WORK PLAN FOR INTERIM REMEDIAL MEASURES REMOVAL ACTION LINDEN ROAD LANDFILL SITE FLINT TOWNSHIP, MICHIGAN

Prepared for

GENERAL MOTORS CORPORATION
AC Rochester Division

Prepared by

ROY F. WESTON, INC.
Three Hawthorn Parkway
Vernon Hills, Illinois 60061

August 1992

Work Order No. 1138-58-02

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

SECTION 1
INTRODUCTION

AC Rochester Division of General Motors (GM) conducted a voluntary Interim Remedial Measures Evaluation (IRME) and a Site Investigation (SI) at the Linden Road Landfill (site) located in Flint Township, Genesee County, Michigan. Roy F. Weston, Inc. (WESTON®), hired by GM, conducted the IRME and SI between November 1990 and October 1991. The site is on the Michigan Act 307 Priority List for sites of potential environmental contamination. The purpose of the IRME was to identify and characterize waste material and debris present at the surface of the site, and to evaluate the need for conducting any interim remedial measures (IRM) at the site. The SI was undertaken to evaluate the nature and extent of potential contamination in subsurface material, surface water, and groundwater, to estimate current and potential future risks to human health and the environment, and evaluate applicable alternatives which would be protective of human health and the environment. The overall goal of both these investigations was to identify environmental issues associated with the site that may require remedial actions.

The findings of the IRME and SI were provided in a report titled "Interim Remedial Measures Evaluation and Site Investigation Report," which was submitted to the Michigan Department of Natural Resources (MDNR) in March 1992. This report presented the findings of the investigations, discussed the potential environmental risks associated with the site, identified media of concern, and screened potential remedial alternatives for the site. Based upon the results of the IRME, it was recommended that this limited removal action be performed prior to capping and formal closure of the landfill.

This work plan has been developed to describe the background, goals, and methods for conducting an Interim Removal Measures (IRM) removal action. The following subsections describe the site location, the various work areas, and a summary of the scope of work associated with the removal action. Section 2 of this work plan presents the project organization. Section 3 presents a summary of the existing waste characterization information generated during IRME for the waste material to be removed. Section 4

presents the Scope of Work including the removal action goals, waste management and transportation plans, and permits, approvals, and compliance issues related to transportation and disposal.

The project quality control plan, and project health and safety are discussed in Sections 5 and 6, respectively. Finally, Section 7 discusses project documentation, meetings, and reports.

1.1 SITE LOCATION AND DESCRIPTION

The site is a 40-acre parcel in Flint Township, Genesee County, Michigan (Figure 1-1) and is located approximately 1.5 miles west of the City of Flint. The site is bounded by Linden Road on the east. The northern boundary of the site lies approximately 1/4 mile south of Calkins Road, while the southern boundary lies approximately 1/2 mile north of West Court Street. The west boundary of the site lies approximately 1/4 mile east of Dye Road.

Single family residences are located to the south of the site and on the west of Dye Road. The land to the east of the site is presently used for agricultural purposes. An office complex is located to the north. A privately-owned property, currently referred to as the "Dye Road Dump," also a Michigan Act 307 site, lies immediately west of the site between the site and Dye Road.

The site has been extensively modified from past landfill operations. The topography of the site generally parallels the surrounding area, which slopes downward gently to the north and east. Within the landfill boundaries, the topography is varied with numerous hillocks, several marshy areas, ponds, and trenches. Several areas devoid of vegetation and characterized by red surficial soils are located throughout the site. A small oil disposal area exists near the boundary in the south-central section of the site. The site is also characterized by miscellaneous surface debris and scrap metal piles.

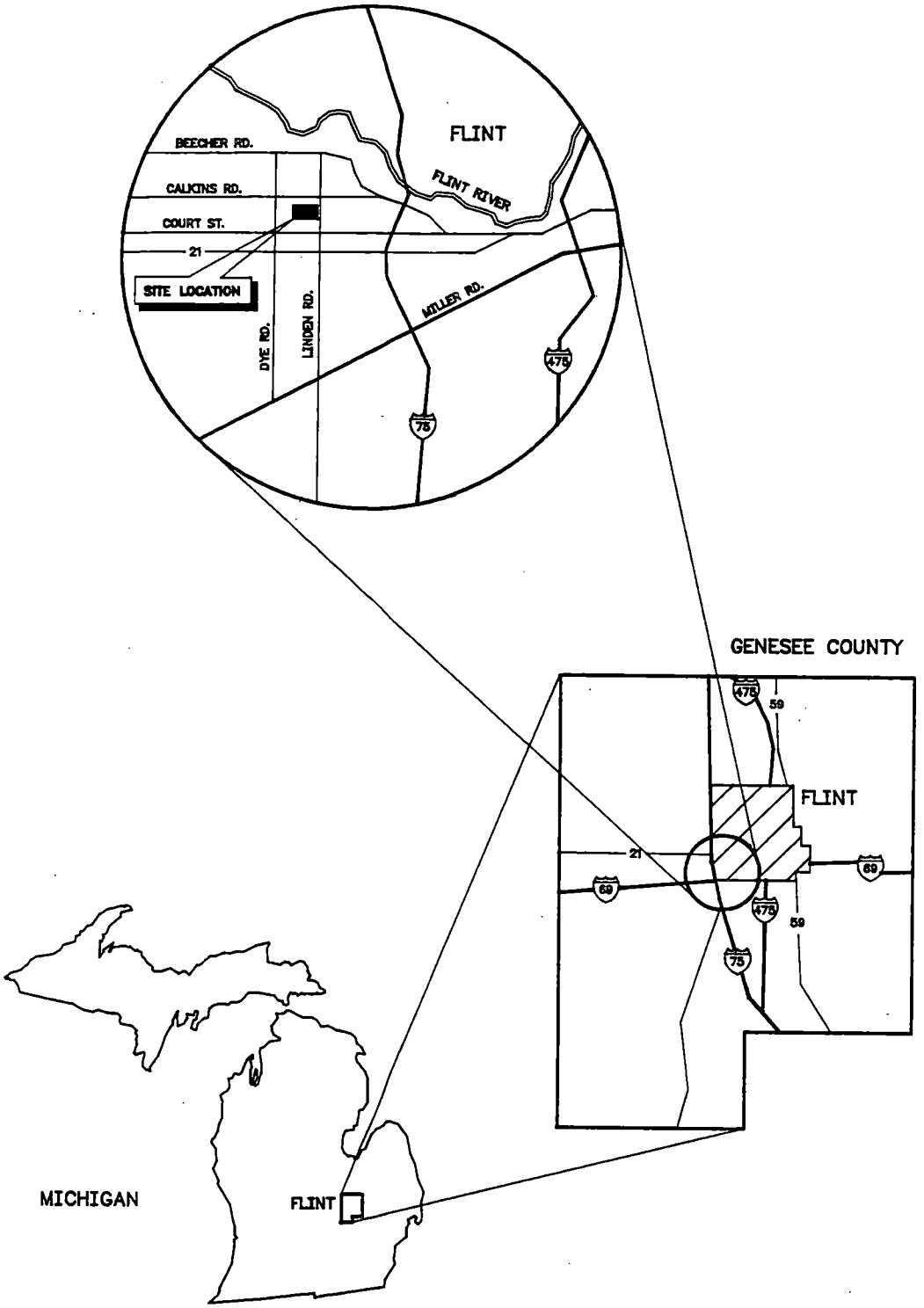

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FIGURE 1–1

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60061

SITE LOCATION MAP

LINDEN ROAD LANDFILL SITE
Flint, Michigan

A more detailed description of the site features and a summary of the site history are presented in the IRME and SI report (March, 1992).

