Determination: NFA

PA/VSI Or RFA FILE REVIEW CHECKLIST

Facility Name: Delphi Energy & Engine Mgm. Sys. (Chev.)

EPA ID: MID 005 356 654____ City: 300 N Chevrolet Ave Flint, Genesee Co.__ State: MI_

Name of Reviewer: Maureen McHugh_____ Date of Review: 8/14/08_____

1	Yes	No	Is this a one folder site?
2	Yes	No	Are there Superfund files for this site?
3	Yes	No	Did you Read the Executive Summary?
			There are: ____ SWMUs and _____ AOCs at this site.
4	Yes	No	Did you review the regulatory history?
5	Yes	No	Does the facility have interim status or a permit?
			This facility is a: __X_(CE)SQG, _____ LQG, or ____ Less than 90 day.
6	Yes	No	Was the Facility closed per RCRA? RCRAInfo 380 (1994)
			If Yes, was the closure: __X__ CC, or _____ CIP.
7	Yes	No	Are there documented (historical) releases? Briefly describe on Page 2.
8	Yes	No	Were there releases identified during the inspection? Briefly describe on Page 2.
9	Yes	No	Do you agree with the Conclusions and Recommendations?
			If No, briefly describe on Page 2.

As a result of your review of the PA/VSI or RFA file, please classify this site as:

___X__No further corrective action recommended or warranted: These are sites that closed the regulated units and any other SWMUs or AOCs at the site did not warrant any further corrective action (no historic releases or evidence of releases observed during the Visual Site Inspection).

_____ Further Action Required: Soil or sediment sampling or groundwater sampling or monitoring or any type of investigation that was recommended in the report in response to a documented or observed release at any SWMU or AOC and where such investigation, whether being addressed during the inspection or after, does not have the necessary documentation in the facility record files.

_____ More Information Needed: There is no RFA, PA/VSI or RCRA closure information available.

PA/VSI Or RFA FILE REVIEW CHECKLIST

Notes
Briefly describe any documented (historical) releases for any SWMU or AOC recorded in the report. For each release, please identify the SWMU or AOC and a one or two line description of release.
Briefly describe any releases observed during the inspection for any SWMU or AOC recorded in the report. For each release, please identify the SWMU or AOC and a one or two line description of release.
PA/VSI Recommendations Relocate the drum storage structure from its location in the 100yr flood plain of the Flint River to another location. This might have been done during closure. Further studies of the former UST area if monitoring well data or soil samples indicate this is necessary. These recommendations do not warrant CA attention.

EPA

HAZARDOUS
SITE
EVALUATION
DIVISION

Field Investigation Team Zone II

CONTRACT NO.
68-01-7347

ecology and environment, inc.

International Specialists in the Environment

MID 005 356 654

PRELIMINARY REVIEW/VISUAL SITE INSPECTION AND PRELIMINARY ASSESSMENT REPORT FOR GMC-CHEVROLET FLINT MANUFACTURING FLINT, MICHIGAN

U.S. EPA ID: MID005356654
SS ID: NONE
TDD: F05-8909-010
PAN: FMI1144RA

APRIL 1, 1991

ecology and environment, inc.
111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415
International Specialists in the Environment

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SIGNATURE PAGE
FOR
PRELIMINARY REVIEW/VISUAL
SITE INSPECTION
AND
PRELIMINARY ASSESSMENT REPORT
FOR
GMC-CHEVROLET FLINT MANUFACTURING
FLINT, MICHIGAN
U.S. EPA ID: MID005356654
SS ID: NONE
TDD: F05-8909-010
PAN: FMI1144RA

Prepared by: _____ (MM) Date: 4-9-91
Michael McAteer
FIT Team Leader
Ecology and Environment, Inc.

Reviewed by: _____ Date: 4-9-91
Clifford Florczak
RCRA Coordinator
Ecology and Environment, Inc.

Approved by: _____ Date: 4/9/91
Jerome D. Osvarek
FIT Office Manager
Ecology and Environment, Inc.

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SIGNATURE PAGE
FOR
PRELIMINARY REVIEW/VISUAL
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Prepared by: _____ (MM) Date: 4-9-91
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Ecology and Environment, Inc.

Approved by: _____ Date: 4/9/91
Jerome D. Osvarek
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1. INTRODUCTION

Ecology and Environment, Inc. (E & E), Field Investigation Team (FIT) was tasked by the United States Environmental Protection Agency (U.S. EPA) to conduct a preliminary review (PR), visual site inspection (VSI), and preliminary assessment (PA) of the GMC-Chevrolet Flint Manufacturing (GMC-Flint) facility, located in Flint, Michigan, under contract number 68-01-7347. FIT conducted the PR, VSI, and PA under technical directive document (TDD) F05-8909-010, issued on October 5, 1989.

The PR consisted of a review of state and federal file information relating to the facility to gather information regarding solid waste management units (SWMUs) at the facility and the completion of a PR form (provided in Attachment A). The VSI consisted of a facility representative interview, a walk-through of the facility to observe and document the waste handling process and facility conditions, and the completion of a VSI form (provided in Attachment B).

The PA consisted of an assessment of the facility based on U.S. EPA guidelines and the completion of a Potential Hazardous Waste Site form (U.S. EPA Form 2070-12) (provided in Attachment C). The PA will be used to evaluate the risk to the environment posed by the facility based on five pathways of migration for U.S. EPA Target Compound List (TCL) compounds and U.S. EPA Target Analyte List (TAL) analytes. The five migration pathways are groundwater, surface water, air, fire and explosion, and direct contact.

2. PRELIMINARY REVIEW

Prior to completing the PR of the GMC-Flint facility, FIT conducted a file search at U.S. EPA Region V offices on December 11, 1989, for information related to the facility. Additional file information was obtained from the Lansing office of the Michigan Department of Natural

Resources (MDNR). MDNR and U.S. EPA file information was obtained before the PR was written and the VSI was conducted.

The PR provided information useful to FIT in determining areas of concern at the facility, such as a description of activities at the facility and a preliminary identification of SWMUs. Conducting the PR also aided FIT in determining the completeness of information required to assess the facility. This determination enabled FIT to focus VSI activities on the gathering of required site assessment information.

3. VISUAL SITE INSPECTION

Michael McAteer, FIT team leader, and Clifford Florczak, FIT safety officer, conducted a VSI of the GMC-Flint facility on January 10, 1990. The VSI consisted of an interview with facility representatives and a walk-through of the facility.

The facility representative interview was conducted at approximately 1:20 p.m. on January 10, 1990. McAteer and Florczak conducted the interview with the following representatives of the GMC-Flint facility: Richard Hubler, General Supervisor of Waste Disposal By-Products at the Flint, Michigan, facility; Richard Eisenman, Senior Environmental Engineer of Divisional Environmental Activities Group, New York; Coleman Williams, employee of General Motors Corporation (GMC)-Flint's Environmental/ Hazardous Waste Department; and Ron Neahusen, Senior Environmental Engineer at the GMC-Flint facility. The walk-through of the facility was begun at approximately 3:00 p.m. FIT was accompanied by Hubler, Eisenman, Williams, and a photographer during the walk-through.

4. FACILITY DESCRIPTION

Information presented in this section was obtained from MDNR and U.S. EPA file information, the facility representative interview, and the VSI of the facility.

The GMC-Flint facility, an active facility, is involved in the manufacture of automobile parts, such as metal gasoline tanks, plastic grills, valves, fiberglass covers, manifolds, and doors. The facility is situated on an 180-acre parcel of land located in a residential/commercial section of Flint, Michigan, Genesee County (T.7N., R.6E.) (see Figure 1).

