Melia
Date/Time
05/15/90 13:30 hrs.
Direction

No.: 12
Subject
Satallite accumulation area.

Photographer
P. Roberts
Witness
A. Melia
Date/Time
05/15/90 13:33 hrs.
Direction
West



APPENDIX B

EPA PRELIMINARY ASSESSMENT FORM 2070-12

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
KS	D000809715

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
VWR (Van Waters & Rogers)	2041 N. Mosely				
03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Wichita	KS	67201	Sedgwick	SG	
09 COORDINATES LATITUDE	LONGITUDE				
37° 43' 15" N	097° 19' 38" W				

10 DIRECTIONS TO SITE (Starting from nearest public road)

The site is located on Mosely approximately one half block south of 21st Street.

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)		
Univar Corporation	1600 Norton Building		
03 CITY	04 STATE	05 ZIP CODE	06 TELEPHONE NUMBER
Seattle	WA	98101	(206)447-5911
07 OPERATOR (If known and different from owner)	08 STREET (Business, mailing, residential)		
VWR	2041 N. Mosely		
09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER
Wichita	KS	67201	(316)267-6292

13 TYPE OF OWNERSHIP (Check one)

X A. PRIVATE ___ B. FEDERAL: _____ (Agency name) ___ C. STATE ___ D. COUNTY ___ E. MUNICIPAL

___ F. OTHER: _____ (Specify) ___ G. UNKNOWN

OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)

X A. RCRA 3001 DATE RECEIVED: 08/18/80 (MO/DAY/YR) ___ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: (MO/DAY/YR) ___ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION

X YES DATE 05/15/90 (MO/DAY/YR)

___ NO

BY (Check all that apply)

X A. EPA X B. EPA CONTRACTOR X C. STATE ___ D. OTHER CONTRACTOR

___ E. LOCAL HEALTH OFFICIAL ___ F. OTHER: _____ (Specify)

CONTRACTOR NAME(S): Ecology and Environment, Inc.

02 SITE STATUS (CHECK ONE)

X A. ACTIVE ___ B. INACTIVE ___ C. UNKNOWN

03 YEARS OF OPERATION

10/01/59 (BEGINNING YEAR) Unknown (ENDING YEAR) ___ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

The facility stores and transports waste solvents such as trichloroethene, trichloroethane, xylene, and mineral spirits.

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

Very little or no potential hazard to the population or environment is posed by this facility.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous conditions and Incidents)

___ A. HIGH (Inspection required promptly) ___ B. MEDIUM (Inspection required) X C. Low (Inspect on time available basis) ___ D. NONE (No further action needed. Complete current disposition form)

VI. INFORMATION AVAILABLE FROM

CONTACT	02 OF (Agency/Organization)		03 TELEPHONE NUMBER
Mark Matthews	EPA RCRA		(913)551-7635
04 PERSON RESPONSIBLE FOR ASSESSMENT	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NUMBER	08 DATE
Anne Melia		E & E/FIT	(913)432-9961	10/01/90 (MO/DAY/YR)

VWR

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION	
01 STATE KS	02 SITE NUMBER D000809715

I. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

___A. SOLID ___E. SLURRY
___B. POWDER, FINES X F. LIQUID
___C. SLUDGE ___G. GAS
___D. OTHER _____ (Specify)

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

TONS _____
CUBIC YARDS _____
NO. OF DRUMS 7

03 WASTE CHARACTERISTICS (Check all that apply)

X A. TOXIC ___E. SOLUBLE X I. HIGHLY VOLATILE
X B. CORROSIVE ___F. INFECTIOUS ___J. EXPLOSIVE
___C. RADIOACTIVE X G. FLAMMABLE ___K. REACTIVE
___D. PERSISTENT ___H. IGNITABLE ___L. INCOMPATIBLE
___M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS	167	Drums	55-gallon drums per month
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS	900	gallons	waste generated every two weeks
BAS	BASES			
MES	HEAVY METALS			

