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FIELD INVESTIGATION TEAM ACTIVITIES AT UNCONTROLLED HAZARDOUS SUBSTANCES FACILITIES — ZONE I

NUS CORPORATION
SUPERFUND DIVISION

02-8704-02-HR
REV. NO. 0

FINAL DRAFT
HAZARD RANKING SYSTEM REPORT
SPAULDING FIBRE COMPANY
TONAWANDA, NEW YORK

PREPARED UNDER

TECHNICAL DIRECTIVE DOCUMENT NO. 02-8704-02
CONTRACT NO. 68-01-7346

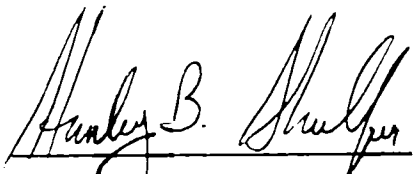
FOR THE

ENVIRONMENTAL SERVICES DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

MAY 31, 1988

NUS CORPORATION
SUPERFUND DIVISION

SUBMITTED BY



STANLEY B. SHULFER
PROJECT MANAGER

REVIEWED/APPROVED BY

RONALD M. NAMAN
FIT OFFICE MANAGER

Contents

Section

SECTION 1

HAZARD RANKING SYSTEM REPORT EXECUTIVE SUMMARY

NUS CORPORATION

02-8704-02-HR
Rev. No. 0

POTENTIAL HAZARDOUS WASTE SITE
HAZARD RANKING SYSTEM REPORT
EXECUTIVE SUMMARY

Spaulding Fibre Co.	NYD000848440
Site Name	**EPA Site ID Number**
310 Wheeler Street Tonawanda, New York 14150	02-8704-02
Address	**TDD Number**

SITE DESCRIPTION

The Spaulding Fibre Company is a privately owned facility located at 310 Wheeler Street, Tonawanda, Erie County, New York. This active plant has been located in this commercial/industrial and residential area since 1911. The 50-acre facility manufactures circuit board and similar insulated materials for the electronics industry. The manufacturing process generates a mixture of liquid phenolic resin and solvent waste and solid and powdery grinding and cutting wastes. The latter include asbestos, glass, zinc chloride, and phenolic wastes. Seven hundred and fifty drums of waste were landfilled, and may have been punctured or leaking prior to burial. The solid waste was reportedly bagged and landfilled. Several lagoons were reported excavated and backfilled with clean fill. Incinerator ash and other waste are also spread around the site. Stained soil and walls near the empty drum storage area indicate further soil contamination. New York State Department of Environmental Conservation (NYSDEC) files indicate that excessive amounts of phenol and other wastes were released into the storm sewers, which emptied into the Niagara River.

There is no groundwater use in the area, with the exception of three industrial wells to the south. Sample results from monitoring wells installed by Spaulding Fibre Company contractors indicate groundwater contamination. Several site inspections by the NYSDEC recorded numerous waste disposal problems.

(CONTINUED)

HAZARD RANKING SCORE: $S_M = 23.80$ ($S_{gw} = 4.71$, $S_{sw} = 40.91$, $S_a = 0$)
$S_{FE} = 21.88$
$S_{DC} = 0$

Prepared by: Stanley B. Shulfer **Date:** 05/31/88
of NUS Corporation

POTENTIAL HAZARDOUS WASTE SITE
HAZARD RANKING SYSTEM REPORT
EXECUTIVE SUMMARY
CONTINUED

SITE DESCRIPTION

A site inspection was conducted by FIT on April 28 and 29, 1987. Several soil auger holes had readings above background with an OVA flame ionization detector. The highest reading was 350 ppm, occurring near the drum landfill. The two monitoring wells were sampled, and two surface water samples were collected to evaluate waste migration through the groundwater and storm sewers, respectively. Eight soil samples were collected to evaluate lagoon, landfill, and possible spill or leakage areas.

All soil samples except for NYR9-S4 and NYR9-S8 had high concentrations of at least one contaminant. Phenol and Di-n-butyl phthalate were found in several samples, with concentrations as high as 910 ppm and 240 ppm, respectively. Most contaminants were semivolatile. Noted exceptions were the PCBs Aroclor 1248 and Aroclor 1254. The groundwater and surface water samples did not contain any contaminants above the detection limits. The empty drum storage pad and liquid chemical transfer pad areas had evidence of spillage in the contaminated and stained soils nearby.