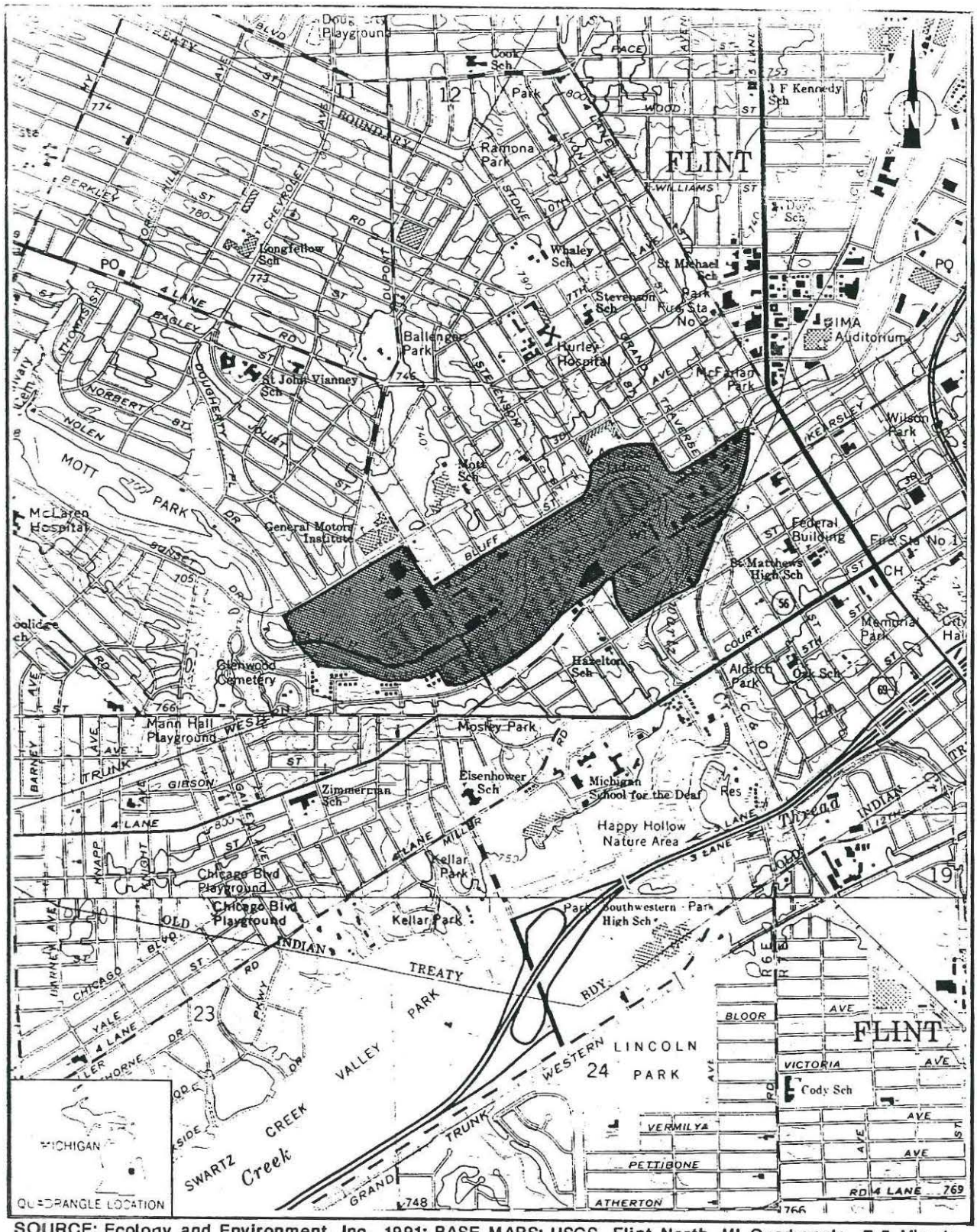
The Flint River flows in a westerly direction through the middle of the facility. Swartz Creek, a tributary of the Flint River, is located on the northeast portion of the facility.

The GMC-Flint facility employs the following manufacturing processes: sheet metal fabrication, injection molding (plastics), engine manufacturing, heat treating (auto parts), chrome plating, tin plating, pressure molding, and nonmetallic parts painting. The facility produces the following hazardous waste materials: sound deadener/adhesive, resin purgings, corrosive materials, heat treatment salts, chromium, paint-related materials, acetone, lead-bearing sludges, mercury, zinc-bearing sludge, trichloroethylene, methyl chloroform, and methylene chloride. PBC ballasts, PCB capacitors, and PCB transformers are also stored on-site prior to off-site disposal.

All hazardous wastes are now stored in sealed steel drums (55-gallon capacity), which are stored in a covered corrugated metal structure with an open front for access (see Figure 2 for storage facility features). The structure has an 8-inch-thick, seamless, continuous reinforced concrete slab floor. The floor slopes toward a central drainage channel that feeds into a small sump. A 1-foot-high, concrete perimeter containment wall forms the base of the structure walls.

At the time of the VSI, all wastes were being stored in the storage structure for less than 90 days. GMC is, however, preparing to go through closure of the storage structure. In April 1990, GMC plans to continue to store all wastes in the storage structure for less than 90 days. The GMC-Flint facility will then operate exclusively as a generator facility.

In 1980, GMC submitted Part A of its RCRA permit indicating that, in addition to the storage structure, four other container storage areas

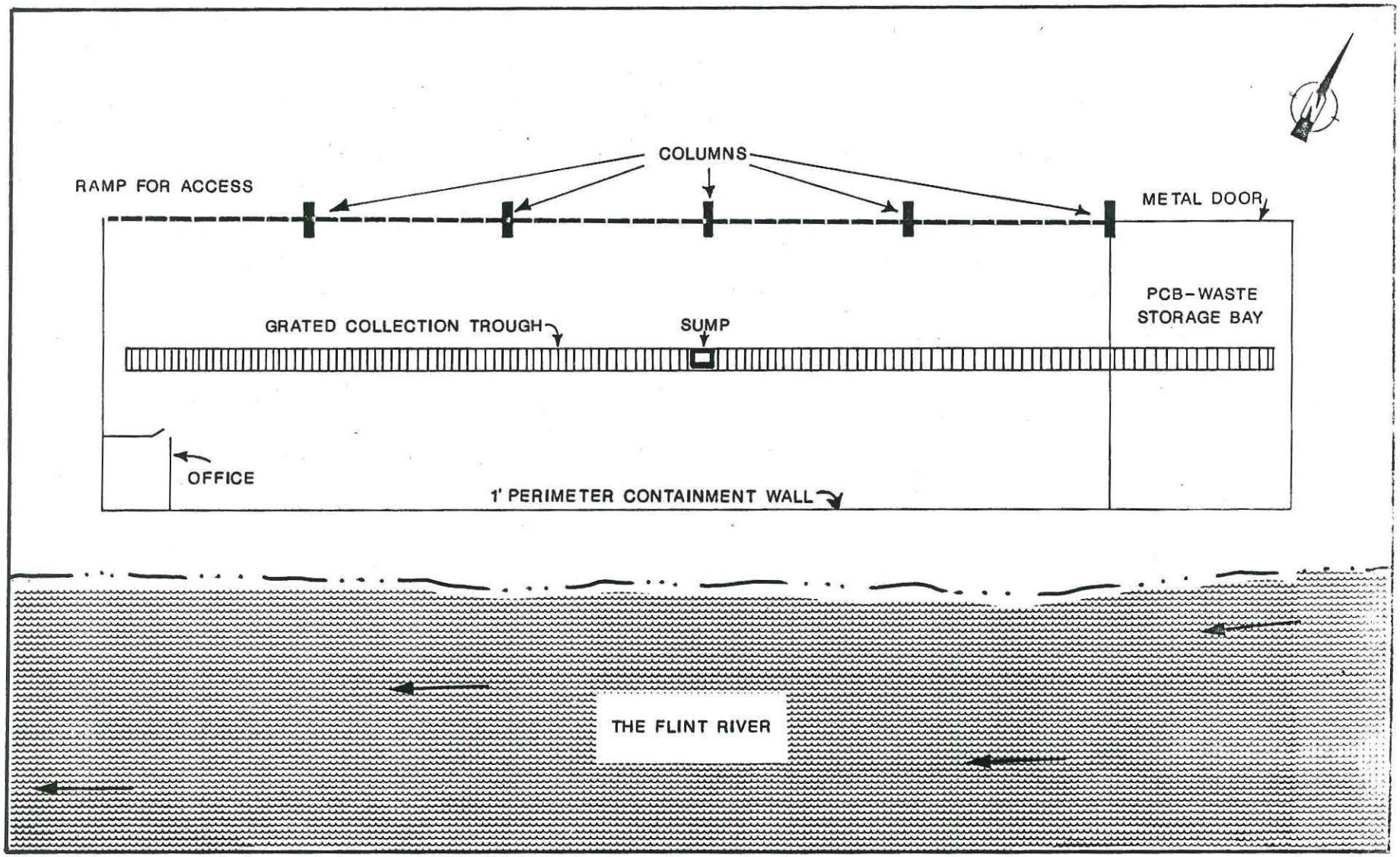


SOURCE: Ecology and Environment, Inc. 1991; BASE MAPS: USGS, Flint North, MI Quadrangle, 7.5 Minute Series, 1969, photorevised, 1975; Flint South, MI Quadrangle, 7.5 Minute Series, 1969, photorevised 1975.

SCALE

0 ½ 1 MILE

FIGURE 1 FACILITY LOCATION



SOURCE: Ecology and Environment, Inc. 1991; BASE MAP: Weston Drum Storage Drawing.

SCALE

0 15 30 45 60 FEET

FIGURE 2 STORAGE FACILITY FEATURES

and an underground storage tank were located on the facility. According to GMC, these additional storage areas were mentioned in the RCRA permit because GMC had taken a conservative approach to its Part A notification. However, three of these storage areas never held hazardous waste, and the fourth storage area was part of a NPDES-permitted wastewater treatment plant, which was used to hold wastewater treatment sludge for less than one week at a time. The underground storage tank was used to hold wastewater that had been generated from the removal of dried paint from masks used in the painting of automotive parts. In 1981, U.S. EPA stopped requiring industries to report this type of wastewater; therefore, the underground storage tank never held a listed hazardous waste material. The tank was removed from the facility in summer 1989, leaving only one waste storage area on the facility.