1.2 WORK AREA DESCRIPTION

During the IRME, a cartesian grid coordinate system was established on the site for horizontal ground control. The grid covered the entire site with coordinate points placed at 100-foot intervals north and east of the southwest corner of the site. Each grid coordinate point was marked with a wooden stake driven into the ground. The appropriate coordinates were written on the stake to ensure easy identification. The grid coordinate system is illustrated in Figure 1-2.

Based upon the results of the IRME, three specific areas were determined to warrant limited removal action. These areas include the Oil Disposal Area, Surface Waste Area 32B, and Drum Areas 1 and 20. The numeric system used to identify areas is the same as that used during the IRME and documented in the IRME and SI report (March, 1992). The three areas are identified in Figure 1-2, and are described in the following subsections.

1.2.1 Oil Disposal Area

The Oil Disposal Area is located near the mid-point of the southern boundary (N1050, E1650). The area is approximately 25 by 15 feet. The surface consists of a black, rubber-like crust underlain by a more viscous black oily material. The surface crust is approximately 3 inches in thickness. It is estimated that the oily contents of the Oil Disposal Area extend approximately 1 to 2 feet in depth.

Analysis of a composite sample of the oily material within the Oil Disposal Area indicated elevated levels of trichloroethene (TCE) in the toxicity characteristic leaching procedure (TCLP) extract. Based upon the TCE results and the limited volume of the material, it was determined that the oily material as well as the sidewall soils in contact with this material should be removed.

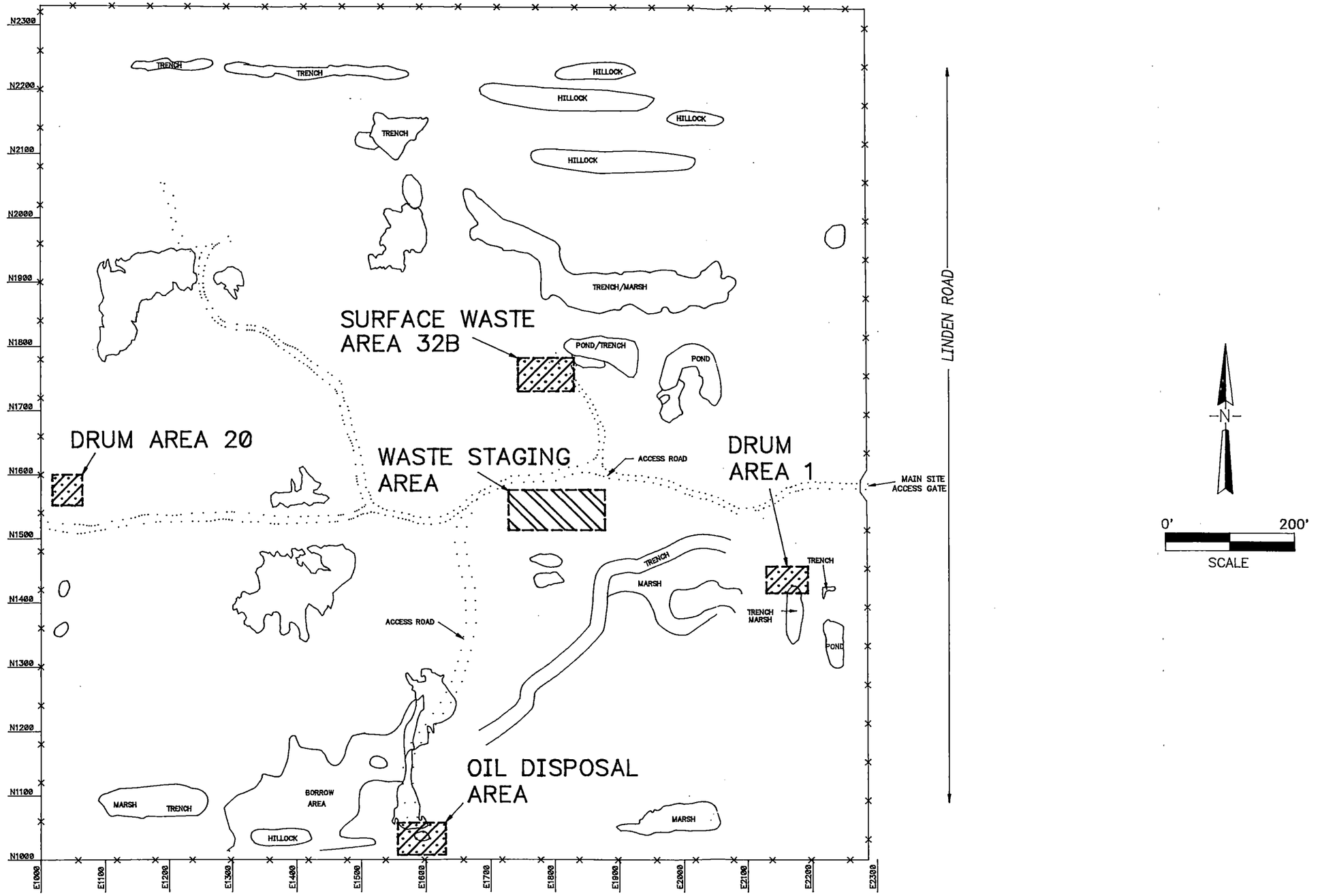

FIGURE 1-2

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60061

SITE LAYOUT & IRM WORK AREAS MAP
IRM REMOVAL ACTION

LINDEN ROAD LANDFILL
Flint, Michigan

1.2.2 Surface Waste Area 32B

Surface Waste Area 32B is located in the north-central section of the site (N1760, E1720). The surface waste material in this area is heterogenous in nature. A partially rusted drum in poor condition, containing a yellow/brown grease wrapped in foil, is also present at this work area. This drum is hereinafter referred to as 32B/DRM-1. Initially, during the IRME, analysis of a grab sample of the surface material collected from Area 32B revealed elevated PCB concentrations. In order to determine the source of the elevated PCB concentrations, seven supplementary samples were collected from a variety of surface materials in Area 32B. These included a single sample from the contents of the drum referenced above. The PCB concentrations of six of the seven supplementary surface material samples were either below detection limits or slightly above detection limits. The sample collected from the drum 32B/DRM-1 revealed elevated PCB levels comparable to that of the initial IRME sample collected in this area. It was believed that the source of the PCBs was the waste in this single drum. Therefore, only the drum 32B/DRM-1, its contents, and limited surface waste material in the immediate vicinity of this drum will be removed from this area.

1.2.3 Drum Areas 1 and 20

Drum Areas 1 and 20 are located near the central-eastern boundary (N1400, E2200) and the central-western boundary (N1600, E1010), respectively. Drum Area 1 consists of approximately 10 partially-rusted drums and drum remnants. Only a single drum was accessible for sampling during the IRME. This drum contained a thick, rubbery, oily material. Drum Area 20 consists of approximately eight scattered partially-rusted drums. As in the case of Drum Area 1, only a single drum could be opened for sampling in this area during the IRME. The drum contained a hard gray-colored material. Analysis of a composite sample generated from sample aliquots from the two drums from Drum Areas 1 and 20 revealed elevated TCE levels in the TCLP extract. Based on the TCE results, it was determined that the drums present in Areas 1 and 20 should be removed.

1.3 SCOPE OF WORK SUMMARY

The primary purpose of this work plan is to provide a scope of work to remove, transport, and dispose of specific surface waste material present at the site. The scope of work includes:

- Waste characterization sampling for disposal acceptance. This action will be performed if currently existing waste characterization data are deemed inadequate.
- Excavation, staging, transportation, and disposal of contents of the Oil Disposal Area.
- Backfilling of the Oil Disposal Area with a suitable clean fill material.
- Excavation, staging, transportation, and disposal of limited Surface Waste Area 32B material. This will also include the disposal of the rusted drum and its contents.
- Collection, staging, transportation, and disposal of drums located in Drum Areas 1 and 20.