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

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
SOL	Dichloromethane	75-09-2	55-gallon drum/recycled		
SOL	1,1,1-Trichloroethane	71-55-6	55-gallon drum/recycled		
SOL	Trichloroethene	79-01-6	55-gallon drum/recycled		
SOL	Acetone	67-64-1	55-gallon drum/recycled		
SOL	Tetrahydrofuran	109-99-9	55-gallon drum/recycled		
SOL	Cyclohexanone	108-94-1	55-gallon drum/recycled		
SOL	Xylene	1330-20-7	55-gallon drum/recycled		
SOL	Methyl Ethyl Ketone	78-93-3	55-gallon drum/recycled		
SOL	Mineral Spirits	8030-30-6	55-gallon drum/recycled		
SOL	Naptha	8030-30-6	55-gallon drum/recycled		
ACD	Hydrochloric Acid	7647-01-0	55-gallon drum/recycled		
ACD	Sulfuric Acid	7664-93-9	55-gallon drum/recycled		
ACD	Phosphoric Acid	7664-38-2	55-gallon drum/recycled		
BAS	Sodium Hydroxide	1310-73-2	55-gallon drum/recycled		

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

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

KDHE: Stuckey, Dale T., February 2, 1989 RCRA Compliance Inspection.
E & E/FIT May 15, 1990, Visual Site Inspection.

VWR

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE KS	02 SITE NUMBER D000809715

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ___ A. GROUNDWATER CONTAMINATION — 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
None known - not likely.

01 ___ B. SURFACE WATER CONTAMINATION — 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
None known - not likely.

01 ___ C. CONTAMINATION OF AIR — 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
None known.

01 ___ D. FIRE/EXPLOSIVE CONDITIONS — 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
None known.

01 ___ E. DIRECT CONTACT — 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
None known.

01 ___ F. CONTAMINATION OF SOIL — 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED
03 AREA POTENTIALLY AFFECTED: _____ (Acres) 04 NARRATIVE DESCRIPTION
None known.

01 ___ G. DRINKING WATER CONTAMINATION — 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
None known, not likely.

01 ___ H. WORKER EXPOSURE/INJURY — 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
None known.

01 ___ I. POPULATION EXPOSURE/INJURY — 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
None known.

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
KS	D000809715

II. HAZARDOUS CONDITIONS AND INCIDENTS (CONTINUED)

01 ___ J. DAMAGE TO FLORA — 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED

04 NARRATIVE DESCRIPTION

None known - not likely.

01 ___ K. DAMAGE TO FAUNA — 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED

04 NARRATIVE DESCRIPTION (Include name(s) of species)

None known - not likely.

01 ___ L. CONTAMINATION OF FOOD CHAIN — 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED

04 NARRATIVE DESCRIPTION

None known - not likely.

01 ___ M. UNSTABLE CONTAINMENT OF WASTES — 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED

(Spills/runoff/standing liquids/leaking drums)

03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

None observed.

01 ___ N. DAMAGE TO OFFSITE PROPERTY — 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED

04 NARRATIVE DESCRIPTION

None known.

01 ___ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED

04 NARRATIVE DESCRIPTION

None known.

01 ___ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED

04 NARRATIVE DESCRIPTION

None known.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

None known.

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS

VWR is a distributer of organic and inorganic chemicals for industrial use. They repackage a limited quantity of chemicals and transport hazardous wastes to their customers.

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

EPA and KDHE Site Files.
E & E/FIT, May 15, 1990, Visual Site Inspection.

APPENDIX C

WASTE CHARACTERISTICS DATA SHEETS

Acetone

Acetone is a colorless, volatile, liquid with a sweetish odor. It is used as an intermediate for other ketones, paint, and cellulose acetate solvent. Also known as 2-propanone, acetone is often used as a solvent to clean precision equipment, and to extract substances from animal and plant tissues (ITTI 1979).

The solubility of acetone is 2,300,000 mg/l and it has a vapor pressure of 231.5 Torr at 25°C (ITII 1979). Transport and fate information is not available for acetone; however, based on its characteristics it can be expected to be fairly biodegradable. This compound is likely to volatilize, and migrate freely in ground and surface water.

Exposure to acetone may cause conjunctivitis, corneal erosion, headache, weariness, gastritis, nausea, vomiting, lethargy, and paralysis (ITII 1979). No Maximum Contaminant Level (MCL) has been established for acetone.