The GMC-Flint facility holds 99 active air permits and an NPDES permit. The NPDES permit covers many of the approximately 125 outfalls located along the Flint River. These outfalls carry precipitation runoff and noncontact cooling waters to the surface water bodies.

The facility is currently owned by GMC and has been operating since 1914. No documentation of regulatory-related response activities related to the GMC-Flint facility was found in file information reviewed by FIT.

During the walk-through of the facility, one SWMU was identified (the drum storage area), which, according to a 1988 closure plan submitted to MDNR by Roy F. Weston, Inc., on behalf of GMC, has an estimated maximum storage capacity of 450 drums. A closure plan was approved for this area MDNR on June 30, 1989. The eastern end of the storage structure is completely enclosed and segregated. This part of the storage structure holds PCB wastes. This area was locked at the time of FIT's walk-through. The western segment of the structure contained approximately 15 drums of hazardous waste materials and 10 drums of virgin material (i.e., kerosene, mineral spirits, 1,1,1-trichloroethane, methyl ethyl ketone, and asphalt sound deadener). All of the drums were sitting on pallets, and some of the drums containing hazardous waste materials were stacked two high, with a pallet separating the two layers of drums.

The storage structure is located next to the Flint River. The banks of the river have been converted to approximately 15-foot-high concrete walls with a 2-foot-high lip at the top. The lip forms another containment wall between the river and the storage structure.

FIT also identified the location of the former underground storage tank that had been removed in 1989. This area, which is approximately 600 feet north-northwest of the storage structure, is completely covered by concrete and, according to GMC, monitoring wells have been installed in this area. FIT also entered the valve manufacturing plant. This plant holds the accumulation tanks for chromic waste. According to GMC, an independent contractor removes and treats the chromic waste, separating the chromium and leaving a nonhazardous wastewater sludge.

Photographs of the GMC-Flint facility are provided in Appendix D.

5. PRELIMINARY ASSESSMENT

Based on information collected during the PR and VSI, a potential hazardous waste site PA was prepared for the facility. The completed PA, consisting of U.S. EPA Form 2070-12 and supporting documentation, is provided in Attachment C. Discussions of the five TCL compound and TAL analyte migration pathways (groundwater, surface water, air, fire and explosion, and direct contact) addressed in the PA are presented as follows.

Groundwater. Groundwater is not used within a 3-mile radius of the facility as a source of drinking water. Drinking water in the area is provided by the city of Detroit, Michigan, which obtains drinking water from Lake Huron through intakes located more than 3 miles from the facility. No potential exists for a release of TCL compounds or TAL analytes from the facility to groundwater. No potential is present because hazardous waste at the facility is stored in sound sealed containers, and a sound secondary containment system (concrete floors and walls) surrounds the hazardous waste storage area. In addition, FIT did not observe any evidence of spills at the facility, and there is no documentation of reportable releases occurring at the facility. The facility is located in an area lying entirely within the glaciated part

of the state. Bedrock underlying the glacial deposits consists of sandstone and shale.

Surface Water. The Flint River, located south of the storage structure at the facility, is the major surface water body within a 3-mile radius of the facility. A limited potential exists for TCL compounds or TAL analytes to migrate from the facility to the Flint River. This limited potential exists because the storage structure for the hazardous waste materials is located within the 100-year floodplain of the Flint River. The structure and its contents could potentially be inundated during a severe flood, which could result in the drums shifting and possibly spilling open.

According to Rudy Hozak of the Flint Department of Parks and Recreation, the Flint River is used exclusively for fishing and boating purposes.

Air. No potential exists for TCL compounds or TAL analytes to migrate from the facility to the air. The lack of potential is based on the fact that all drums are sealed.

Fire and Explosion. According to the Flint Fire Department, the facility does not pose a fire and explosive hazard.

Direct Contact. The facility is completely fenced and uses a 24-hour surveillance system; therefore, access to the waste materials at the facility is limited.

6. CONCLUSIONS

Current containment systems at the GMC-Flint facility's hazardous waste storage structure appear sound. FIT observed no evidence of spilled hazardous waste materials either inside or outside of the storage structure during the VSI.

7. RECOMMENDATIONS FOR FOLLOW-UP WORK

Relocation of the drum storage structure from its present location in the 100-year floodplain of the Flint River to another location may

need to be addressed in the near future. This could be accomplished at the time of closure, which is expected to take place in April 1990.

In addition, further studies of the former location of the underground tank may be necessary. This decision should be based on monitoring well data and soil samples recently collected by GMC.

FIT does not recommended the collection of samples, a hydrogeologic assessment, or an immediate removal action at the facility.

4769:8

A

Preliminary Review Report (PR)
RCRA FACILITY ASSESSMENT (RFA)

1. Facility Name GMC-Chevrolet Flint Mfg.
EPA ID # MID053566654
Preparer Ecology + Environment (McAteer)
Date 12-19-89

2. General Description of Facility and Processes:

A. Description: This facility is located in the city of Flint, Genessee County Michigan. The site occupies 180-acres and consists of six buildings engaged in the production of various automobile parts, including injection molded components, exhaust systems, door panels, radiator supports, fuel tanks, and an assortment of other plastic and metal parts. Specific manufacturing processes used are not known at this time however, file information indicates electroplating and metal treatment operations did (or do) exist.

Based on the most recent inspection of the facility by the Michigan Dept. of Natural Resources (MDNR) (7-28-89) the facility is both a generator and storage facility for various hazardous wastes. There is one drum storage area which in Aug 1988 was scheduled by GMC to be closed under RCRA regulations and then later be operated under generator status only, with wastes remaining on-site for less than 90 days. In May 1989 the MDNR deemed the closure plan unacceptable.

The number of drums stored in the drum storage facility averages at 200 but has contained as many as 450. At the time the closure plan was written (8-22-88) there were 10 drums of sound deadener/adhesives, 10 drums of plastic resin purgings, 15 drums of Methyl ethyl Ketone (MEK), 50 drums of methylene chloride, 15 drums of acetone, 20 drums of PCB materials, and 10 drums of miscellaneous wastes from various production and maintenance operations.

At the time GMC submitted their Part A application for RCRA permitting (1980) the number and types of wastes at this facility were considerably greater. Waste storage also included tanks, surface impoundments, and a centrifugal dewatering system for wastewater sludges. Ammendments to the Part A were submitted to USEPA by GMC in 1982 and 1984 which eliminated several waste streams and storage methods.

As of 1980, the facility also utilized 13 NPDES permitted discharges (into Flint River), and held 5 City of Flint Discharge Permits, and approximately 140 State of Michigan Air Use Permits.

B. Information on Solid Waste Management Units (attach additional sheets as needed):

	Unit	Release (yes/no/unknown/suspected)
i.	drums	unknown
ii.	tanks	unknown
iii.	surface impoundment	Unknown
iv.	centrifugal dewatering system	Unknown
v.		
vi.		
vii.		
viii.		
ix.		
x.		

3. **Specific Unit Information (prepare one for each unit):**

A. **Unit Type:** drums
Age: unknown
Capacity: unknown
Period of Operation: ~1970 to present
Waste Type: methylene chloride, paint waste, petroleum naptha, chromium waste [acetone, adhesives, MEK, resin purgings, PCBs
Volume: ~150 drums (7/28/89)
Hazardous Constituents (attach separate sheet): F002, F003, D001, D007, F005, F001, F010, F011

Regulatory Status: storage facility

B. **Unit Description:**

According to the latest MDNR inspection of this facility, the above listed wastes are stored in drums and these drums are then placed in a drum storage area. These drums are sealed and incompatible wastes are stored in separate drums. GMC personnel inspect the storage area on a weekly basis to check for any leaks or defects. The storage area is fenced and has controlled entry, 24-hour surveillance, and Danger signs are posted.

The storage building is 120' x 30' and is 12' in height. It is constructed of corrugated metal + has an open front. There is a one foot high perimeter containment wall around the inside of the building. The floor slopes towards a central drainage channel that feeds into an 8 cu. ft sump. A partition separates the PCB waste area from the other waste types area.

Additional Information: Determine age and period of operation of drum storage area. Determine total capacity of storage area.
Determine processes which have generated these wastes.
Determine if previous storage areas were closed according to a closure plan
Determine how long drums are stored prior to off-site transportation
Determine if secondary containment exists in or around the storage bldg.
Determine specific wastes stored in drums
Determine risks for direct contact by humans.