The site inspection results indicate a fire/explosion hazard and the potential for waste migration off site due to contaminated soils from surface to a 2-foot depth. This creates a potential direct contact hazard, should contaminants migrate off site.

SECTION 2

DOCUMENTATION RECORDS FOR HAZARD RANKING SYSTEM

FIT QUALITY ASSURANCE TEAM
DOCUMENTATION RECORDS
FOR
HAZARD RANKING SYSTEM

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

FACILITY NAME: Spaulding Fibre Company

LOCATION: Tonawanda, Erie County, New York

DATE SCORED: May 31, 1988

PERSON SCORING: Stanley B. Shulfer

PRIMARY SOURCE(S) OF INFORMATION (e.g., EPA region, state, FIT, etc.):
New York State Department of Environmental Conservation, Region 9
U.S. EPA Files
NUS Corporation FIT 2 Files

FACTORS NOT SCORED DUE TO INSUFFICIENT INFORMATION:
None

COMMENTS OR QUALIFICATIONS:

The air route scored zero due to no releases reported or observed at the site.

GROUNDWATER ROUTE

1 OBSERVED RELEASE

Contaminants detected (5 maximum):

There were no contaminants that could be considered an observed release due to the lack of a true upgradient well. Both monitoring wells had the following compounds present:

phenol	methyl ethyl ketone
formaldehyde	toluene
ethyl alcohol	methanol

Score: 0

Ref Nos. 22, 23, 5

Rationale for attributing the contaminants to the facility:

Not Applicable

Ref Nos. 22, 23, 5

* * *

2 ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifer(s) of concern:

The aquifer of concern is the Camillus Shale, and it is under water table conditions. The depth of the saturated zone in this area is approximately 10 feet below the ground surface. The Camillus Shale, which is approximately 56 to 96 feet below the surface, contains large amounts of gypsum. Gypsum is easily removed by percolating groundwater, resulting in cavities capable of storing large amounts of water.

Water reaches the Camillus Shale by filtration through the unconsolidated zone of low permeability, and then by percolation through the vertical fractures in the shale.

Score: 3

Ref Nos. 5, 6, 20

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

The depth to the water table, which is the upper limit of the aquifer of concern, is approximately 10 feet in the site area.

Ref. Nos. 5, p 10; 18

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

The lowest reported point of waste disposal is 10 feet below surface.

Ref. No. 5, p. 4

Net Precipitation

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

35 inches

Ref. No. 5

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

27 inches

Ref. No. 5

Net precipitation (subtract the above figures):

8 inches

Score: 2

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

Most of the unsaturated zone was comprised of dense glacial till, sometimes called hardpan. The soil type of this zone is a clayey silt.

Ref. No. 5

Permeability associated with soil type:

10^{-6}-10^{-7} cm/sec.

Score: 1

Ref. No. 5, p. 18

Physical State

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

The wastes were described as liquid, solid, and powder at the time of disposal.

Score: 3

Ref. Nos. 5, 8

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Spauldite dust and resins were landfilled. No liners were provided for landfilled wastes.

Ref. No. 5, 7

Method with highest score:

Either method will score a 3.

Ref. No.: 7

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

Aroclor 1248, Aroclor 1254, mercury, lead, benzene

Ref. No. 3

Compound with highest score:

Aroclor 1248, Aroclor 1254, mercury, and lead each have the maximum score of 18.

Ref. No. 7

Hazardous Waste Quantity

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

Partially filled/empty solvent and phenol resin drums: 500 drums are equivalent to 125 tons.

Waste Resin: 750 drums are equivalent to 188 tons

Spauldite Dust: 40 tons

Zinc Hydroxide: 1181 cubic yards are equivalent to 1181 tons

Total weight of wastes = 1534 tons

Score: 7

Ref. Nos. 1, 2, 3, 5, 8

Basis of estimating and/or computing waste quantity:

These were the estimates given by the Spaulding Fibre Company to the NYSDEC. Spaulding Fibre Company performed an EP toxicity test on a sample of Spauldite Dust, the results showed the leaching of methyl ethyl ketone, butyl octyl phthalate, dibutyl phthalate, and toluene, which were also found in soil samples on site. Partially filled/empty drums were observed during the site inspection conducted on April 28 and 29, 1987.