Bibliography

The International Technical Information Institute, 1979, Toxic and Hazardous Industrial Chemicals Safety Manual, Tokyo, Japan.

Methylene Chloride

Methylene chloride, also referred to as dichloromethane, is a colorless, volatile liquid, with a penetrating odor similar to that of ether. This compound is not flammable. Methylene chloride is used in paint removers, degreasing and cleaning fluids; as a solvent for cellulose acetate; in extraction fluids; as a blowing agent; and in dewaxing processes. It also is used in refrigeration, and as a fumigant (ITII 1979). Methylene chloride has been identified as a contaminant in petroleum products and wastes.

At 20°C, the solubility of methylene chloride has been measured in the range of 13,200 to 20,000 milligrams per liter (mg/l). This compound has a vapor pressure of 362.4 Torr and a log octanol/water partition coefficient of 1.25 (EPA 1979).

The primary environmental fate of methylene chloride is volatilization; photolysis and hydrolysis are not significant. Methylene chloride is photodissociated in the stratosphere. In the troposphere it is attacked by hydroxyl radicals. Adsorption onto soil and sediment is possible, though the significance of this migration pathway is not known. Based on its log octanol/water partition coefficient, methylene chloride is not likely to bioaccumulate in organisms. It is thought that methylene chloride can be biodegraded by properly acclimatized microorganisms (EPA 1979).

Human exposure to methylene chloride can cause irritation to the eyes and respiratory tract; headache, dizziness, and stupor; nausea and vomiting; anemia; skin inflammation and burns; and unconsciousness (ITII 1979). There is no maximum contaminant level (MCL) for methylene chloride in drinking water. The aquatic freshwater chronic lowest observed effect level (LOEL) for methylene chloride is 9,650 µg/l, indicating that it is not extremely toxic to aquatic life (EPA 1986).

Bibliography

The International Technical Information Institute, 1979, Toxic and Hazardous Industrial Chemicals Safety Manual, Tokyo, Japan.

U.S. Environmental Protection Agency, 1979, Water-Related Fate of 129 Priority Pollutants, Vol. 2, Washington, D.C.

U.S. Environmental Protection Agency, 1986, "Quality Criteria for Water".

WASTE CHARACTERISTICS (2/90)
Xylene

Xylene exists in the form of three isomers: ortho-xylene and meta-xylene are colorless, flammable liquids; para-xylene exists as colorless plates and prisms. Commercial xylene contains various amounts of the three isomers, with the meta-isomer occurring in the highest concentration of the three. Xylene is used as a solvent. It is a constituent in paint, lacquers, dyes, adhesives, cements, cleaning fluids, insecticides; and aviation fuel; and is a feedstock in the production of xylidines, benzoic acid, phthalic anhydride, isophthalic and terephthalic acids and their esters which are employed in the manufacture of plastic materials and synthetic textile fabrics. The compound also is used in pharmaceutical synthesis (Sittig 1985; ITII 1979; Windholz 1976). Xylene is found as a contaminant in ethylbenzene, toluene, trimethylbenzene, phenol, thiophene, pyridine, and other non-aromatic hydrocarbons. Common synonyms for xylene include xylol and dimethyl benzene (Sittig 1985).

No information concerning environmental fate and transport pathways for xylene is readily available. The following chart details vapor pressures (V.P.), water solubilities (SOL) and log octanol/water partition coefficients (log P) for the three xylene isomers.

Physical Property Data for Xylenes

isomer	V.P. (Torr, 25°C)	SOL (mg/l, 25°C)	Log P
ortho-	10	175	2.95
meta-	10	130	3.26
para-	10	198	3.15
mixed(commercial)	10	198	3.26

Source: EPA 1986

Some environmental fate and transport processes can be postulated using these data. The vapor pressure of 10 measured for all isomers indicates that volatilization of xylene should be a significant aquatic fate. The Log P values ranging from 2.95 to 3.15 indicate that xylene

Bibliography

Arthur D. Little, March 1981, An Exposure and Risk Assessment for Trichloroethene, Final Draft Report, prepared for the U.S. Environmental Protection Agency Office of Water and Wastewater, Washington, D.C.