3. Specific Unit Information (prepare one for each unit):

A. Unit Type: tanks
Age: Unknown
Capacity: 600,600 gals.
Period of Operation: Unknown
Waste Type: spent cyanide plating solution, waste solvents, wastewater treatment sludge,
Volume: Unknown
Hazardous Constituents (attach separate sheet): F007 D001 F017 F006 F009 F012, F018, F010

Regulatory Status: Storage facility

B. Unit Description: Tanks were originally listed on Part A of GMC's RCRA permit for this facility but a 1984 amendment submitted to U.S. EPA by GMC removed the tanks from the permit. GMC stated that the tanks were related to industrial wastewater pretreatment and since the date of Part A submittal (1980) this type of operation had been exempted from RCRA and therefore have been removed from the part A permit.

No further information regarding the tanks is currently available.

Additional Information: Determine age and period of operation of tanks. Determine volume of waste stored in tanks.

Determine if the tanks are still in use.
Determine what waste types are being stored in the tanks now.

Determine if there have been any releases.

Determine if secondary containment is used around the tanks.

Determine specific waste types stored in the tanks

Determine risks for direct contact by humans

3. Specific Unit Information (prepare one for each unit):

A. Unit Type: Surface impoundment
Age: unknown
Capacity: 38,000 gals.
Period of Operation: Unknown
Waste Type: unknown
Volume: unknown
Regulatory Status: storage facility
Hazardous Constituents (attach separate sheet): unknown

B. Unit Description: The November 17, 1980 Part A permit submitted to U.S. EPA by GMC lists a 38,000 gallon surface impoundment on-site. A letter from GMC to U.S. EPA in 1982 indicated that GMC had reviewed their storage areas and found that the surface impoundment classification (S04) was in error and requested that the permit be revised to reflect this.

No further information regarding the surface impoundment is currently available.

Additional Information:

Determine if a surface impoundment exists (or did exist) on-site.

Determine what wastes are (were) stored in the impoundment and the quantity.

Determine the age of the impoundment and if there have been any releases

Determine if secondary containment or barriers surround the impoundment.

Determine risks for direct contact by humans

3. Specific Unit Information (prepare one for each unit):

A. Unit Type: centrifugal dewatering syst. Regulatory Status: storage facility
Age: unknown
Capacity: 115,200 gals/day
Period of Operation: unknown
Waste Type: wastewater treatment sludge from electroplating operations
Volume: unknown
Hazardous Constituents (attach separate sheet): F006, F008, F012, F017, F018

B. Unit Description:
A centrifugal dewatering system was originally listed on Part A of GMC's RCRA permit for this facility but a 1984 amendment submitted to US EPA by GMC removed this system from the permit. GMC stated that the centrifugal dewatering system was related to industrial wastewater pretreatment and since the date of Part A submittal (1980) this type of operation had been exempted from RCRA and therefore has been removed from the part A permit.

No further information regarding the centrifugal dewatering system is currently available.

Additional Information:

Determine if the system is still in use.

Determine age and period of operation of system.

Determine if there have been any releases.

Determine if secondary containment exists around the system.

Determine specific waste types used in the system.

Determine risks for direct contact by humans.

C. Monitoring Description (groundwater, surface water, etc.):

Current file information does not indicate the existence of current programs, or data that indicate the monitoring of groundwater, surface water, Air, or other potential Pathways of concern that have been initiated by GMC - Chevrolet Flint Manufacturing.

Additional Information Needed:

Determine if monitoring information initiated by GMC exists.

Determine if routes exist for potential contamination of air, groundwater, surface water or other pathways.

D. Environmental Setting:

GMC - Chevrolet Flint Manufacturing is located in a heavily populated residential/industrial area within the corporate boundaries of the city of Flint. The Flint river flows in a westerly direction through the facility and Swartz creek flows into the Flint river on the eastern side of the facility

According to Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps of Flint, small areas bordering the Flint River lie within the 100-year flood plain and several larger areas particularly the area north of the river, lie within the 500-year flood plain. The drum storage facility sits next to the Flint River and appears to be situated in the 100 year flood plain.

Area well logs indicate that the site is situated over a glacial deposit consisting primarily of clay, sand, and gravel, to a depth ranging from 100 to 200 feet. This glacial deposit overlies an unconfined sandstone unit

Additional Information Needed:

Determine and/or confirm environmental setting. Locate nearest residence and drinking water supply used in the area.

E. **Evidence of Suspected Past or Current Releases:**

There are no known releases from this facility.

File information indicates that the facility has (or had) 13 NPDES discharge permits, 5 City of Flint Discharge permits and approximately 140 Michigan Air Use Permits.

Additional Information:

Determine if there have been any releases of hazardous waste from the current and previous storage areas, if so, determine quantity + type of release.

Also determine if the discharge permits are still active and what is (or was) being discharged.

Visual Site Inspection (VSI)

A. Specific Objectives:

Determine the specific manufacturing processes used at GMC - Chevrolet Flint Mfg. which generate the hazardous wastes.

Determine the exact manner in which the drums are stored and the length of time the drums remain on-site. Also determine quantity of waste and total storage capacity of storage area.

Determine if wastes originally listed as being generated + stored on-site (Part A 1980) then removed by amendments to Part A in 1982 and 1984 are still on-site and if so, where + how are these wastes stored.

Determine if obvious flaws exist in the hazardous waste storage area or its containment systems.

Determine if a revised closure plan has been submitted (and accepted) by GMC for the drum storage area.

Determine what air permits are still used by GMC and what exactly is being emitted.

Determine if storage systems (including centrifugal dewatering system) which were originally listed on the Part A permit are still in use. If they are not, determine if they were closed according to RCRA closure regulations.

B

FACILITY VISUAL SITE INSPECTION FORM

DRAFT

Facility Name: GMC-Chevrolet Flint Manufacturing
EPA I.D. Number: MID005356654
Location Address: 300 N. Chevrolet Ave. Flint, Michigan
TDD Number: F05 8909 010
WSTS Number: FMI1144

Facility Contact/Title: Richard L. Hubler / Gen. Supv. Waste Disposal
Phone Number: (313) 257-6257

Date of Inspection: Jan. 10, 1990 Time of Inspection: 1320 to 1610
Weather: Cloudy, temp. ~ 35°F., humid, winds west ~ 10mph.

Person(s) Interviewed	Organization	Title
Richard L. Hubler	A.C. Rochester	General Supv. Waste Disposal
Richard C. Eisenman	A.C. Rochester	Sr. Env. Engineer
Coleman Williams	A.C. Rochester	Haz. Waste Personnel
Ron Neahusen	A.C. Rochester	Sr. Env. Engineer

Inspectors(s)	Organization	Title
Michael McAteer	Ecology + Environment	Team Leader
Clifford Florczak	Ecology + Environment	Safety Officer

Facility Description: GMC-Chevrolet located in the City of Flint, Michigan produces automotive parts including: gasoline tanks, plastic grills, valves, fiberglas covers, manifolds, and doors. Manufacturing processes include: sheet metal fabrication, injection molding (plastics), engine manufacturing, heat treating (autoparts), chrome plating, tin plating, pressure molding, and non-metallic parts painting. The 180 acre site is situated in a mixed residential/commercial area and the Flint River flows through the middle of the facility.

SOLID WASTE MANAGEMENT UNIT EVALUATION

DRAFT

SWMU No.: 1 Type: Storage facility

Unit Description: 55 gallon drums containing both virgin material + various waste types are stored in a 120' x 30' corrugated metal hazardous waste storage structure located next to the Flint River in the middle of the facility. The north side of the structure is open to allow access to the drums. The floor is an 8" thick continuous re-inforced concrete slab with no seams and it slopes towards a central rectangular drainage channel that feeds into a sump in the center. There is also a 1' high concrete perimeter containment wall around the inside of the structure as well as a concrete ramp at the open front to maintain secondary containment yet allow vehicular access. The far eastern area of the structure (20'x30') is completely enclosed + is used to store PCB waste, this area is kept locked.

Date of Start Up: 1970

Date of Closure: Expected date is April 1990. After closure facility will operate as generator only + wastes will remain on-site less than 30 days.

Method of Closure: Unknown at this time

Waste Description: Waste - hydrochloric acid, waste chromic acid, mercury, dust collector residue, trichloroethylene, methylene chloride, waste paint, acetone, sound deadener/adhesives, plastic resin purgings, methyl ethyl ketone, paint solvents, lead bearing sludge + zinc bearing sludge, methyl chloroform, methyl iso butyl ketone, PCB waste*, + heat treatment salts.

* PCB waste is not RCRA - regulated.

EPA Waste Number: See "Waste Description"

DRAFT

Release Controls:

Waste is stored in sealed drums. Storage building includes seamless contoured floor made of 8" concrete with a drainage channel + sump. Building also has one foot high concrete perimeter containment wall and concrete ramp in front to maintain secondary containment.

History of Release:

No releases on file for this SWMU.

Observed/Potential Releases

Soils: Limited Potential - See "Release Controls" above.

