

PRELIMINARY ASSESSMENT NARRATIVE

Southwestern Portland Cement Co., Landfill #1
Sandhill Road
Fairbom, Ohio 45324
No CERCLIS ID#

Site Background

The Southwestern Portland Cement Company Landfill #1 is located on a 551 acre parcel of land which straddles the border between Clark and Greene counties. The disposal area covers approximately 180 acres. The site is located in a rural area, with the exception of the city of Fairbom and Wright Patterson Air Force Base, which are located just south of the site. The site is bordered to the south by Sandhill Road, to the east by State Route 444, to the west by wooded, residential property, and to the north by Haddix Road.

The property was originally owned by Wabash Portland Cement Company from 1925-1945. It was then owned by Universal Atlas Cement Company, a division of United States Steel Corporation, until December of 1976. Its present owner is Southwestern Portland Cement Company (SWPC), a subsidiary of Southdown Inc. This particular landfill was in operation from February 1945 to December 1975.

During the cement manufacturing process, cement kiln dust (CKD) is generated and captured in the air pollution control equipment. CKD accounts for the majority of the material deposited in the limestone quarries of Landfill #1. The CKD disposal at Landfill #1 is reportedly as much as 40 feet thick. Other materials deposited include spent refractory brick (of which approximately 15% of the bricks contain chromic oxide), scrap metal, tires, paper, and other trash and waste.

Previous Investigations

Due to concerns raised regarding potential impact of Landfill #1 on Mud Run, a stream north of the site and tributary to the Mad River, an investigation was conducted by the Clark County Health Department and the Ohio Environmental Protection Agency (OEPA) in June 1991. Clark County and OEPA collected samples from areas of discolored surface water along the north side of the site where surface water is feeding into Mud Run. SWPC, through their environmental contractor, performed another surface water reconnaissance on August 26, 1991 because of concerns raised by the previously mentioned investigation. In order to determine the presence and chemical characteristics of ground water in the bedrock of Landfill #1, SWPC installed 10 monitoring wells between 1991 and 1992. The results of these investigations are discussed below under the appropriate pathway.

Ground Water Pathway

Landfill #1 is located in the Mad River drainage basin. It is underlain by the Silurian Age Brassfield Formation, consisting of limestone and dolomite. Underneath the Brassfield is Ordovician Age Elkhorn Shale composed of mainly shale with thin layers of limestone and dolomite and thin lenses of sandstone and siltstone in the upper ten feet of the formation. The Ground-Water Resources Map of Clark County shows Landfill #1 to be in an area known as "thin to exceptionally thick unconsolidated glacial deposits above non-waterbearing shaley limestone" in which well yields of 3-10 gallons per minute can be developed. The drinking water wells of greatest concern are those which are located in bedrock, adjacent to the site. These include 5 wells which serve the Haddix Road Apartments and 2 wells which serve residents of the Maple Grove Mobile Home Park. (All of these wells are believed to be within the bedrock aquifer, although well logs were not obtainable.) The population served by these water systems is approximately 200.

As part of Southdown's investigation of Landfill #1, 10 monitoring wells were installed between 1991 and 1992. The wells were installed in order to determine the presence and chemical characteristics of ground water in the bedrock of Landfill #1. Elevated pH was detected in monitoring wells 1, 4, 7, and 8 with the highest pH (12.3) detected in monitoring well 1, which is located at the northeast portion of the site. Elevated aluminum levels were detected in wells 1 (0.480 mg/l), 2 (1.99 mg/l), 4 (3.03 mg/l), and 8 (1.22 mg/l), all of which exceeded the Secondary Maximum Contaminant Level (SMCL) range of 0.05 to 0.2 mg/l. Elevated arsenic levels of 0.076 mg/l and 0.054 mg/l were found in monitoring wells 1 and 4, respectively. The Maximum Contaminant Level (MCL) for arsenic is 0.05 mg/l. Chromium was detected in monitoring well 7 at a level of 0.150 mg/l. The MCL for chromium is 0.1 mg/l. Selenium was detected in monitoring well 8 at 0.055 mg/l, which exceeds the MCL of 0.05 mg/l.

Surface Water Pathway

Due to concerns raised regarding potential impact of Landfill #1 on Mud Run, as mentioned earlier, an investigation was conducted by The Clark County Health Department and the OEPA in June 1991. Clark County and the OEPA collected samples from areas of discolored surface water along the north side of the site where surface water is feeding into Mud Run. Samples were taken from three locations along Mud Run: 1) leachate at the point of entry into Mud Run; 2) a mixing zone in Mud Run 25 feet downstream of the leachate entry point; and 3) Mud Run 75 feet upstream of the leachate entry point. The samples were analyzed for VOCs and metals, and pH measurements were taken. The results of these samples show pH as high as 11.5 and concentrations of copper, lead, zinc,

aluminum and selenium in the leachate sample. Arsenic concentrations at 50 ppb were also detected in the leachate. Elevated copper (34 ppb) and zinc (325 ppb) were reported in the mixing zone. The upstream samples showed no elevated concentrations. No VOCs were detected at any of the three sampling locations.

SWPC, through their environmental contractor, performed a surface water reconnaissance on August 26, 1991 because of the concerns for potential off-site migration of contamination from Landfill #1. Surface water samples were collected at nine locations on the site. These include an area of ponds in the central portion of the site, a creek bed leading from the pond area north to Mud Run, a seep area in the northern portion of the site which drains into Mud Run, and three seeps on the west side of the creek bed half way between the pond area and Mud Run. Field pH and conductivity measurements were taken during the surface water reconnaissance. The highest pH and conductivity measurements were found in Seep 1, located at the base of the slope on the north end of the high area of the site. A continuous flow of water is present between this seep area and Mud Run, located 850 feet northwest. At the head of the seep, pH values were 11.9 and 12.2, and conductivity values were between 9,300 and 11,700 umhos/cm. Additionally, several acres of ponded water were observed on the site.