Ref. Nos. 1, 2, 5, 8

5 TARGETS

Groundwater Use

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

Due to elevated amounts of hydrogen sulfide, the Camillus Shale is only used for industrial purposes. There are only three active industrial wells within a 3-mile radius.

Score: 1

Ref. Nos. 3, 6

Distance to Nearest Well

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

The nearest well in the Camillus Shale is located approximately 2.5 miles south of the site, at the Dunlop plant.

Ref. Nos. 3, 5, 6

Distance to above well or building:

The industrial wells are 2.5 miles to the south. The Two Mile Creek acts as a discontinuity in the aquifer between the hazardous substances and these wells.

Score: 0

Ref. Nos. 3, 5, 6

Population Served by Groundwater Wells Within a 3-Mile Radius

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

There are no water-supply wells within a 3-mile radius of the site. The water is only used for industrial purposes due to hydrogen sulfide concentrations above drinking water standards.

Ref. Nos. 6, 9

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

There are no irrigation wells within a 3-mile radius of the site.

Ref. Nos. 10, 11

Total population served by groundwater within a 3-mile radius:

There are no people served by groundwater within a 3-mile radius. There are only three industrial wells located to the south of the site.

Score: 0

Ref. Nos. 6, 9, 10, 11

SURFACE WATER ROUTE

1 OBSERVED RELEASE

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

There are no observed releases in the surface water. Contaminants were not detected in the on-site surface water samples collected during the site inspection. The NYSDEC alleges that phenolic and other wastes were improperly discharged into the storm sewers in the past.

Score: 0

Ref. No. 1, 2, 22, 23

Rationale for attributing the contaminants to the facility:

Not Applicable

Ref. Nos. 3, 22, 23

* * *

2 ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

Average slope of the facility is 1 percent. $\frac{10'}{1000'} \times 100 = 1\%$

There are minor slope changes for storm drainage ditches and storm sewers, but most of the site slopes gently northward.

Ref. Nos. 3, 11

Name/description of nearest downslope surface water:

Drainage runs into an on-site sewer and flows untreated into the Niagara River, which is 0.7 mile northeast of the site.

Ref. Nos. 1, 2, 11

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

$\frac{15'}{3696'} \times 100$ = approximately 0.4%

Ref. No. 11

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

No. Storm drainage ditches empty directly into municipal storm sewers which empty into the Niagara River. Storm water drainage is discharged untreated.

Ref. Nos. 2, pp. 8, 27; 3, pp. 2 (backside), 6, 7; 11

Is the facility completely surrounded by areas of higher elevation?

No. The site slopes gently to the north. The only area of higher elevation is to the south.

Ref. Nos. 3, 11

1-Year 24-Hour Rainfall in Inches

2.1 inches

Score: 2

Ref. No. 7

Distance to Nearest Downslope Surface Water

The Niagara River is 0.7 mile northwest of the site.

Score: 2

Ref. No. 11

Physical State of Waste

The wastes have been reported as liquid, solid, and powder.

Score: 3

Ref. Nos. 1, 2, 5, 8

***

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Waste Spauldite dust and resins were landfilled. No liners were provided for landfilled wastes.

Ref. No. 5, 7

Method with highest score:

Either of the above methods will score a 3.

Ref. No. 7

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated

The following contaminants were detected in sample NYR9-S3, which is located ungradient from the on-site storm sewer: Aroclor 1254, dibenzofuran, fluoranthene, pyrene, and chrysene.

Ref. Nos. 3, 5, 22, 23

Compound with highest score:

Each of the above compounds scores an 18.

Ref. No. 7

Hazardous Waste Quantity

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

Partially filled/empty solvent and phenolic resin drums: 500 drums are equivalent to 125 tons.

Waste Resin: 750 drums are equivalent to 188 tons

Spauldite Dust: 40 tons

Zinc Hydroxide: 1181 cubic yards are equivalent to 1181 tons

Total weight of wastes = 1409 tons

750 drums 40 tons and 1181 yd^3 = The equivalent in tons = 188 tons + 40 tons + 1181 tons = 1409 tons

Score: 7

Ref. No. 1, 2, 5, 8

Basis of estimating and/or computing waste quantity:

These were the estimates given by the Spaulding Fibre Company to the NYSDEC. Spaulding Fibre Company performed an EP toxicity test on a sample fo Spauldite Dust, the results showed the leaching of methyl ethyl ketone, butyl octyl phthalate, dibutyl phthalate, and toluene, which were also found in soil samples on site. Partially filled/empty drums were observed during site inspection conducted on April 28 and 29, 1987.