SECTION 2
PROJECT ORGANIZATION

This section outlines the roles and responsibilities of those organizations participating in the IRM removal action. A project organization chart is provided in Figure 2-1.

The entire IRM removal action will be performed under the direction of the GM project coordinator. The final selection of a removal contractor shall be approved by the GM project coordinator. Any changes in the scope of work will be approved by the GM project coordinator. The GM project coordinator will also identify the facility or facilities that will provide transport and off-site management of the waste material.

WESTON's role will be to provide removal contractor oversight, document all removal activities, and act as a liaison between the GM project coordinator and the removal contractor. Any communication with MDNR regarding site activity shall be directly with the GM project coordinator. As part of the removal contractor oversight, WESTON will ensure compliance with the work plan, implement health and safety monitoring, provide technical resources, and monitor and control schedule and cost. WESTON will also be responsible for collecting additional waste characterization samples for disposal acceptance if required by the treatment, storage, and disposal facility (TSDF).

The removal contractor will be responsible for all removal activities including providing labor and equipment; excavating and staging of surface waste materials; and loading material into trucks provided by the waste transporter.

PROJECT ORGANIZATION
IRM REMOVAL ACTION
LINDEN ROAD LANDFILL SITE

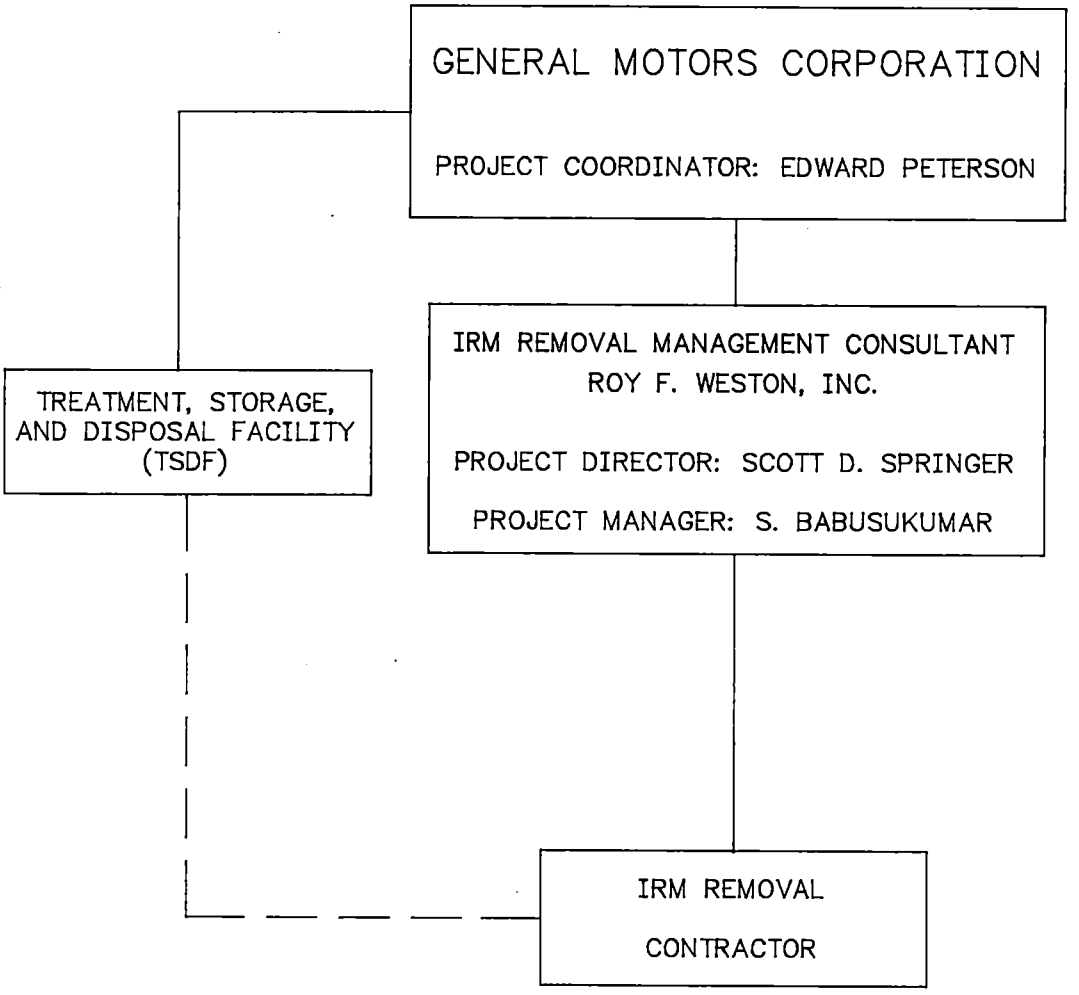

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FIGURE 2-1

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60061

PROJECT ORGANIZATION
IRM REMOVAL ACTION
LINDEN ROAD LANDFILL
Flint, Michigan

SECTION 3
WASTE CHARACTERIZATION

This section presents a summary of the analytical results from waste characterization samples collected during the IRME in the Oil Disposal Area, Surface Waste Area 32B, and Drum Areas 1 and 20. The analytical results will be used for disposal acceptance of removed waste material and for site health and safety planning purposes. A summary of the IRME sample analytical results pertaining to the aforementioned areas is presented in Attachment A.

3.1 OIL DISPOSAL AREA

During the IRME, a grab sample of the oily material beneath the surface crust and a composite sample of the sidewall material were collected from the Oil Disposal Area. The samples were analyzed for TCLP volatile organic compounds (VOC), TCLP semivolatile organic compounds, TCLP metals, and total pesticides/polychlorinated biphenyls (PCBs). The samples were also analyzed for physical parameters including percent solids, pH, closed cup flash point, paint filter test, and reactive cyanide and reactive sulfide. The analytical results of the oily material indicated 0.18 mg/L of benzene and 0.72 mg/L of TCE in the TCLP extract. The semivolatiles meta-cresol and para-cresol in the TCLP extract were estimated at a total concentration of 0.027 mg/L. Total PCBs analysis indicated 3.1 mg/kg of Aroclor-1242 and 2.7 mg/kg of Aroclor-1260. The TCE concentration of 0.72 mg/L exceeds the Resource Conservation and Recovery Act (RCRA) limit of 0.5 mg/L for characteristic hazardous waste.

Analytical results from the sidewall composite sample indicated that VOC concentrations in the TCLP extract were below detection limits. Meta-cresol and para-cresol were detected at an estimated concentration of 0.052 mg/L in the TCLP extract. All other semivolatile compounds in the TCLP extract were also below detection limits. Total PCB analysis detected 15 mg/kg of Aroclor-1248 and 39 mg/kg of Aroclor-1260 in the sidewall material.

Based upon the TCE concentration in the TCLP extract, the contents of the Oil Disposal Area is classified as a RCRA characteristic waste (RCRA Waste Code D040). Based on the PCB concentrations, the sidewall soil material is considered a Toxic Substance Control Act (TSCA)-regulated waste material.

3.2 SURFACE WASTE AREA 32B

As described in Subsection 1.2.2, during the IRME, a sample of the surface waste material was collected from Surface Waste Area 32B and analyzed for TCLP VOCs, TCLP semivolatile organic compounds, TCLP metals, total pesticides/PCBs, and several selected physical parameters. The analytical results are presented in Appendix A. Analytical results indicated that VOCs and semivolatile organic compound concentrations in the TCLP extract were below detection limits. However, results did indicate the presence of elevated TCLP lead (18.5 mg/L) and total PCBs of 13,000 mg/kg. The TCLP lead concentration exceeds the RCRA regulatory criteria of 5 mg/L for classification as a hazardous waste.