Groundwater: Limited Potential - see "Release Controls" above

Air: Limited Potential - See "Release Controls" above

Subsurface Gas: N/A

DRAFT

Surface Water: Limited Potential. Storage facility is situated in the 100 year flood plain for the Flint River however, construction in this area has elevated all structures approx. 10-15 feet above the normal elevation of the river. A storm sewer is also situated outside the west side of the structure which apparently drains directly into the Flint River.

Exposure Potential

Direct Contact: Limited Potential. Facility is completely fenced and has 24 hr. security.

Groundwater Route: Limited Potential. see "Release Controls" on previous page.

Air Route: Limited Potential. see "Release Controls" on previous page.

Sensitive Environments: N/A None known within 3-miles

SOLID WASTE MANAGEMENT UNIT EVALUATION

DRAFT

SWMU No.: 2 Type: Storage Facility

Unit Description: A 16,000 gallon underground storage tank located between plants #2 and #21 was used to collect waste water generated from the removal of dried paint from masks used in automotive parts painting. The masks were cleaned using a heated alkaline cleaner with a pH of 11.5. The spent alkaline cleaner was periodically removed from the tank by a waste hauler, the sludge was allowed to accumulate in the tank.
GMC's Part A indicated waste codes of F017 and F018 for the tank in 1980. However, in 1981 EPA suspended both of these waste codes

Date of Start Up: unknown

Date of Closure: 1983 (removed in 1989)

Method of Closure: In 1981, EPA suspended waste codes F017 and F018 therefore the tank in question never held a listed hazardous waste. Tank removal in 1989 included sludge sampling which also indicated the waste was non-hazardous. Soil samples were also collected and results were sent to MDNR.

Waste Description: F017 + F018 - spent alkaline cleaner (pH 11.5) + waste water from dried paint removal.

EPA Waste Number: F017 + F018

DRAFT

Release Controls: unknown - Tank was removed in 1989

History of Release: unknown

Observed/Potential Releases

Soils: Soil samples were collected around the tank at the time of removal (summer 1989). the results were sent to MDNR and as of Jan. 1990 no further action had taken place. There is no indication that the tank had a leakage detection system or any type of secondary containment, therefore soil contamination may have occured.

Groundwater: GMC has installed monitoring wells around the removed tank, no data is currently available. A potential exists that groundwater may have been affected due to the fact the integrity of this tank is not known.

Air: unknown

Subsurface Gas: unknown

DRAFT

Surface Water: No potential due to the fact the tank was buried.

Exposure Potential

Direct Contact: N/A Site is fenced and has 24 hr security. The tank was also removed in 1989 and the area is now paved over.

Groundwater Route: Soils & groundwater may have been impacted by possible leakage of the tank.

Air Route: N/A - Tank has been removed.

Sensitive Environments: none in a 3-mile radius

Suggested Further Action: The current hazardous waste storage area is scheduled for closure in April of 1990 after which the facility will operate as a generator only facility with hazardous wastes remaining on-site less than 30 days. If not already done, an approved closure plan needs to be submitted. FIT has no recommendations in terms of remediation for this storage area however, FIT questions the decision to locate the storage area next to a river and in the 100 year floodplain. This is a matter which may need to be addressed during the closure period.

Further study may be necessary around the area where the tank was removed. This decision should be made based on monitoring well data and soil samples recently collected.

DRAFT

Evaluation Summary:

GMC appears to be managing their hazardous waste in a very responsible manner. The hazardous waste storage area includes assurances in terms of construction that would contain any spills and allow simple clean up without affecting groundwater, soils, or surface water. Movement of this storage area out of the floodplain may need to be addressed, however even this potential for affecting surface water is minimal. GMC also appears to be adequately addressing the monitoring of the area of tank removal (SWMU #2) and has indicated that it intends to cooperate with MDNR and U.S. EPA in terms of further monitoring and possible remediation.

C

EPA

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

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
MI	D005356654

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
GMC-Chevrolet Flint Manufacturing	300 N. Chevrolet Ave.				
03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Flint	MI	48556	Genesee	049	07
09 COORDINATES LATITUDE	LONGITUDE				
43°00'30.0"	83°42'30.0"				

10 DIRECTIONS TO SITE (Starting from nearest public road)
From Interstate 75 take Corruna Rd east to West Court St. then go right, then left at Glenwood. The first intersection is Chevrolet Ave, go left and you immediately enter facility.

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business mailing address)		
General Motors Corp. AC Spark Plug Div.	300 N. Chevrolet Ave.		
03 CITY	04 STATE	05 ZIP CODE	06 TELEPHONE NUMBER
Flint	MI	48556	(313) 257 6257
07 OPERATOR (If known and different from owner)	08 STREET (Business mailing address)		
Same as owner			
09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER
			( )

13 TYPE OF OWNERSHIP (Check one)
■ A. PRIVATE ☐ B. FEDERAL _____ (Agency name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL
☐ F. OTHER _____ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)
■ A. RCRA 3001 DATE RECEIVED 8/12/80 (Month Day Year) ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED / / (Month Day Year) ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION
■ YES DATE 01/10/90 (Month Day Year)
☐ NO

BY (Check all that apply)
☐ A. EPA ■ B. EPA CONTRACTOR ☐ C. STATE ☐ D. OTHER CONTRACTOR
☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER _____
CONTRACTOR NAME(S) Ecology + Environment, Inc. (Chicago)

02 SITE STATUS (Check one)
■ A. ACTIVE ☐ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION
1914 (Beginning year) | present (Ending year) ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN OR ALLEGED
Methylene chloride, methyl chloroform, trichloroethylene, zinc sludge, mercury, lead sludge, acetone, paint waste, chromium, heat treatment salts, corrosive material, resin purgings, sound deadener

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION
Possible releases of above substances to environment.

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) ☐ C. LOW (Inspect on time available basis) ■ D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NUMBER
William Messenger	U.S. EPA Region V	(312) 353 1057

04 PERSON RESPONSIBLE FOR ASSESSMENT	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NUMBER	08 DATE
Michael McAteer	FIT	Ecology + Environment	(312) 663 9415	2/16/90 (Month Day Year)

EPA FORM 2070-12 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
MI	D005356654

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- [x] A SOLID
- [ ] B POWDER, FINES
- [x] C SLUDGE
- [ ] D OTHER _____ (Specify)
- [ ] E SLURRY
- [x] F LIQUID
- [ ] G GAS

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

TONS _____

CUBIC YARDS _____

NO OF DRUMS variable

03 WASTE CHARACTERISTICS (Check all that apply)

- [x] A TOXIC
- [x] B CORROSIVE
- [ ] C RADIOACTIVE
- [x] D PERSISTENT
- [ ] E SOLUBLE
- [ ] F INFECTIOUS
- [x] G FLAMMABLE
- [ ] H IGNITABLE
- [ ] I HIGHLY VOLATILE
- [ ] J EXPLOSIVE
- [ ] K REACTIVE
- [ ] L INCOMPATIBLE
- [ ] M NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE	Unknown		
OLW	OILY WASTE			
SOL	SOLVENTS	Unknown		
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS	unknown		

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
	methylene chloride		drums	unknown	
	methyl chloroform		"	"	
	trichloroethylene		"	"	
	zinc sludge		"	"	
	lead sludge		"	"	
	mercury		"	"	
	acetone		"	"	
	paint waste		"	"	
	chromium		"	"	
	heat treatment salts		"	"	
	corrosive materials		"	"	
	resin purgings		"	"	
	sound deadener		"	"	

V. FEEDSTOCKS (See Appendix for CAS numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	MEK		FDS		
FDS	Kerosene		FDS		
FDS	Mineral Spirits		FDS		
FDS	111 Trichloroethane		FDS		

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

- Interview with GMC - Flint Mfg. personnel 1-10-90

EPA

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

I. IDENTIFICATION
01 STATE: MI
02 SITE NUMBER: D005356654

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☐ A. GROUNDWATER CONTAMINATION — 02 ☐ OBSERVED (DATE _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 0
04 NARRATIVE DESCRIPTION

N/A The only potential for groundwater contamination would be a spill and then failure of both primary and secondary containment systems. Aquifers beneath site not used for drinking.

01 ■ B. SURFACE WATER CONTAMINATION — 02 ☐ OBSERVED (DATE _____) — ■ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 0
04 NARRATIVE DESCRIPTION

A potential does exist for surface water contamination due to the fact the hazardous waste storage area is situated in the floodplain of the Flint River. The Flint River is used recreationally.

01 ☐ C. CONTAMINATION OF AIR — 02 ☐ OBSERVED (DATE _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 0
04 NARRATIVE DESCRIPTION

N/A Only containment failure would produce a potential for air contamination.

01 ☐ D. FIRE-EXPLOSIVE CONDITIONS — 02 ☐ OBSERVED (DATE _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 0
04 NARRATIVE DESCRIPTION

N/A According to the Flint Fire Dept. the site does not pose as a fire and/or explosion hazard.