Ref. No. 1, 2, 5, 8

5 TARGETS

Surface Water Use

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

There are three community surface water intakes on the Niagara River within 3 miles downstream of the hazardous substances, with no other source available.

Score: 3

Ref. Nos. 6, 9, 11

Is there tidal influence?

No. The site is located 0.7 mile from the Niagara River, which is the closest surface water, and is not influenced by tides.

Ref. No. 11

Distance to a Sensitive Environment

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

Distance to coastal wetland is greater than 2 miles

Score: 0

Ref. No. 11

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

Distance to freshwater wetland is greater than 1 mile.

Score: 0

Ref. No. 11

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

Distance to critical habitat is greater than 1 mile. The Niagara River is a "Class A - Special" international boundary water and is designated as significant for wildlife by NYSDEC, but is not a critical habitat of endangered species or national wildlife refuge. The Niagara River is fresh water, greater than 5 acres in size, and 0.7 mile north of the site, but does not contain any wetlands as defined by the U.S. EPA within 1 mile of the site.

Score: 0

Ref. Nos. 11, 12, 13

Population Served by Surface Water

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

There are three water intakes on the Niagara River within 3 miles of the hazardous substances. These intakes supply drinking water to Tonawanda (18,538 people), North Tonawanda (34,000 people), and Lockport (24,000 people), totaling 76,538 people.

Ref. Nos. 9, 11, 14, 15, 21

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

There are no known irrigational intakes in the Niagara or other rivers near the site, as there are no known farms within 3 miles of this highly populated industrial area.

Ref. Nos. 10, 16

Total population served:

76,538 people

Score: 5

Ref. Nos. 9, 14, 15

Name/description of nearest of above water bodies:

The Niagara River is 0.7 mile north of the site, and is a "Class A - Special" international boundary water, which is significant for wildlife.

Ref. Nos. 11, 12

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

The nearest intake is on the Niagara River, 1.04 miles north of the site.

Score: 2

Ref. Nos. 9, 11

AIR ROUTE

1 OBSERVED RELEASE

Contaminants detected:

None. There were no readings above background in the breathing zone. (There were readings of up to 350 ppm inside of a soil auger hole near the drum landfill.)

Score: 0

Ref. No. 3

Date and location of detection of contaminants

Not applicable. See above.

Methods used to detect the contaminants:

An OVA flame ionization detector was used during the site inspection on 4/28/87 and 4/29/87.

Ref. No. 3

Rationale for attributing the contaminants to the site:

Not applicable. See above.

* * *

2 WASTE CHARACTERISTICS

Reactivity and Incompatibility

Most reactive compound:

Not applicable.

Most incompatible pair of compounds:

Not applicable.

Toxicity

Most toxic compound:

Not applicable.

Hazardous Waste Quantity

Total quantity of hazardous waste:

Not applicable.

Basis of estimating and/or computing waste quantity:

Not applicable.

* * *

3 TARGETS

Population Within 4-Mile Radius

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

0 to 4 mi 0 to 1 mi 0 to 1/2 mi 0 to 1/4 mi

Not applicable.

Distance to a Sensitive Environment

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

Not applicable.

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

Not applicable.

Distance to critical habitat of an endangered species, if 1 mile or less:
Not applicable.

Land Use

Distance to commercial/industrial area, if 1 mile or less:
Not applicable.

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:
Not applicable.

Distance to residential area, if 2 miles or less:
Not applicable.

Distance to agricultural land in production within past 5 years, if 1 mile or less:
Not applicable.

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:
Not applicable.

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?
Not applicable.

FIRE AND EXPLOSION

1 CONTAINMENT

Hazardous substances present:

Partially filled/empty solvent and phenol resin drums: 500 drums are equivalent to 125 tons

Waste Resin: 750 drums are equivalent to 188 tons

Spauldite Dust: 40 tons

Zinc Hydroxide: 1181 cubic yards are equivalent to 1181 tons

Total weight of wastes = 1534 tons

Score: 7

Ref. Nos. 1, 2, 3, 5, 8

Type of containment, if applicable:

Resins wastes, Spauldite dust, and zinc hydroxide wastes are segregated according to type and are landfilled or entombed on site. The 500 drums that are partially filled/empty are stored above ground. Many spillages are evident by stained ground. There is no adequate containment for these wastes; therefore, only these 500 drums are being scored.