As indicated in Subsection 1.2.2, additional sampling in Area 32B indicated that contents of the partially rusted drum (32B/DRM-1) was the source of the PCB contamination. Analytical results from supplemental sampling of the drum contents indicated a total PCB concentration of 9,900 mg/kg.

The surface waste material at Area 32B is classified as a RCRA characteristic waste (RCRA Waste Code D008) based upon the TCLP lead concentration. Based on the PCB concentrations, the surface waste material in Area 32B is also considered a TSCA-regulated waste.

3.3 DRUM AREAS 1 AND 20

A composite sample generated from two drum samples, one each from Drum Areas 1 and 20, was analyzed for TCLP VOCs, TCLP semivolatile organic compounds, TCLP metals, total pesticides/PCBs, and several physical parameters. Compatibility screening was

performed on the individual drum samples. The screening consisted of testing the solubility and reactivity of samples with both water and an organic solvent (hexane), and analyzing for pH, peroxides, oxidizers, cyanides, chlorinated solvents, and PCBs. Based on the results of the compatibility screening and field observations, the drum samples were composited prior to performing chemical/physical analyses.

Analytical results indicated that the composite sample representing Drum Areas 1 and 20 contained TCE (1.2 mg/L) in the TCLP extract at a concentration exceeding the regulatory requirement of 0.5 mg/L for classification as a hazardous waste. Analytical results from supplemental sampling of a drum in Drum Area 20 indicated a total PCB concentration of Aroclor-1254 at 0.46 mg/kg. Pesticides/PCBs, TCLP metals, and TCLP semivolatiles were all below detection limits in the composite sample.

Based upon the TCE concentration in the TCLP extract, the contents of the drums sampled is classified as a RCRA characteristic hazadous waste (RCRA Waste Code D040).

SECTION 4
SCOPE OF WORK

This section presents a comprehensive scope of work for the IRM removal action. As recommended by the IRME and SI report (March 1992), the contents of the Oil Disposal Area, limited surface wastes and a drum from surface waste Area 32B, and drums and drum remnants from Drum Areas 1 and 20 will be removed and transported off site for disposal. The site layout and work area locations are provided in Figure 1-2. The following subsections present removal action goals, a waste management plan, a transportation plan and those tasks associated with permits, approvals and compliance issues.

4.1 REMOVAL ACTION GOALS

The removal action goals of this project are to remove the surface waste materials identified by the IRME as posing a potential direct contact threat to human health and the environment. This action will minimize or prevent any potential accidental exposure to hazardous wastes present on the surface of this site prior to final closure. This action is being performed as part of GM's ongoing efforts to address this site. It is anticipated that this would be the only action performed prior to capping and final closure of the landfill.

4.2 WASTE MANAGEMENT PLAN

4.2.1 Waste Characterization Sampling

Results of the waste characterization sampling performed during IRME for the three areas of concern and corresponding waste classification information are provided in Section 3. In the event that further waste characterization is necessary for disposal acceptance, WESTON will be responsible for collecting representative samples from each waste area identified in this work plan. Representative sampling will be performed in accordance with the requirements of 40 CFR Part 261 - Appendix I.

4.2.2 Surface Waste Material Removal

The areas of surface waste materials identified by the IRME for removal action are as follows:

- Oil Disposal Area.
- Surface Waste Area 32B.
- Drum Areas 1 and 20.

Upon receiving notification of disposal acceptance from the TSDF, the removal contractor will initiate the IRM removal action. Additional waste characterization sampling, if necessary, may be performed in situ or after the waste materials have been excavated/removed and staged. Specific activities to be performed at each area are described below.

Oil Disposal Area

The removal contractor will excavate and remove the contents of the Oil Disposal Area which was determined to have a surface area of approximately 375 square feet and a depth of 1 to 2 feet. The removal contractor will excavate to a maximum depth of 3 feet from the upper surface of the oily material and include an additional 2 feet of sidewall soil material from the Oil Disposal Area. It is estimated that a maximum of 30 cubic yards of material will be removed. The material will be directly transferred into a Department of Transportation (DOT)-approved roll-off box or trailer transport positioned adjacent to the Oil Disposal Area.

The roll-off boxes or trailer transports will be fitted with double liners to prevent loss of materials during transport. The double liner will consist of a fitted polyethylene liner overlain by a second polyethylene sheet. The polyethylene sheet will be placed in the bottom of the transport with sufficient excess sheeting to form the top flap overhanging the truck side-track or roll-off box side. Once the truck or roll-off box is loaded, the top flap

will be placed across the top of the load and secured around the truck or roll-off box edges. A tarp will then be placed over the entire load.

Upon removal of the contents of the Oil Disposal Area, the removal contractor will backfill the excavation with a suitable clean fill material. The removal contractor will decontaminate the portion of equipment which came in contact with the surface waste material prior to backfilling. Waste generated during decontamination will be included with the excavated waste material.

Based upon analytical results from the waste characterization samples, the contents of the Oil Disposal Area is characteristically hazardous for trichloroethene (RCRA Waste Code D040). The PCB concentrations from the sidewalls are above 50 mg/kg, thereby requiring disposal of this material in a chemical waste landfill pursuant to 40 CFR 761.60.

Surface Waste Area 32B

The removal contractor will provide the necessary labor and equipment to remove the drum containing PCB-contaminated material. The removal contractor will also scrape an area 15 by 15 feet adjacent to the above-referenced drum, up to a maximum depth of 6 inches below the surface. The drum will also be removed, crushed, and loaded directly with the surface waste material into a DOT-approved roll-off box or trailer transport following the same procedure previously outlined for the Oil Disposal Area.

Based upon analytical results from the IRME, surface waste from Area 32B is characteristically hazardous for lead. The same IRME sample also indicated a PCB concentration in excess of 50 mg/kg, thereby requiring disposal of this material in a chemical waste landfill pursuant to 40 CFR 761.60. Since contents of the rusted drum (32B/DRM-1) is believed to be the source of the PCB contamination, this drum will be included with the surface waste material from Area 32B.

Drum Areas 1 and 20

The contractor will provide the necessary labor and equipment to remove the drums and drum remnants from Drum Areas 1 and 20. A total of 18 drums or portions of drums are located in these areas. The drums and drum remnants are in poor condition and will require manual loading into the bucket of a backhoe or loader and placement into a DOT-approved roll-off box or trailer transport. The loading, staging, and transporting of these drums will follow the same procedures previously outlined for the Oil Disposal Area.

Based upon analytical results discussed in Subsection 3.3, the drum contents are characteristically hazardous for trichloroethene (D040). PCBs were detected in supplementary sampling from a drum located in Drum Area 20; however, these concentrations were well below 50 mg/kg. Therefore, all drums will be sent to a RCRA hazardous waste landfill for disposal.

4.3 TRANSPORTATION PLAN

GM will be responsible for arranging for transportation of the surface waste material from the site to the off-site TSDF. The trucks will be tarped, lined, inspected for proper labeling and placarding, and properly decontaminated (if necessary) prior to leaving the site. Proper manifests for the waste materials will be reviewed by WESTON and signed by a GM representative. Drivers and trucks will be in compliance with all applicable requirements under 40 CFR, 49 CFR, and other applicable state and federal regulations for transportation of hazardous and PCB-contaminated materials.

4.4 PERMITS, APPROVALS, AND COMPLIANCE

The removal contractor and WESTON will acquire all necessary permits and approvals to perform the IRM removal action. GM will obtain the approval from the appropriate TSDF for waste disposal. All cleanup operations will meet the applicable requirements of the

Occupational Safety and Health Act's (OSHA) Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910 and 29 CFR 1926).

SECTION 5
PROJECT QUALITY CONTROL

Quality control (QC) procedures, which are described in this section, will be implemented and documented to ensure that the IRM removal action goals are met. These procedures are presented as they pertain to waste characterization sampling and analysis and construction.