01 ☐ E. DIRECT CONTACT — 02 ☐ OBSERVED (DATE _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 0
04 NARRATIVE DESCRIPTION

N/A (24 hr. surveillance and site is completely fenced)

01 ■ F. CONTAMINATION OF SOIL — 02 ☐ OBSERVED (DATE _____) — ■ POTENTIAL — ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: unk (acres)
04 NARRATIVE DESCRIPTION

The area where the underground storage tank was located may have been contaminated if waste from the tank had leaked. GMC now has wells in this area and has conducted recent soil sampling. Results of sampling are currently not available.

01 ☐ G. DRINKING WATER CONTAMINATION — 02 ☐ OBSERVED (DATE _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 0
04 NARRATIVE DESCRIPTION

N/A (source is outside 3-mile radius)

01 ■ H. WORKER EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE _____) — ■ POTENTIAL — ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: 4,000
04 NARRATIVE DESCRIPTION

There is a potential for worker exposure should a spill occur.

01 ■ I. POPULATION EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE _____) — ■ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 4,000
04 NARRATIVE DESCRIPTION

The only population potentially affected are on-site workers and any persons using the Flint River recreationally (see parts B+H)

EPA

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

I. IDENTIFICATION
01 STATE: MI
02 SITE NUMBER: D005356654

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☐ J DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE _____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION

N/A None reported or observed.

01 ☐ K DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE _____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION

N/A None reported or observed.

01 ■ L CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE _____) — ■ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION

According to the Flint Dept. of Parks + Recreation, the Flint River is fished in. The haz. waste storage area sits in the floodplain of the Flint River + therefore a potential for contamination of aquatic life does exist.

01 ■ M UNSTABLE CONTAINMENT OF WASTES — 02 ☐ OBSERVED (DATE _____) — ■ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 4,000 — 04 NARRATIVE DESCRIPTION

The integrity of the underground storage tank which held waste water from paint removal has not been confirmed. It was removed in 1989. Drum storage area also is located in Floodplain of Flint River.

01 ☐ N DAMAGE TO OFFSITE PROPERTY N/A — 02 ☐ OBSERVED (DATE _____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION

State + FIT File information does not indicate any off-site damage. Haz. waste is currently stored in a secure manner limiting any potential for offsite damage.

01 ■ O CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE _____) — ■ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION

A storm drain on the west side of the storage facility could be impacted should wastes spill while moving them in or out of the facility. Waste stored in the building however have no potential for migration outside of the contained structure.

01 ☐ P ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE _____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION

N/A None reported or observed

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

N/A

III. TOTAL POPULATION POTENTIALLY AFFECTED: 4,000

IV. COMMENTS

None

V. SOURCES OF INFORMATION

EPA File information - Region V
- On-site inspection logbook 1-10-90
- E&E File information
- U.S.G.S. Topographic Map, Flint North, Michigan Quad. 7.5 minutes.

EPA FORM 2070-12 (7-81)

PRELIMINARY AND PROJECTED
HAZARD RANKING SYSTEM
SCORE WORKSHEETS

Site Name: GMC - Chevrolet Flint Mfg. (~~Cerclis Name~~)

N/A (AKA)

Address: 300 N. Chevrolet Ave.

City/County/State/Zip Flint / Genesee / Michigan / 48556

~~Cerclis~~ EPA ID # MID005356654 SSID N/A

Prepared by Mike McAteer E&E Date 2-25-90

Reviewed by Carl Hurst E&E Date 3-1-90

TDD: F05 8909 010 PAN FMI1144RA

Type of Document

PA	✓
PA Reassessment	___
WP-SSI	___
WP-LSI	___

PRELIMINARY HRS SCORE

S_M= 0 S_{FE}= – S_{DC}= 0

PROJECTED HRS SCORE FOR SCREENING SITE INSPECTION (SSI)

S_M= 0 S_{FE}= – S_{DC}= 0

PROJECTED HRS SCORE FOR LISTING SITE INSPECTION (LSI)

S_M= 2.86 S_{FE}= – S_{DC}= 0

PRELIMINARY HRS SCORE

(THIS SCORE IS BASED ON EXISTING FILE INFORMATION THAT WAS OBTAINED PRIOR TO THE SCREENING SITE INSPECTION)

	S	S^2
Groundwater Route Score (S_{gw}-)	0	0
Surface Water Route Score (S_{sw}-)	0	0
Air Route Score (S_A-)	–	–
$S_{gw}^2 + S_{sw}^2 + S_A^2$		0
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_A^2}$		0
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_A^2} / 1.73$ - S_M-		0

PROJECTED HRS SCORE FOR SCREENING SITE INSPECTION (SSI)

(THIS SCORE IS BASED ON THE EXPECTED ACQUISITION OF INFORMATION FROM THE SCREENING SITE INSPECTION)

	S	S^2
Groundwater Route Score (S_{gw}-)	0	0
Surface Water Route Score (S_{sw}-)	0	0
Air Route Score (S_A-)	–	–
$S_{gw}^2 + S_{sw}^2 + S_A^2$		0
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_A^2}$		0
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_A^2} / 1.73$ - S_M-		0

PROJECTED HRS SCORE FOR LISTING SITE INSPECTION (LSI)

(THIS SCORE IS BASED ON THE EXPECTED ACQUISITION OF INFORMATION FROM THE LISTING SITE INSPECTION)

	S	S^2
Groundwater Route Score (S_{gw}-)	4.95	24.50
Surface Water Route Score (S_{sw}-)	0	0
Air Route Score (S_A-)	–	–
$S_{gw}^2 + S_{sw}^2 + S_A^2$		24.50
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_A^2}$		4.95
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_A^2} / 1.73$ - S_M-		2.86

GROUNDWATER ROUTE

PRELIMINARY HRS SCORE WORKSHEET

(This score is based on existing file information that was obtained prior to the Screening Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Observed Release	(0) 45	x1	0	NONE	-
If Observed Release scores 45 proceed to line 4 If Observed Release scores 0 proceed to line 2					
2 Route Characteristics				Aquifer Description: gravel/clay over sandstone + shale	1
Depth to Aquifer of concern	0 1 2 (3)	x2	6	4 ft.	1
Net Precipitation	0 (1) 2 3	x1	1	Precip 30.68" Evap 30.5	9
Permeability of the Unsaturated Zone	0 (1) 2 3	x1	1	10^{-5}-10^{-7} cm/sec clay + gravel	1
Physical State	0 1 2 (3)	x1	3	liquid	2
	Total Route Char. Score		11		
3 Containment	(0) 1 2 3	x1	0	sealed drums secondary containment	2
4 Waste Characteristics					
Persistence	0 1 2 (3)				
Toxicity	0: 0 0 0 0 1: 3 6 9 12 2: 6 9 12 15 (3): 9 12 15 (18)	x1	18	lead, chromium, + paint waste	2
Haz. Waste Quantity	0 1 2 (3) 4 5 6 7 8	x1	3	maximum # of drums = 450	2
	Total Waste Char. Score		21		
5 Targets					
Groundwater Use	0 (1) 2 3	x3	3	industrial use	3
Distance to Nearest Well / Population Served	0: (0) 0 0 0 0 1: 0 4 6 8 10 2: 0 8 12 16 20 3: 0 12 18 24 30 4: 0 16 24 32 35 5: 0 20 30 35 40	x1	0	GW not used for drinking purposes	4
	Total Targets Score		3		
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		
7 Divide line 6 by 57,330 and multiply by 100			S_{gw} = 0		

GROUNDWATER ROUTE

PROJECTED HRS SCORE WORKSHEET FOR SCREENING SITE INSPECTION (SSI)

(This score is based on the expected acquisition of information from the Screening Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Observed Release	(0) 45	x1		No monit. wells around storage bldg.	5
If Observed Release scores 45 proceed to line 4 If Observed Release scores 0 proceed to line 2					
2 Route Characteristics				Aquifer Description: gravel/clay over sandstone + shale	1
Depth to Aquifer of concern	0 1 2 (3)	x2	6	4 ft.	1
Net Precipitation	0 (1) 2 3	x1	1	Precip 30.68" Evap 30.5"	9
Permeability of the Unsaturated Zone	0 (1) 2 3	x1	1	10^{-5}-10^{-7} cm/sec clay + gravel	1
Physical State	0 1 2 (3)	x1	3	liquid	5, 2
	Total Route Char. Score		11		
3 Containment	(0) 1 2 3	x1	0	Sealed drums + secondary containment	5
4 Waste Characteristics					
Persistence	0 1 2 (3)				
Toxicity	0 0 0 0 0 1 3 6 9 12 2 6 9 12 15 (3) 9 12 15 (18)	x1	18	lead, chromium, + paint waste	5
Haz. Waste Quantity	0 1 2 (3) 4 5 6 7 8	x1	3	maximum drums in storage = 450	2
	Total Waste Char. Score		21		
5 Targets					
Groundwater Use	0 (1) 2 3	x3	3	industrial use	3
Distance to Nearest Well	0 1 2 3 4				
Population Served	0 (0) 0 0 0 0 1 0 4 6 8 10 2 0 8 12 16 20 3 0 12 18 24 30 4 0 16 24 32 35 5 0 20 30 35 40	x1	0	GW not used for drinking purposes	4
	Total Targets Score		3		
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		
7 Divide line 6 by 57,330 and multiply by 100			S_{gw} = 0		