Score: 3

Ref. Nos. 1, 2, 3, 5, 8

* * *

2 WASTE CHARACTERISTICS

Direct Evidence

Type of instrument and measurements:

No direct evidence. Qualitative measurements using an OVA flame ionization detector showed high concentrations of volatile compounds.

Score: 0

Ref. Nos. 3, 22, 23

Ignitability

Compound used:

Phenol

Score: 2

Ref. No. 7, 18, 22, 23

Reactivity

Most reactive compound:

None of the compounds are characterized as reactive.

Score: 0

Ref. Nos. 18, 22, 23

Incompatibility

Most incompatible pair of compounds:

None of the compounds present in the area of potential danger are incompatible.

Score: 0

Ref. No. 18, 22, 23

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility:

500 55-gallon drums stored above ground.

Score: 3

Ref. No. 3

Basis of estimating and/or computing waste quantity:

These were the quantities counted during the site inspection on 4/28/87.

Ref. No. 3

* * *

3 TARGETS

Distance to Nearest Population

The site is an active facility, making the distance zero miles.

Score: 5

Ref. No. 3

Distance to Nearest Building

There are buildings on site.

Score: 3

Ref. No. 3

Distance to Sensitive Environment

Distance to wetlands:

Distance to a wetland is greater than 1 mile.

Score: 0

Ref. No. 11

Distance to critical habitat:

Distance to a critical habitat is greater than 1 mile.

Score: 0

Ref. Nos. 12, 13

Land Use

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

The site is an active industrial facility.

Score: 3

Ref. No. 3

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

Distance to national or state park, forest, or wildlife reserve is greater than 2 miles.

Ref. No. 11

Distance to residential area, if 2 miles or less:

There are houses across the street from the site, approximately 0.02 mile away.

Score: 3

Ref. No. 3

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

Distance to agricultural land is greater than 1 mile.

Score: 0

Ref. Nos. 10, 16

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

Distance to prime agricultural land is greater than 2 miles.

Score: 0

Ref. Nos. 10, 16

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

There are no historic or landmark sites within view of the site.

Score: 0

Ref. No. 19

Population Within 2-Mile Radius

36,050 people

Score: 5

Ref. No. 19

Buildings Within 2-Mile Radius

13,296 buildings

Score: 5

Ref. No. 19

DIRECT CONTACT

1 OBSERVED INCIDENT

Date, location, and pertinent details of incident:

No observed incidences

Score: 0

Ref. Nos. 1, 2

* * *

2 ACCESSIBILITY

Describe type of barrier(s):

The site is enclosed by a chain link fence, with gates locked or controlled by company personnel and a security system. There are past NYSDEC allegations of excessive amounts of phenol and other wastes released into the storm sewers which empty into the Niagara River. Storm drainage ditches were sampled during the site inspection, but no contaminants were detected at that time.

Score: 0

Ref. Nos. 1, 2, 3, 22, 23

* * *

3 CONTAINMENT

Type of containment, if applicable:

Soil samples collected during the site inspection indicate high concentrations of numerous contaminants at a depth of 0 to 2 feet below ground surface. This indicates improper containment. Evidence of feedstock spills was noted during the site inspection, and NYSDEC files report several instances of improper waste disposal.

Score: 15

Ref. No. 1, 2, 5, 22, 23

4 WASTE CHARACTERISTICS

Toxicity

Compounds evaluated:

Phenol, di-n-butyl phthalate, Aroclor 1248, fluoranthene, dibenzofuran.

Score: 3

Ref. Nos. 5, 22, 23

Compound with highest score:

Each of the above-named compounds will score a 3, but phenol had the highest concentrations and was present at several locations on site.

Ref. Nos. 3, 7, 22, 23

5 TARGETS

Population Within One-Mile Radius

16,966 people

Score: 5

Ref. No. 19

Distance to Critical Habitat (of Endangered Species)

There are no critical habitats within 1 mile of the site.