5.1 WASTE CHARACTERIZATION

As discussed in Section 3, waste characterization samples were collected during the IRME from the Oil Disposal Area, Surface Waste Area 32B, and Drum Areas 1 and 20. The analytical results will be used to obtain disposal acceptance from the TSDF. In the event that additional waste characterization samples are required by the TSDF, additional samples will be collected by WESTON in accordance with the following procedures:

- Appropriate volumes and numbers of samples will be collected using standard acceptable sampling procedures. This will include proper decontamination of sampling tools between sample locations.
- Sample containers will be labeled with appropriate sample numbers and sample numbers and sample location.
- Chain-of-custody documents will be prepared and signed by field personnel handling samples.
- Samples will be preserved and packed for shipment to the TSDF designated by the GM project coordinator.
- Custody seals will be placed on the shipping containers prior to providing them to a commercial carrier for delivery to the TSDF.

A chain of custody will be prepared for each package of samples. Each sample in the package will be logged on the chain-of-custody form. This information will include the sample type and number, sample matrix, time and date, and required analyses. The original

chain-of-custody form and appropriate copies will accompany the package to the TSDF. A copy of the chain-of-custody form will be retained by WESTON and the GM project coordinator.

The samples will be preserved by placing package ice or blue ice packs in each shipment to cool the samples to at least 4°C. All containers will be sealed with tape and separated with packing material to minimize potential breakage. The coolers (package) will be sealed with strapping tape and custody seals will be applied prior to transfer to the carrier for overnight delivery to the TSDF.

5.2 CONSTRUCTION QC PROCEDURES

QC procedures for project construction components will entail field oversight and documentation. Construction components include:

- Excavation and on-site handling of surface waste materials.
- Transportation and disposal of surface waste materials.
- Backfilling excavation in the Oil Disposal Area.

Excavation and backfilling procedures and on-site materials handling will be monitored and inspected on a continuous basis. Precautions will be taken to minimize potential releases of the excavated surface waste throughout the project area.

Daily meetings will be held to ensure that all on-site personnel have a thorough understanding of the requirements of this work plan and health and safety protocols.

Transport trucks will be inspected prior to loading for proper licensing and load security. Manifesting, labeling, placarding, and marking in accordance with 40 CFR and 49 CFR and compliance with waste disposal approval requirements will also be confirmed.

SECTION 6
HEALTH AND SAFETY PLAN

All on-site activities will be performed in accordance with the site health and safety plan. All project personnel will meet minimum health and safety requirements for workers potentially exposed to hazardous substances greater than 30 days per year, as established by OSHA (29 CFR 1910.20). These requirements include:

- A minimum of 40 hours of OSHA-approved instruction with written certification.
- A minimum of 8 hours of annual OSHA refresher instruction.
- A current qualitative air purifying respirator fit test.
- Participation of all on-site workers in a medical surveillance program meeting OSHA requirements.

All project activities having the potential for hazardous substances exposure or other known hazards are identified in the general health and safety plan presented in Appendix A. The removal contractor will be required to prepare a separate health and safety plan following this example. This plan will specifically address construction hazards. WESTON will be the site health and safety coordinator during all IRM on-site activities.

A personal protection air monitoring program will be implemented during on-site activities pursuant to the health and safety plan. Direct reading instruments will be used for continuous monitoring of the breathing zone. Action levels will be calculated based upon threshold limit values (TLV) of the contaminants and the instruments' relative responses to the contaminants. Action levels will also be determined based upon the concentration of nuisance dust in the breathing zone with a direct reading instrument. The level of personal protective equipment will be dictated by the action levels established in the health and safety plan.

SECTION 7
PROJECT DOCUMENTATION, MEETINGS, AND REPORTS

7.1 PROJECT DOCUMENTATION

Project documentation will be performed by the WESTON representative overseeing the removal activities. WESTON will maintain a site logbook that will document all removal activities including air monitoring, contractor progress, health and safety issues, daily meetings, and other pertinent activities. WESTON will also be responsible for photo documentation during the IRM activities.

7.2 CONTRACTOR MEETINGS

A preconstruction meeting will be held with the GM Project Coordinator, WESTON, and the removal contractor in attendance. The purpose of this meeting will be to discuss the scope of work, roles and responsibilities, health and safety, scheduling, communications, and other issues pertaining to the removal action.

During the removal action, a brief health and safety meeting will be held each morning prior to the commencement of removal activities. The meeting will be directed by WESTON with all site personnel in attendance.

7.3 PROJECT UPDATES AND REPORTS

WESTON will provide the GM project coordinator with daily verbal updates on the progress of the removal action. GM will provide verbal updates to MDNR officials as requested. WESTON will also provide a formal written report to GM upon completion of the IRM removal action (i.e., after receipt of all appropriate disposal documentation). This report will be submitted to MDNR by GM and will include the following:

- Detailed chronology of removal activities.
- Photographic documentation.
- Analytical results (if applicable).
- Manifests.
- Chain-of-custody documents (if applicable).

APPENDIX A

IRME WASTE CHARACTERIZATION RESULTS

Table A-1

Summary of IRME Waste Characterization Analytical Results
Linden Road Landfill
Flint, Michigan

Analyte	Oil Disp. Area (Oily Mat.)	Oil Disp. Area (Sidewall)	SA-32B (Composite)	DRA-1&20 (Composite)
I. TCLP Volatiles in mg/L				
2-Butanone	BDL	BDL	BDL	2.9 J
Chloroform	BDL	BDL	BDL	0.08 J
Trichloroethene	0.72	BDL	BDL	1.2 J
Benzene	0.18	BDL	BDL	BDL
II. TCLP Semivolatiles in mg/L				
meta&para-cresol	0.027 J	0.052 J	BDL	0.079
ortho-cresol	BDL	BDL	BDL	0.087
III. TCLP Metals in mg/L				
Barium	BDL	BDL	0.104	0.26
Chromium	BDL	BDL	0.024	0.165
Lead	BDL	BDL	18.5	0.074
Arsenic	BDL	BDL	0.029	BDL
Cadmium	BDL	BDL	0.011	BDL
IV. Pesticides/PCBs in mg/kg				
Aroclor-1254	BDL	BDL	13,000	BDL
Aroclor-1242	3.1	BDL	BDL	BDL
Aroclor-1260	2.7	39	BDL	BDL
Aroclor-1248	BDL	15	BDL	BDL
PCBs, Total	5.8	54	13,000	BDL
V. Physical Parameters				
pH	7.2	7.8	--	5.9
Cyanide, Reactive (mg/kg)	BDL	BDL	BDL	BDL
Sulfide, Reactive (mg/kg)	BDL	7.0	BDL	27.1
Flash Point, Closed Cup (°F)	>200	>200	>200	118
Paint Filter Test (mls/100g)	5	0	0	--

BDL - Below detection limits.
NA - Not analyzed.
J - Indicates an estimated value for an analyte that meets the identification criteria but the result is less than the quantitation limit.
SA-32B - Surface waste sample from Area 32B.
DRA-1&20 - Drum contents from Areas 1 and 20.

Table A-2

Summary of IRME Supplemental Waste Characterization Samples
Linden Road Landfill
Flint, Michigan

Analyte	DRA-20	SA-32B (1)	SA-32B (2)	SA-32B (3)	SA-32B (4)	SA-32B (5)	SA-32B (6)	SA-32B (7)
I. Pesticides/PCBs in mg/kg								
Aroclor-1254	0.46 J	BDL	3.2	BDL	2.4	8,500	BDL	2.0
Aroclor-1242	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Aroclor-1260	BDL	BDL	BDL	BDL	BDL	1,400	BDL	BDL
Aroclor-1248	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
PCBs, Total	0.46 J	BDL	3.2	BDL	2.4	9,900	BDL	2.0
II. TCLP Metals in mg/L								
Lead	NA	0.81	NA	NA	NA	NA	NA	NA

BDL - Below detection limit.
NA - Not analyzed.
J - Indicates an estimated value for an analyte that meets the identification criteria but the result is less than the quantitation limit.
DRA-20 - Drum contents sample from Area 20.
SA - Surface material.
SA-32B(1) - blue material; SA-32B(2) - soil; SA-32B(3) - rust colored granual material; SA-32B(4) - hard, black material; SA-32B(5) - yellow/brown grease attached to foil in drum 32B/DRM-1; SA-32B(6) - ash-like material; and, SA-32B(7) - cream-colored, rusty material.