Demarco, Jack, 1983, "History of Treatment of Volatile Organic Chemicals in Water," in Occurrence and Removal of Volatile Organic Chemicals from Drinking Water, AWWA Research Foundation, Denver, Colorado.

The International Technical Information Institute, 1979, Toxic and Hazardous Industrial Chemicals Safety Manual, Tokyo, Japan.

Kleopfer, Robert D, Diane M. Easley, Bernard B. Hass Jr., and Trudy G. Delhi, 1985, "Anaerobic Degradation of Trichloroethylene in Soil," Environmental Science and Technology: 19(3), pp. 277-280.

Parsons, Francis, Paul R. Wood, Jack Demarco, 1984, "Transformations of Tetrachloroethene and Trichloroethene in Microcosms and Groundwater," Journal of the American Water Works Association: 76(3), pp. 56-59.

U.S. Environmental Protection Agency, 1979, Water-Related Fate of 129 Priority Pollutants, Vol. 2, Washington, D.C.

U.S. Environmental Protection Agency, 1986, "Quality Criteria for Water."

U.S. Environmental Protection Agency, July 1987, "EPA Regulatory Status for Chemicals in Drinking Water."

Toluene

Toluene is a clear, colorless, flammable liquid with a sweet, slightly pungent odor, similar to that of benzene. Other common synonyms for toluene are toluol and methylbenzene. Toluene is used in the manufacture of toluene diisocyanate, phenol, benzy and benzoyl derivatives, benzoic acid, toluene sulfonates, nitrotoluenes, vinyl toluene, and saccharin; as a solvent for paints and coatings; and is a component of automobile and aviation fuels. Toluene also is encountered during the manufacture of benzene (Sittig 1985).

At 25°C, toluene has a vapor pressure of 28.7 Torr and a water solubility of 534.8 mg/l. Its log octanol/water partition coefficient (log P) is 2.69. The most prevalent photochemical reaction of this compound is dissociation and the formation of the benzyl radical. Toluene is readily oxidized by molecular oxygen in the liquid phase, but the presence of water inhibits this reaction. No data pertinent to the oxidation of toluene in environmental waters is available. No experimental evidence indicates the hydrolysis of toluene in natural waters. Experimental evidence does suggest that volatilization of toluene is expected to be significant based, as does its vapor pressure of 28.7 Torr at 25°C (EPA 1979).

Based on its log P, toluene is expected to sorb to soil and sediment organic matter. Sorption may interfere with volatilization, but the extent to which this occurs is unknown. No direct information is available concerning the bioaccumulation potential of toluene, although it is not expected to bioaccumulate. Some experimental evidence indicates that substances with water solubilities greater than 50 mg/L tend not to bioaccumulate in aquatic organisms. Soil microbial populations are able to utilize toluene as a sole carbon source. Toluene is converted to cresols and catechols and then metabolized to acetic acid and pyruvic acid. Mammals oxidize toluene to benzoic acid which then reacts with clycine to form hippuric acid. Hippuric acid is readily excreted in urine (EPA 1979).

The EPA has proposed a drinking water maximum contaminant level (MCL) of 2,000 µg/l (EPA 1987). The freshwater aquatic acute lowest observed effect level (LOEL) for toluene is 17,500 µg/l (EPA 1986).

Localized exposure to toluene can cause eye, skin, and upper respiratory tract irritation. Continued skin exposure can lead to the removal of skin lipids which produces a dry, fissured dermatitis. Toluene splashed into the eyes may lead to irreversible damage. Systemic exposure effects include central nervous system depression characterized by headache, fatigue, dizziness, muscular weakness, drowsiness, incoordination, and collapse (Sittig 1985).

Sittig, Marshall, 1985, Handbook of Toxic and Hazardous Chemicals and Carcinogens, 2nd. ed., Noyes Publications, Park Ridge, New Jersey.

U.S. Environmental Protection Agency, 1979, Water Related Fate of 129 Priority Pollutants, Vol. 2, Washington, D.C.

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1,1,1-Trichloroethane

The compound 1,1,1-trichloroethane (1,1,1-TCA) is also known as methyl chloroform. It is used in the manufacture of aerosols, adhesives, textiles, paints, inks, and drain cleaners. Also, 1,1,1-TCA is an excellent solvent for greases, oils, tars, waxes, and organic materials, and is increasingly used in this application to replace trichloroethene. Use restrictions have been placed on trichloroethene because of its toxicity (ITII 1979; Little, Inc. 1982; JRB Assoc. 1982).