Score: 0

Ref. No. 12, 13

SECTION 3

HAZARD RANKING SYSTEM SCORING FORMS

02-8704-02-HR
Rev. No. 0

Facility name: Spaulding Fibre Company

Location: 310 Wheeler Street, Tonawanda, Erie County, New York

EPA Region: 2

Persons(s) in charge of the facility: Greg Stubbs

Name of Reviewer: Stanley B. Shulfer **Date:** May 31, 1988

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

The Spaulding Fibre Company is a privately owned facility located at 310 Wheeler Street, Tonawanda, Erie County, New York. The 50-acre site manufactures circuit board and other insulated materials for the electronics industry. The plant has been in operation in this mixed commercial/industrial/residential area since 1911. Plant operations generate a mixture of liquid phenolic resin and solvent waste, and solid and powdery grinding and cutting wastes. Seven hundred fifty drums of phenolic and solvent waste were landfilled on site, and may have been punctured or leaking prior to burial. The solid waste was bagged and landfilled. Several lagoons were reportedly excavated and filled in with clean fill. Incinerator ash and other wastes were reportedly spread around the site. Stained soil and walls near the empty drum storage area indicate further contamination.

New York State Department of Environmental Conservation (NYSDEC) files for 1958 indicate that excessive amounts of phenol and other wastes were released in the past into storm sewers which empty into the Niagara River. Two monitoring wells were installed near the drum landfill by the Spaulding Fibre Company. Sample results by Spaulding Fibre indicate groundwater contamination. Several site inspections by the NYSDEC record numerous waste disposal problems. Due to high concentrations of hydrogen sulfide, groundwater use in the area is limited to three industrial wells near the Niagara River. Storm drainage ditches lead to storm sewers which empty into the Niagara River, upstream from three major surface water supply intakes. Migration of waste through the storm sewers and the perched water table present the greatest potential health hazard.

Continued

Score: S_M = 23.80 (S_{gw} = 4.71 S_{sw} = 40.91 S_a = 0)

S_{FE} = 21.88

S_{DC} = 0

HRS COVER SHEET

Continued

FIT 2 conducted a site inspection on 4/28/87 and 4/29/87. Air monitoring with an OVA flame ionization detector recorded readings of up to 350 ppm in a soil auger hole near the drum landfill, but found no readings above background downwind. Two monitoring wells were sampled to characterize groundwater contamination. Two surface water samples were collected in the storm drainage ditch to determine waste migration through the storm sewers. Eight soil samples were collected to test for contamination in the landfill, lagoon, and spill or leakage areas.

All soil samples, except for NYR9-S4, had high concentrations of at least one contaminant. Phenol and di-n-butyl phthalate were found in several samples, with concentrations as high as 910,000 ug/kg and 240,000 ug/kg, respectively. Most contaminants were semivolatile. Noted exceptions were lead and the PCBs Aroclor 1248 and Aroclor 1254. The groundwater and surface water samples did not contain any contaminants above the detection limits. The empty drum storage pad and liquid chemical trasfer pad areas had evidence of spillage in the nearby contaminated and stained soils.

Ground Water Route Work Sheet

Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref (Section)
1 Observed Release	(0) 45	1	0	45	3.1
If observed release is given a score of 45, proceed to line 4. If observed release is given a score of 0, proceed to line 2.					
2 Route Characteristics					3.2
Depth to Aquifer of Concern	0 1 2 (3)	2	6	6	
Net Precipitation	0 1 (2) 3	1	2	3	
Permeability of the Unsaturated Zone	0 (1) 2 3	1	1	3	
Physical State	0 1 2 (3)	1	3	3	
Total Route Characteristics Score			12	15	
3 Containment	0 1 2 (3)	1	3	3	3.3
4 Waste Characteristics					3.4
Toxicity/Persistence	0 3 6 9 12 15 (18)	1	18	18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 (7) 8	1	7	8	
Total Waste Characteristics Score			25	26	
5 Targets					3.5
Ground Water Use	0 (1) 2 3	3	3	9	
Distance to Nearest Well/Population Served	(0) 4 6 8 10 / 12 16 18 20 / 24 30 32 35 40	1	0	40	
Total Targets Score			3	49	
6 If line 1 is 45, multiply 1 x 4 x 5. If line 1 is 0, multiply 2 x 3 x 4 x 5			2700	57.330	
7 Divide line 6 by 57.330 and multiply by 100			S_{gw} = 4.71		