GROUNDWATER ROUTE

PROJECTED HRS SCORE WORKSHEET FOR LISTING SITE INSPECTION (LSI)

(This score is based on the expected aquisition of information from the Listing Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Description	Ref. #
1 Observed Release	0 45	x1	45	assume observed release	
If Observed Release scores 45 proceed to line 4 If Observed Release scores 0 proceed to line 2					
2 Route Characteristics				Aquifer Description:	
Depth to Aquifer of concern	0 1 2 3	x2		ft.	
Net Precipitation	0 1 2 3	x1		Precip Evap	
Permeability of the Unsaturated Zone	0 1 2 3	x1		cm/sec	
Physical State	0 1 2 3	x1			
	Total Route Char. Score				
3 Containment	0 1 2 3	x1			
4 Waste Characteristics					
Persistence	0 1 2 3				
Toxicity	0 0 0 0 0 1 3 6 9 12 2 6 9 12 15 3 9 12 15 18	x1	18	lead, chromium, paint waste	5
Haz. Waste Quantity	0 1 2 3 4 5 6 7 8	x1	3	maximum # of drums = 450	2
	Total Waste Char. Score		21		
5 Targets					
Groundwater Use	0 1 2 3	x3	3	industrial use	3
Distance to Nearest Well	0 1 2 3 4				
Population Served	0 0 0 0 0 1 0 4 6 8 10 2 0 8 12 16 20 3 0 12 18 24 30 4 0 16 24 32 35 5 0 20 30 35 40	x1	0	GW not used for drinking purposes	4
	Total Targets Score		3		
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			2835		
7 Divide line 6 by 57,330 and multiply by 100			S_{gw}= 4.95		

SURFACE WATER ROUTE

PRELIMINARY HRS SCORE WORKSHEET

(This score is based on existing file information that was obtained prior to the Screening Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Observed Release	(0) 45	x1	0	NONE	
If Observed Release scores 45 proceed to line 4 If Observed Release scores 0 proceed to line 2					
2 Route Characteristics					
Facility Slope / Intervening Terrain	(0) 0 0 0 3 0 1 1 2 3 0 1 2 2 3 0 2 2 3 3 0 2 3 3 3	x1	0	Facil <3%	6
				Interv <3%	6
1-yr. 24 hr Rainfall	0 1 (2) 3	x1	2	2.2 in.	9
Distance to Nearest Surface Water	0 1 2 (3)	x2	6	Flint River borders storage area	2
Physical State	0 1 2 (3)	x1	3	liquid	2
Total Route Char. Score			11		
3 Containment	(0) 1 2 3	x1	0	sealed drums + secondary containment	2
4 Waste Characteristics					
Toxicity / Persistence	0 1 2 (3) 0: 0 0 0 0 1: 3 6 9 12 2: 6 9 12 15 (3): 9 12 15 (18)	x1	18	lead, chromium, + paint waste	2
Haz. Waste Quantity	0 1 2 (3) 4 5 6 7 8	x1	3	maximum # of drums = 450	2
Total Waste Char. Score			21		
5 Targets					
Surface Water Use	0 1 (2) 3	x3	6	recreational	4
Dist. to Sensitive Environment	(0) 1 2 3	x2	0	NONE	6
Population Served / Distance to Water Intake Downstream	(0) 0 0 0 0 0 4 6 8 10 0 8 12 16 20 0 12 18 24 30 0 16 24 32 35 0 20 30 35 40	x1	0	NONE	4, 3
Total Targets Score			6		
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		
7 Divide line 6 by 64,350 and multiply by 100	S_{sw} = 0				

SURFACE WATER ROUTE

PROJECTED HRS SCORE WORKSHEET FOR SCREENING SITE INSPECTION (SSI)

(This score is based on the expected acquisition of information from the Screening Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Observed Release	(0) 45	x1	0	Containment would prevent runoff to River	5
If Observed Release scores 45 proceed to line 4 If Observed Release scores 0 proceed to line 2					
2 Route Characteristics					
Facility Slope / Intervening Terrain	(0) 0 0 0 3 0 1 1 2 3 0 1 2 2 3 0 2 2 3 3 0 2 3 3 3	x1	0	Facil <3 % Interv <3 %	5,6 5,6
1-yr. 24 hr Rainfall	0 1 (2) 3	x1	2	2.2 in.	9
Distance to Nearest Surface Water	0 1 2 (3)	x2	6	Flint River borders storage area	5
Physical State	0 1 2 (3)	x1	3	liquid	5,2
	Total Route Char. Score		11		
3 Containment	(0) 1 2 3	x1	0	sealed drums + secondary containment	5,2
4 Waste Characteristics					
Persistence / Toxicity	0 1 2 (3) 0: 0 0 0 0 1: 3 6 9 12 2: 6 9 12 15 (3): 9 12 15 (18)	x1	18	lead, chromium, + paint waste	5
Haz. Waste Quantity	0 1 2 (3) 4 5 6 7 8	x1	3	maximum # of drums = 450	2
	Total Waste Char. Score		21		
5 Targets					
Surface Water Use	0 1 (2) 3	x3	6	recreational	4
Dist. to Sensitive Environment	(0) 1 2 3	x2	0	none	6
Population Served / Distance to Water Intake Downstream	(0) 0 0 0 0 0 4 6 8 10 0 8 12 16 20 0 12 18 24 30 0 16 24 32 35 0 20 30 35 40	x1	0	NONE	3,4
	Total Targets Score		6		
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		
7 Divide line 6 by 64,350 and multiply by 100	S_{sw} = 0				

SURFACE WATER ROUTE

PROJECTED HRS SCORE WORKSHEET FOR LISTING SITE INSPECTION (LSI)

(This score is based on the expected aquisition of information from the Listing Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Observed Release	(0) 45	x1	0	Containment prevents runoff	5
If Observed Release scores 45 proceed to line 4 If Observed Release scores 0 proceed to line 2					
2 Route Characteristics	Intervening Terrain Facility Slope: (0) 0 0 0 3; 0 1 1 2 3; 0 1 2 2 3; 0 2 2 3 3; 0 2 3 3 3	x1	0	Facil < 3 % Interv < 3 %	5,6 5,6
1-yr. 24 hr Rainfall	0 1 (2) 3	x1	2	2.2 in	9
Distance to Nearest Surface Water	0 1 2 (3)	x2	6	Flint River borders storage facility	5
Physical State	0 1 2 (3)	x1	3	liquid	2,5
	Total Route Char. Score		11		
3 Containment	(0) 1 2 3	x1	0	sealed drums + secondary containment	2,5
4 Waste Characteristics					
Persistence	0 1 2 (3)				
Toxicity	0: 0 0 0 0; 1: 3 6 9 12; 2: 6 9 12 15; (3): 9 12 15 (18)	x1	18	lead, chromium, + paint waste	5
Haz. Waste Quantity	0 1 2 (3) 4 5 6 7 8	x1	3	maximum # of drums = 450	2
	Total Waste Char. Score		21		
5 Targets					
Surface Water Use	0 1 (2) 3	x3	6	recreational	4
Dist. to Sensitive Environment	(0) 1 2 3	x2	0	NONE	6
Population Served	Distance to Water Intake Downstream: (0) 0 0 0 0; 0 4 6 8 10; 0 8 12 16 20; 0 12 18 24 30; 0 16 24 32 35; 0 20 30 35 40	x1	0	NONE	3,4
	Total Targets Score		6		
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		
7 Divide line 6 by 64,350 and multiply by 100			S_{sw} = 0		

AIR ROUTE

PRELIMINARY HRS SCORE WORKSHEET

(This score is based on existing file information that was obtained prior to the Screening Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Observed Release	0 45	x1			
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					
Reactivity & Incompatability	0 1 2 3	x1			
Toxicity	0 1 2 3	x3			
Haz. Waste Quantity	0 1 2 3 4 5 6 7 8	x1			
	Total Waste Char. Score				
3 Targets	Dist to Population				
Population within 4-mile Radius	Pop. 0 0 0 0 9 12 15 18 12 15 18 21 15 18 21 24 18 21 24 27 21 24 27 30	x1			
Distance to Sensitive Environment	0 1 2 3	x2			
Land Use	0 1 2 3	x1			
	Total Targets Score				
4 Multiply 1 x 2 x 3					
5 Divide line 4 by 35,100 and multiply by 100			S_a =		

File information and inspection/interview of GMC facility + personnel do not indicate a threat to air quality from the current hazardous waste storage area. This pathway will therefore not be scored.