At room temperature 1,1,1-TCA is a volatile, colorless liquid. It has a vapor pressure of 96.0 Torr and a water solubility of 480 to 4,400 micrograms per liter (μg/l) at 20°C. The measured log octanol/water partition coefficient for 1,1,1-TCA is 2.17 (EPA 1979). The compound 1,1,1-TCA is produced by three different processes. The main process involves mixing vinyl chloride, hydrogen chloride, a ferric chloride catalyst, ammonia, chlorine, and stabilizers. Vinyl chloride is first converted to 1,1-dichloroethane, then the 1,1-dichloroethane is chlorinated to form 1,1,1-TCA. The second process involves the hydrochlorination of 1,1-dichloroethene in a ferric chloride catalyst. The third process that produces 1,1,1-TCA is the direct chlorination of ethane, which also yields 1,1-dichloroethane, 1,2-dichloroethane, ethyl chloride, 1,1-dichloroethene, vinyl chloride, and 1,1,2-dichloroethane. The vinyl chloride and 1,1-dichloroethene are recycled by catalytic hydrochlorination to 1,1-dichloroethane and 1,1,1-TCA (Little, Inc. 1982; JRB Assoc. 1982).

Volatilization is the major transport mechanism through which 1,1,1-TCA is dispersed throughout the environment. Once it has been volatilized into the atmosphere and troposphere, 1,1,1-TCA can be washed back to the lithosphere and hydrosphere during precipitation events. The atmospheric half-life of 1,1,1-TCA is six to ten years. This allows it to be widely distributed throughout the entire world. In the troposphere and stratosphere 1,1,1-TCA is photooxidized to trichloroacetaldehyde and then to trichloroacetic acid. It is believed that unreacted 1,1,1-TCA that reaches the stratosphere attacks and

depletes the ozone layer. Photolysis and hydrolysis are not significant environmental fate pathways for 1,1,1-TCA in surface water. Hydrolysis is expected, however, to be more important in the ground water environment where volatilization does not occur. The compound 1,1,1-TCA may be adsorbed onto sediments high in organic content. Its measured log octanol/water partition coefficient indicates that it may be bioaccumulated in aquatic life. However, the significance of these pathways is unknown (EPA 1979; Little, Inc. 1982). Under anaerobic conditions, 1,1,1-TCA has been shown to degrade to 1,1-dichloroethane (Demarco 1983).

The freshwater chronic lowest observed effect level (LOEL) for 1,1,1-TCA is 9,400 µg/l, indicating that it is not very toxic to aquatic life (EPA 1986). The maximum contaminant level (MCL) for 1,1,1-TCA in potable water is 200 µg/l (EPA 1987). Human exposure to 1,1,1-TCA can produce conjunctivitis and dermatitis; dizziness and incoordination; mental confusion and drowsiness; and unconsciousness (ITII 1979). Experimental evidence regarding the carcinogenicity of 1,1,1-TCE is conflicting; it is considered to be weakly mutagenic (Little, Inc. 1982).

Bibliography

Arthur D. Little, Inc., July 1982, An Exposure and Risk Assessment for Trichloroethanes, Final Draft Report, prepared for the U.S. Environmental Protection Agency Office of Drinking Water, Washington, D.C.

Demarco, Jack, 1983, "History of Treatment of Volatile Organic Chemicals in Drinking Water," Occurrence and Removal of Volatile Organic Chemicals from Drinking Water, AWWA Research Foundation, Denver, Colorado.

The International Technical Information Institute, 1979, Toxic and Hazardous Industrial Chemicals Safety Manual, Tokyo, Japan.

JRB Associates, Inc., August 1982, Occurrence of 1,1,1-Trichloroethane in Drinking Water, Food, and Air, prepared for the U.S. Environmental Protection Agency Office of Drinking Water, Washington, D.C.

U.S. Environmental Protection Agency, 1979, Water-Related Fate of 129 Priority Pollutants, Vol. 2, Washington, D.C.

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