GROUND WATER ROUTE WORK SHEET

Surface Water Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Release	(0) 45	1	0	45	4.1
If observed release is given a value of 45, proceed to line 4. If observed release is given a value of 0, proceed to line 2.					
2 Route Characteristics					4.2
Facility Slope and Intervening Terrain	(0) 1 2 3	1	0	3	
1-yr. 24-hr. Rainfall	0 1 (2) 3	1	2	3	
Distance to Nearest Surface Water	0 1 (2) 3	2	4	6	
Physical State	0 1 2 (3)	1	3	3	
Total Route Characteristics Score			9	15	
3 Containment	0 1 2 (3)	1	3	3	4.3
4 Waste Characteristics					4.4
Toxicity/Persistence	0 3 6 9 12 15 (18)	1	18	18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 (7) 8	1	7	8	
Total Waste Characteristics Score			25	26	
5 Targets					4.5
Surface Water Use	0 1 2 (3)	3	9	9	
Distance to a Sensitive Environment	(0) 1 2 3	2	0	6	
Population Served/Distance to Water Intake Downstream	0 4 6 8 10 / 12 16 18 20 / 24 (30) 32 35 40	1	30	40	
Total Targets Score			39	55	
6 If line 1 is 45, multiply 1 x 4 x 5. If line 1 is 0, multiply 2 x 3 x 4 x 5			26,325	64,350	
7 Divide line 6 by 64,350 and multiply by 100			S_{SW} = 40.91		

SURFACE WATER ROUTE WORK SHEET

Air Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Release	(0) 45	1	○	45	5.1
Date and Location:					
Sampling Protocol:					
If line 1 is 0, the S_a = 0. Enter on line 5. If line 1 is 45, then proceed to line 2.					
2 Waste Characteristics					5.2
Reactivity and Incompatibility	0 1 2 3	1		3	
Toxicity	0 1 2 3	3		9	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
	Total Waste Characteristics Score			20	
3 Targets					5.3
Population Within 4-Mile Radius	0 9 12 15 18 21 24 27 30	1		30	
Distance to Sensitive Environment	0 1 2 3	2		6	
Land Use	0 1 2 3	1		3	
	Total Targets Score			39	
4 Multiply 1 x 2 x 3				35,100	
5 Divide line 4 by 35,100 and multiply by 100			S_a = ○		

AIR ROUTE WORK SHEET

	S	S^2
Groundwater Route Score (S_{gw})	4.71	22.2
Surface Water Route Score (S_{sw})	40.91	1673.6
Air Route Score (S_a)	0	0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		1695.8
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		41.2
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		23.80

WORKSHEET FOR COMPUTING S_M

Fire and Explosion Work Sheet

Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Containment	1 (3)	1	3	3	7.1
2 Waste Characteristics					7.2
Direct Evidence	(0) 3	1	0	3	
Ignitability	0 1 (2) 3	1	2	3	
Reactivity	(0) 1 2 3	1	0	3	
Incompatibility	(0) 1 2 3	1	0	3	
Hazardous Waste Quantity	0 1 2 (3) 4 5 6 7 8	1	3	8	
Total Waste Characteristics Score			5	20	
3 Targets					7.3
Distance to Nearest Population	0 1 2 3 4 (5)	1	5	5	
Distance to Nearest Building	0 1 2 (3)	1	3	3	
Distance to Sensitive Environment	(0) 1 2 3	1	0	3	
Land Use	0 1 2 (3)	1	3	3	
Population Within 2-Mile Radius	0 1 2 3 4 (5)	1	5	5	
Buildings Within 2-Mile Radius	0 1 2 3 4 (5)	1	5	5	
Total Targets Score			21	24	
4 Multiply 1 x 2 x 3			315	1,440	
5 Divide line 4 by 1,440 and multiply by 100			SFE = 21.88		

FIRE AND EXPLOSION WORK SHEET

Direct Contact Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Incident	(0) 45	1	0	45	8.1
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2 Accessibility	(0) 1 2 3	1	0	3	8.2
3 Containment	0 (15)	1	15	15	8.3
4 Waste Characteristics Toxicity	0 1 2 (3)	5	15	15	8.4
5 Targets Population Within a 1-Mile Radius	0 1 2 3 4 (5)	4	20	20	8.5
Distance to a Critical Habitat	(0) 1 2 3	4	0	12	
Total Targets Score			20	32	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			0	21,600	
7 Divide line 6 by 21,600 and multiply by 100			SDC = 0		

DIRECT CONTACT WORK SHEET

SECTION 4

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