AIR ROUTE

PROJECTED HRS SCORE WORKSHEET FOR SCREENING SITE INSPECTION (SSI)

(This score is based on the expected acquisition of information from the Screening Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Observed Release	0 45	x1			
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					
Reactivity & Incompatability	0 1 2 3	x1			
Toxicity	0 1 2 3	x3			
Haz. Waste Quantity	0 1 2 3 4 5 6 7 8	x1			
	Total Waste Char. Score				
3 Targets					
Population within 4-mile Radius	Dist to Population Pop 0 0 0 0 9 12 15 18 12 15 18 21 15 18 21 24 18 21 24 27 21 24 27 30	x1			
Distance to Sensitive Environment	0 1 2 3	x2			
Land Use	0 1 2 3	x1			
	Total Targets Score				
4 Multiply 1 x 2 x 3					
5 Divide line 4 by 35,100 and multiply by 100			S_a =		

Not a threat (see preliminary)

AIR ROUTE

PROJECTED HRS SCORE WORKSHEET FOR LISTING SITE INSPECTION (LSI)

(This score is based on the expected aquisition of information from the Listing Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Observed Release	0 45	x1			
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					
Reactivity & Incompatability	0 1 2 3	x1			
Toxicity	0 1 2 3	x3			
Haz. Waste Quantity	0 1 2 3 4 5 6 7 8	x1			
	Total Waste Char. Score				
3 Targets					
Population within 4-mile Radius	Dist to Population Pop. 0 0 0 0 9 12 15 18 12 15 18 21 15 18 21 24 18 21 24 27 21 24 27 30	x1			
Distance to Sensitive Environment	0 1 2 3	x2			
Land Use	0 1 2 3	x1			
	Total Targets Score				
4 Multiply 1 x 2 x 3					
5 Divide line 4 by 35,100 and multiply by 100			S_a =		

Not a threat (see preliminary)

FIRE AND EXPLOSION

PRELIMINARY HRS SCORE WORKSHEET

(This score is based on existing file information that was obtained prior to the Screening Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Containment	0 3	x1			
2 Waste Characteristics					
Direct Evidence	0 3	x1			
Ignitability	0 1 2 3	x1			
Reactivity	0 1 2 3	x1			
Incompatability	0 1 2 3	x1			
Haz. Waste Quantity	0 1 2 3 4 5 6 7 8	x1			
	Total Waste Char. Score				
3 Targets					
Dist. to Nearest Pop.	0 1 2 3 4 5	x1			
Dist. to Nearest Bldg.	0 1 2 3	x1			
Dist. to Sensitive Env.	0 1 2 3	x1			
Land Use	0 1 2 3	x1			
Pop. Within 2 miles	0 1 2 3 4 5	x1			
Bldgs. Within 2 miles	0 1 2 3 4 5	x1			
	Total Targets Score				
4 Multiply 1 x 2 x 3					
5 Divide line 4 by 1,440 and multiply by 100			S_{FE} =		

FIT observations and file information do not indicate a fire or explosion hazard at this facility.

FIRE AND EXPLOSION

PROJECTED HRS SCORE WORKSHEET FOR SCREENING SITE INSPECTION (SSI)

(This score is based on the expected acquisition of information from the Screening Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Containment	0 3	x1			
2 Waste Characteristics					
Direct Evidence	0 3	x1			
Ignitability	0 1 2 3	x1			
Reactivity	0 1 2 3	x1			
Incompatability	0 1 2 3	x1			
Haz. Waste Quantity	0 1 2 3 4 5 6 7 8	x1			
	Total Waste Char. Score				
3 Targets					
Dist. to Nearest Pop.	0 1 2 3 4 5	x1			
Dist. to Nearest Bldg.	0 1 2 3	x1			
Dist. to Sensitive Env.	0 1 2 3	x1			
Land Use	0 1 2 3	x1			
Pop. Within 2 miles	0 1 2 3 4 5	x1			
Bldgs. Within 2 miles	0 1 2 3 4 5	x1			
	Total Targets Score				
4 Multiply 1 x 2 x 3					
5 Divide line 4 by 1,440 and multiply by 100			S_{FE} =		

see "Preliminary explanation"

FIRE AND EXPLOSION

PROJECTED HRS SCORE WORKSHEET FOR LISTING SITE INSPECTION (LSI)

(This score is based on the expected acquisition of information from the Listing Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Containment	0 3	x1			
2 Waste Characteristics					
Direct Evidence	0 3	x1			
Ignitability	0 1 2 3	x1			
Reactivity	0 1 2 3	x1			
Incompatability	0 1 2 3	x1			
Haz. Waste Quantity	0 1 2 3 4 5 6 7 8	x1			
	Total Waste Char. Score				
3 Targets					
Dist. to Nearest Pop.	0 1 2 3 4 5	x1			
Dist. to Nearest Bldg.	0 1 2 3	x1			
Dist. to Sensitive Env.	0 1 2 3	x1			
Land Use	0 1 2 3	x1			
Pop. Within 2 miles	0 1 2 3 4 5	x1			
Bldgs. Within 2 miles	0 1 2 3 4 5	x1			
	Total Targets Score				
4 Multiply 1 x 2 x 3					
5 Divide line 4 by 1,440 and multiply by 100			S_{FE} =		

See "Preliminary explanation"

DIRECT CONTACT

PRELIMINARY HRS SCORE WORKSHEET

(This score is based on existing file information that was obtained prior to the Screening Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Observed Incident	(0) 45	x1	0	NONE	
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2 Accessibility	(0) 1 2 3	x1	0	completely fenced 24 hr. surveillance	5
3 Containment	(0) 15	x1	0	sealed drums, secondary containment	2,5
4 Waste Characteristics					
Toxicity	0 1 2 (3)	x5	15	lead, chromium, paint waste	2
5 Targets					
Pop. Within 1 mile	0 1 2 3 4 (5)	x4	20	pop. = ~ 31,922	6,7
Dist. to Crit. Habitat	(0) 1 2 3	x4	0	NONE	8
	Total Targets Score		20		
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		
7 Divide line 6 by 21,600 and multiply by 100			S_{DC} = 0		

DIRECT CONTACT

PROJECTED HRS SCORE WORKSHEET FOR SCREENING SITE INSPECTION (SSI)

(This score is based on the expected acquisition of information from the Screening Site Inspection)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Observed Incident	(0) 45	x1	0	NONE	
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2 Accessibility	(0) 1 2 3	x1	0	completely fenced, 24 hr. surveillance	5
3 Containment	(0) 15	x1	0	sealed drums, secondary containment	2,5
4 Waste Characteristics					
Toxicity	0 1 2 (3)	x5	15	lead, chromium, paint waste	5
5 Targets					
Pop. Within 1 mile	0 1 2 3 4 (5)	x4	20	pop. = ~ 31,922	6,7
Dist. to Crit. Habitat	(0) 1 2 3	x4	0	NONE	8
	Total Targets Score		20		
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		
7 Divide line 6 by 21,600 and multiply by 100			S_{DC} = 0		

DIRECT CONTACT

PROJECTED HRS SCORE WORKSHEET FOR LISTING SITE INSPECTION (LSI)

(This score is based on the expected acquisition of information from the Listing Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Observed Incident	(0) 45	x1	0	NONE	
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2 Accessibility	(0) 1 2 3	x1	0	completely fenced, 24 hr. surveillance	5
3 Containment	(0) 15	x1	0	sealed drums, secondary containment	2,5
4 Waste Characteristics					
Toxicity	0 1 2 (3)	x5	15	lead, chromium, paint waste	5
5 Targets					
Pop. Within 1 mile	0 1 2 3 4 (5)	x4	20	pop. = ~ 31,922	6,7
Dist. to Crit. Habitat	(0) 1 2 3	x4	0	NONE	8
	Total Targets Score		20		
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		
7 Divide line 6 by 21,600 and multiply by 100			S_{DC} = 0		

REFERENCE DOCUMENTATION SHEET

Ref.#	DESCRIPTION OF REFERENCE
1	Michigan Dept. of Conservation, Geological Survey Division, Water Well Record, Genesee County Well Logs Twp. 7 N., Range 6 E.
2.	Closure Plan for Drum Storage Building, GMC - AC Spark Plug Div. Flint West Facility, Prepared by Roy F. Weston, Inc., Bannockburn, IL, Aug. 22, 1988.
3	Wiitala, S.W., K.E. Vanlier, and R.A. Krieger, Water Resources of Flint Area Michigan, 1963, U.S. Gov't Printing Office, Washington
4a.	Viskamtas, Genese County Water Dept., July 5, 1988, telephone Conversation, 313-732-7870, contacted by Henry Adamiak of E+E.
4b.	Hozak, Rudy, Flint Dept. of Parks and Recreation, July 6, 1988, telephone Conversation, 313-766-7463, contacted by Henry Adamiak of E+E.