APPENDIX B

HEALTH AND SAFETY PLAN

SITE HEALTH AND SAFETY PLAN (HASP) FORM

Prepared By S. Bosko Date 7/27/92 W.O. # 1138-58-02

I. General Information

A. Project Identification

1. Division MWR 2. Department/Office C535/VHI

4. Site Name Linden Road Landfill 5. Client General Motors Corporation

6. Work Location Address Linden Road (Street Address) Flint (City) Michigan (State) (Zip)

B. Site History

1. Describe briefly The site was mined for sand and gravel prior to purchase by General Motors (GM) in 1931. GM used the site as a general refuse landfill from 1931 to 1969. WESTON performed an IRME which recommended a limited removal action.

C. Scope of Work

1. Describe briefly Oversight of the removal contractor during the IRM removal action. Specifically the removal and loading of the waste material from the Oil Disposal Area, Area 32B (Surface wastes), and Areas 1 and 20 (Drums).

( ) Site Visit only, Site HASP not necessary, list personnel here & sign-off below:

_____, _____, _____, _____

D. Hazard Assessment and Regulatory Status

1. Indicate Yes (Y)/No (N) to types of hazards anticipated. (Y) Physio-chemical; Toxic Chemical - Levels (N) >TLV-TWA, (N) >TLV-STEL, (N) >IDLH; (N) Bio-Hazards; (N) Radiation; (N) Physical; (Y) Construction type; (Y) Industrial type; (N) Nuclear Industry type

2. Site Regulatory Status: CERCLA/SARA - (N) U.S. EPA, (N) State, (N) NPL Site; RCRA - (N) U.S. EPA, (N) State; OSHA - (Y) 1910, (Y) 1926, (Y) State; NRC - (N) 10 CFR 20; Other Fed. Agency - (N) DOE, (N) USATHAMA, (N) Air Force; (Y) MDNR Act 307 site

Based on the Hazard Assessment and Regulatory Status, determine the Standard HASP(s) applicable to this project. Indicate below which Standard Hasp will be used and append the appropriate pages of this Form along with the Standard Plan.

3. Standard Plan to be used: ( ) Stack Test ( ) Air Emissions ( ) Asbestos ( ) Industrial Hygiene ( ) Life Systems ( ) Hazardous Mat. ( ) Construction ( ) NRC/DOE ( ) USATHAMA ( ) Air Force

D. Review and Approval Documentation

1. Reviewed By: a. P.M. _____ Date _____
   b. P.D. _____ Date _____
   c. DSO/RSO _____ Date _____
   d. SHSC _____ Date _____

2. Approved BY: _____ Date _____
   ( ) a. Corporate Health and Safety Director (CHSD)
   ( ) b. DSO/RSO **(Only with specific delegation by CHSD)**

Project Start Date TBD ;End Date TBD . **This Site HASP must be Reissued/Reapproved for any activities conducted after: Date** TBD

Amendment Date(s) 1._____ 2._____ 3._____ 4._____ 5._____

TBD - To Be Determined

1.0 Key Personnel (Continued)

WESTON Representatives

Organization/Branch	Name/Title	Address	Telephone
WESTON	Scott D. Springer/ Project Director	Three Hawthorn Parkway, Suite 400 Vernon Hills, IL 60061	(708) 918-4000
WESTON	S. Babusukumar/ Project Manager	Three Hawthorn Parkway, Suite 400 Vernon Hills, IL 60061	(708) 918-4000
WESTON	TBD/ Project Geologist	Three Hawthorn Parkway, Suite 400 Vernon Hills, IL 60061	(708) 918-4000

Roles and Responsibilities: Project Director - Provides technical oversight and direction. Project Manager - Provides project oversight, project coordination, client contact, and review of schedule and documents. Project Geologist - Provides contractor oversight, project documentation, sampling (if necessary), air monitoring, and implementation of Site Health and Safety Plan.

(WESTON Subcontractors)

Organization/Branch	Name/Title	Address	Telephone
(Removal Contractor)			

Roles and Responsibilities: The removal contractor will be responsible for all site activities including excavation, loading waste material into trucks, and decontamination.

2.2 Site Specific Health and Safety Personnel

The SHSC for activities to be conducted at this Site is TBD

The Site Health and Safety Coordinator (SHSC) has total responsibility for ensuring that the provisions of this Site HASP are adequate and implemented in the field. Changing field conditions may require decisions to be made concerning adequate protection programs. Therefore, the personnel assigned as SHSC's are experienced and meet the additional training requirements specified by OSHA in 29 CFR 1910.120

Qualifications: TBD

Designated alternatives include: TBD and TBD.

TBD - To Be Determined

II. Health and Safety Evaluation

A. Hazard Assessment

1. Background Review: Complete (X) Partial ( ) If partial, why? _____

2. Activities Covered Under this Plan

No.	Task/Subtask	Description	Schedule
1	Oil Disposal Area	Excavate and load material from Oil Disposal Area	TBD
2	Surface Wastes 32B	Excavate and load material from surface area 32B	TBD
3	Drum Areas 1 & 20	Collect, stage, and load drums and drum remnants from Drum Areas 1&20	TBD
		*See attached Work Areas Map	

3. Types of Hazards: (Place a Y/N in each ( ) to indicate presence/absence of hazard)

a. PhysioChemical (Y) Flammable (N) Explosive (N) Corrosive (N) Reactive
(N) O_2 Rich (N) O_2 Deficient [1]*

Chemically Toxic (Y) Inhal. (Y) Ingest. (Y) Cont. (Y) Absorb.
(Y) Carcin. (N) Mutagen (N) Terat.
(Y) OSHA 1910.1000 Substance
(Y) OSHA Specific Hazard. Sub. Standard, Describe Lead

b. Biological (N) Etiol. Agent (Y) Other - Plant,insect, animal, [2]*

c. Radiation Ionizing - (N) Internal Exposure (N) External exposure [3]*
Non-ionizing - (N) UV; (N) IR; (N) RF; (N) MicroW; (N) LASER

d. Physical Hazards (Y) [4]* e. Construction Activities (Y) [5]*

* The number in the [ ] refers to one of the following hazard evaluation forms. Complete hazard evaluation forms for each appropriate Hazard Class.

B. Source/Location of Contaminants and Hazardous Substances

1. Directly Related to Tasks

(X) Air Excavation activities; (X) Soil Excavation activities;
( ) Other Surface _____; ( ) S. Water _____;
( ) G. Water _____; (X) Other Oily material and surface waste.

2. Indirectly Related to Work - Nearby Process(s) which could affect team members:

( ) Client Facility; ( ) Nearby Non-client Facility. Describe None

( ) Client briefing arranged.
A pre-construction meeting will be arranged prior to initiation of the IRM removal action.