Soil Pathway

OEPA conducted a site visit on June 3, 1993 and observed that the majority of the 180 acre landfill is marked with open piles of CKD which were dumped randomly throughout the site. The largest amount of CKD is located in the 20 acre quarry area of the landfill where the depth of CKD reaches approximately 40 feet. At the base of the quarry area, stressed vegetation is visible. Exposed kiln brick, CKD, and what appeared to be asbestos siding were noted.

The nearest resident is about 500 feet from the disposal area. The majority of the disposal area is surrounded by tree growth. Entry to the landfill is unrestricted, except for locked gates found at the entrances to the access roads. It is clear that the landfill is used for recreation purposes. The CKD piles are known to be used as a motocross.

Air Migration Pathway

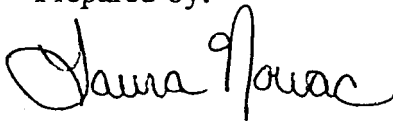
Due to the vast number of open piles, the potential for CKD to be released to the air appears to be high, especially during periods of little precipitation. There are 23 residents living within a quarter mile of the site, and a total of 38,638 residents within the 4-mile target

distance limit. As of this writing, there is no analytical data available regarding the air pathway.

Conclusion

The SWPC Landfill #1 is considered a high priority site by the Ohio EPA. This priority is based on an observed release to ground water and surface water. These releases are characterized by high pH and metals, which may pose a threat to human health and the environment. Also, there is potential for the release of CKD into the air. The site score, using PA-Score methodology, is greater than 28.5. Therefore, a high priority is recommended for future U.S. EPA pre-remedial efforts.

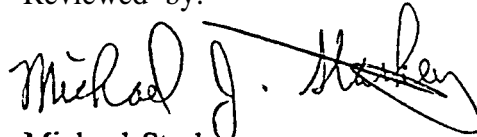
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Date 8/5/93

OMB Approval Number: 2050-0095
 Approved for Use Through: 4/95

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM				IDENTIFICATION		
				State: OH	CERCLIS Number: NONE	
				CERCLIS Discovery Date: 5-6-91		
1. General Site Information						
Name: SW PORTLAND CEMENT CO., LDFL #1			Street Address: SANDHILL ROAD			
City: FAIRBORN	State: OH	Zip Code: 45324	County: GREENE	co. Code: 29	Cong. Dist: 7	
Latitude: 39° 50' 51.0" Longitude: 84° 0' 23.0"		Approx. Area of Site: 551 acres	Status of Site: Inactive			
2. Owner/Operator Information						
Owner: SOUTHWESTERN PORTLAND CEMENT CO.			Operator: SOUTHWESTERN PORTLAND CEMENT CO.			
Street Address: 506 EAST XENIA DRIVE			Street Address: 506 EAST XENIA DRIVE			
City: FAIRBORN			City: FAIRBORN			
State: OH	Zip Code: 45324	Telephone: (513) 878-8651	State: OH	Zip Code: 45324	Telephone: (513) 878-8651	
Type of Ownership: Private			How Initially Identified: Not Specified			

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5. General Site Characteristics

Predominant Land Uses Within 1 Mile of Site: Industrial Commercial Residential Forest/Fields	Site Setting: Rural	Years of Operation: Beginning Year: 1945 Ending Year: 1975
Type of Site Operations: Other Landfill	Waste Generated: Offsite	
	Waste Deposition Authorized By: Former Owner	
	Waste Accessible to the Public Yes	
	Distance to Nearest Dwelling, School, or Workplace: 500 Feet_	

6. Waste Characteristics Information

<table> <tr> <td>Source Type</td> <td>Quantity</td> <td>Tier</td> </tr> <tr> <td>Pile</td> <td>5.22e+07 cu ft</td> <td>V</td> </tr> <tr> <td>Landfill</td> <td>8.71e+07 cu ft</td> <td>V</td> </tr> </table>	Source Type	Quantity	Tier	Pile	5.22e+07 cu ft	V	Landfill	8.71e+07 cu ft	V	General Types of Waste: Metals Inorganics Construction/Demolition Waste Acids/Bases Oily Waste
Source Type	Quantity	Tier								
Pile	5.22e+07 cu ft	V								
Landfill	8.71e+07 cu ft	V								
Tier Legend C = Constituent W = Wastestream V = Volume A = Area	Physical State of Waste as Deposited Solid Liquid: Powder									

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7. Ground Water Pathway

Is Ground Water Used for Drinking Water Within 4 Miles: Yes Type of Ground Water Wells Within 4 Miles: Municipal Private	Is There a Suspected Release to Ground Water: Yes	List Secondary Target Population Served by Ground Water Withdrawn From: 0 - 1/4 Mile 224 >1/4 - 1/2 Mile 48 >1/2 - 1 Mile 32030 >1 - 2 Miles 9230 >2 - 3 Miles 15370 >3 - 4 Miles 25762 Total 82664
Depth to Shallowest Aquifer: 12 Feet	Have Primary Target Drinking Water Wells Been Identified: No	
Karst Terrain/Aquifer Present: No	Nearest Designated Wellhead Protection Area: >0 - 4 Miles	