TBD - To Be Determined

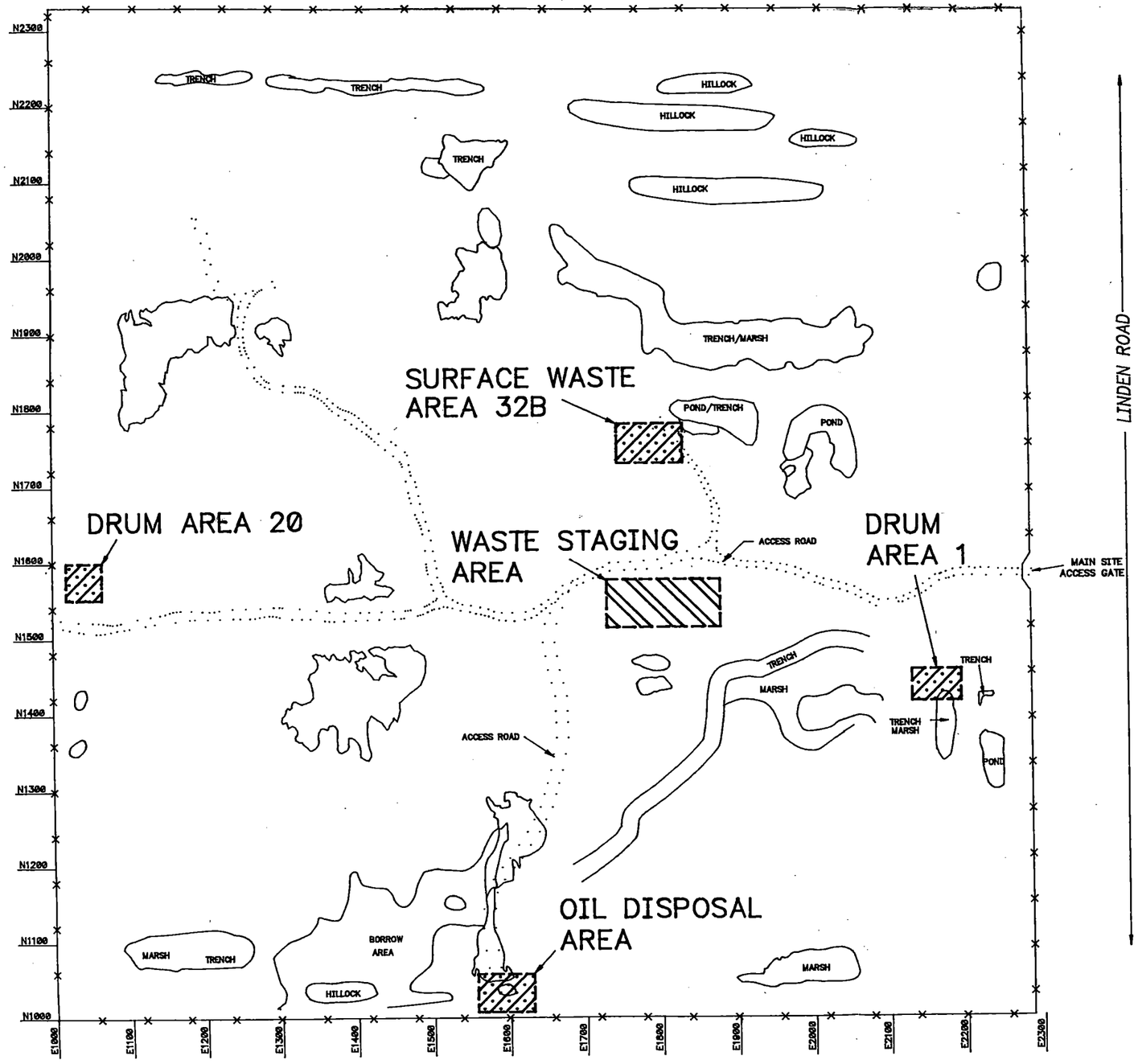


FIGURE 1–2

61091 G

WESTON MANAGERS DESIGNERS/CONSULTANTS

Three Hawthorn Parkway
Vernon Hills, Illinois
60061

SITE LAYOUT & IRM WORK AREAS MAP
IRM REMOVAL ACTION

LINDEN ROAD LANDFILL
Flint, Michigan

[1] Chemical Hazards

[a] Identify and attach Material Safety Data Sheets for all reagent type chemicals, solutions or other materials identified as or which in normal use could produce hazardous substances used in performing tasks related to tasks related to this project. ( ) N/A

[b] Chemical Contaminants of Concern ( ) N/A If present, provide following data.

Hazardous Substance/ Tasks	Physical Properties and Characteristics*	Exposure Limits PEL/TLV**	Route(s)of Exposure***/ Symptoms	Monitoring Instruments/IP+ % Response
Trichloroethene Tasks 1&2	(*) State Liquid pH N/A FP 90% LEL 8% UEL 10.5% Auto.Ig N/A BP 188°F MP -123°F Incompatible with - Strong caustics; when acidic reacts with aluminum; chemically active metals; barium, lithium, sodium, magnesium, titanium. Sp.Gr 1.46 Vap.D Vap.P 58mm H20 Sol. 0.1% Oth. Class 1C Flamm. liq., but burns with difficulty.	50 ppm Ca	Inh Ing con Headache, vertigo, visual disturbance, tremors, somnolence, nausea, vomit, eye irritation, dermatitis, cardiac arrhythmias, paresthesia.	PID/IP:9.47ev PID(10.2): 89% Response OVA: 70% Response
Lead Task: 2	(*) State Solid pH FP NA LEL NA UEL NA Auto.Ig BP 3164°F MP 621°F Incompatible with - Strong oxidizers, hydrogen peroxide active metals; sodium, potassium. Sp.Gr 11.34 Vap.D Vap.P 0 mm H20 Sol. Insol. Oth. ,	0.05 mg/m3 (1910.1025)	Inh Ing Con Dassitude; insomnia; pallor, eye grounds; anorexia, low weight, malnutrition; constipation, abdomen pain, colic; hypotension; anemia; gingival lead line; tremors, paralysis wrist.	Mini Ram

* E = Explosive, F = Flammable, C = Corrosive, R = Reactive, W = Water reactive, O = Oxidi Ra = Radioactive. State = Normal physical state at site/proj. temp.

** Use lowest of two, if no TLV/PEL, use Toxicity data in following order: Lowest Toxic Co humans (LTC-HMN), Lowest Lethal Conc. in humans (LLC-HMN), Lowest Toxic Dose in humans (LT Lowest Lethal Dose in humans (LLD-HMN), LC_{50} or LD_{50} in humans, the Lowest Toxic Concentra Lowest Toxic Dose in animals, the lowest LC_{50} or LD_{50} in animals.

*** I = Inhalation, G = Ingestion, S = Skin Absorption, C= Contact, D - Direct Penetratio

+ IP = Ionization Potential

[1] Chemical Hazards

[a] Identify and attach Material Safety Data Sheets for all reagent type chemicals, solutions or other materials identified as or which in normal use could produce hazardous substances used in performing tasks related to tasks related to this project. ( ) N/A

[b] Chemical Contaminants of Concern ( ) N/A If present, provide following data.

Hazardous Substance/ Tasks	Physical Properties and Characteristics*	Exposure Limits PEL/TLV**	Route(s) of Exposure***/ Symptoms	Monitoring Instruments/IP+ % Response
Polychlorinated Biphenyls (PCBS) Aroclor 1242 Tasks:1,2	(*) State Liquid pH FP NA LEL NA UEL NA Auto.Ig BP 617-691 MP Incompatible with - Strong Oxidizers Sp.Gr 1.39 Vap.D Vap.P 0.001mm H20 Sol. Insol Oth. ,	1.0mg/m3 (Skin) Ca	Inh Ing Abs Con	Mini Ram to Monitor Dust Eye irritation, chloracne, liver damage, [carcinogen]
Polychlorinated Biphenyls(PCBs) Aroclor 1254 Tasks:1,2	(*) State Liquid pH FP NA LEL NA UEL NA 689-734°F Auto.Ig BP MP Incompatible with - Strong Oxidizers Sp.Gr 1.38 Vap.D Vap.P 0.00006 H20 Sol. Insol Oth. ,	0.5mg/m3 (skin) Ca	Inh Ing Abs Con	Mini Ram to Monitor Dust Eye irritation, skin; acne-form dermatitis; jaundice; dark urine; [carcinogen]

* E = Explosive, F = Flammable, C = Corrosive, R = Reactive, W = Water reactive, O = Oxidi Ra = Radioactive. State = Normal physical state at site/proj. temp.

** Use lowest of two, if no TLV/PEL, use Toxicity data in following order: Lowest Toxic Co humans (LTC-HMN), Lowest Lethal Conc. in humans (LLC-HMN), Lowest Toxic Dose in humans (LT Lowest Lethal Dose in humans (LLD-HMN), LC_{50} or LD_{50} in humans, the Lowest Toxic Concentra Lowest Toxic Dose in animals, the lowest LC_{50} or LD_{50} in animals.

*** I = Inhalation, G = Ingestion, S = Skin Absorption, C= Contact, D - Direct Penetratio

+ IP = Ionization Potential

[2] Biological Hazards Of Concern

No.	Hazard	(Y/N)	Task No.(s)*	Location/ Source (K,S)**	Route of Exposure (I,G,C,D)+	Team Member(s) Allergic?	Immunization Required?
1.	Poisonous Plants	(Y)	1,2,3	K	C	TBD	TBD
2.	Insects	(Y)	1,2,3	K	C,D		
3.	Snakes, Reptiles	(N)					
4.	Animals	(Y)		S	C,D		
5.	Sewage	(N)					
6.	Etiologic Agents	(N) (List)					

* List all task Nos. which would involve potential exposure to these hazard(s).
** K = Known, S = Suspect. + I = Inhalation, G = Ingestion, C = Contact, D = Direct Penetration (Bite, Inject., Open wound or sore)

[3] Radiation Hazards of Concern

TYPE

1. Ionizing

	Location/ Source	TYPE EMITTER	TASK NO.(S)	EXPOSURE LIMITS	Protection Protocol REFERENCE
RadioNuclide	N/A				

2. Non-ionizing

	Location/ Source	TASK NO.(S)	EXPOSURE LIMITS	Protection Protocol REFERENCE
Ultra violet	N/A			
Infra Red				
Microwave				
Radio-Freq.				
LASER				

[4] Physical Hazards of Concern

		Hazard (Y/N)	TASK No(s).	Protection OP(s) Attached*
1.	Noise	(Y)	1,2,3	Fld 01
2.	Heat - ambient air	(Y)	1,2,3	Fld 05
	- Hot Process - Steam	(N)		
	- Hot Process - LT[3]	(N)		
	- Hot Process - Incin.	(N)		
3.	Cold	(Y)	1,2,3	Fld 02,06
4.	Rain	(Y)	1,2,3	Fld02
5.	Snow	(Y)	1,2,3	Fld 02,06
6.	Electric Storms	(Y)	1,2,3	Fld 02
7.	Confined Space Entry	(N)		
8.	"Hot Work"	(N)		
9.	Heavy Manual Lifting/Moving	(Y)	3	Fld 10
10.	Rough Terrain	(Y)	1,2,3	
11.	Housekeeping	(N)		
12.	Structural Integrety	(N)		
13.	Neighborhood	(N)		
14.	Remote Area	(N)		
15.	Compressed Gases	(N)		
16.	Diving	(N)		
17.	Using Boats	(N)		
18.	Working over Water	(N)		
19.	Traffic	(N)		
20.	Explosives	(N)		
21.	Heavy Equipment Operation	(Y)	1,2,3	Fld 22a
22.	Lifting Equipment Operation. - Cranes,	(N)		
	- Manlifts	(N)		
23.	Working at Elevation	(N)		
24.	Using Ladders	(N)		
25.	Using Scaffolding	(N)		
26.	Excavating/Trenching	(Y)	1	Fld 28
27.	Materials Handling	(Y)	1,2,3	Fld 29
28.	Haz. Mat. Use/Storage - flam.liq./gases	(N)		
	- oxidizers	(N)		
	- corrosives	(N)		
29.	Fire Prevent/Reponse plan required	(N)		
30.	Fire Extinguishers required	(Y)		
31.	Demolition	(N)		
32.	Utilities - Underground	(N)		
	- Overhead	(N)		
33.	Electrical - General	(N)		
	- High Voltage	(N)		
34.	Welding/cutting/burning	(N)		
35.	Hand tools	(Y)	1,2,3	Fld 38
36.	Power Hand Tools	(N)		
37.	High Pressure Water	(Y)	1,2,3	Fld 37
38.	Other _____	( )		
39.	Other _____	( )		
40.	Other _____	( )		

* Will be attached with final plan during implementation of work plan.

TASK BY TASK RISK ANALYSIS

The preceding Tables identify the hazards known or suspected to be present in accomplishing the tasks involved in this project.

Section II A. 2. of this HASP describes the background of this site/project and identifies the tasks involved.

Below briefly describe each task and the likelihood of exposure to the hazards identified and the protective protocols to be used.

Task 1. Oil Disposal Area - Oversight of removal contractor performing excavation and staging.

Noise - wear ear plugs when around heavy equipment.
Rain - wear appropriate outdoor gear.
Rough terrain - slip, trip, and fall; take caution when walking around excavation and site area.
Heavy equipment - caution when heavy equipment in use; wear hard hat and protective shoes.
Excavating - caution when near excavation; stay clear of excavation whenever possible; follow OSHA regulations for work in excavation/trench.
Likelihood of exposure: Analytical results indicate the presence of trichloroethene and PCBs; and very low concentrations of benzene, and meta & para-cresol which are noted here for right to know purposes. WESTON will perform air monitoring to determine levels of protection. Exposure is expected to be minimal based upon previous work experience in area.

Task 2. Surface Waste Area (32B) - Oversight and removal contractor performing excavation, crushing drums, and loading of material.

Noise, rain, rough terrain, heavy equipment, and excavation - SEE ABOVE.
Likelihood of exposure: Analytical results indicated lead and PCBs; low levels of barium, cadmium, arsenic, and chromium which are reported here for right to know purposes. Exposure is expected to be minimal. The surface waste area is small and only approximately 6 inches will be removed. The surface waste material will be removed remotely with a trackhoe. WESTON will perform air monitoring to determine level of protection.

Task 3. Drum Areas 1 & 20 - Oversight of removal contractor who will collect and load approximately 18 drums and drum remnants with a trackhoe.

Noise, rain, rough terrain, heavy equipment, and excavation - SEE ABOVE.
Likelihood of exposure - Analytical results indicated trichloroethene and trace levels of 2-butanone, chloroform, and m,p, and o-cresol. Exposure is expected to be minimal based upon past work experience at the site.

Note: In the event the drums require additional sampling for waste characterization, an additional drum opening and sampling task will be included in this Health and Safety Plan.

III. Personnel Protection Plan

A. Engineering Controls

1. Describe Engineering Controls used as part of Personnel Protection Plan:

Task(s)

1,2,3 — Dust suppression as necessary to control dust generation.

B. Administrative Controls

1. Describe Administrative controls used as part of Personnel Protection Plan:

Task(s)

1,2,3 — Maintain a safe distance from heavy equipment/excavation whenever possible.

C. Personnel Protective Equipment *

1. Action Levels for Changing Levels of Protection

(1) Task No.(s) — Define Action Levels for up or down grade for each task

1,2,3 — PEL/TLV (Trichloroethene)=50PPM
% response HNU(10.2)=89%
50/2 x 89% = 22 units

PID(10.2) — Level D: 0-22 units above background
Level C: 22-50 units
Stop work: 50 and above

1,2 — Aroclor PEL/TLVx10^6 conc.x2(SF) = 0.5x10^6 13,000x 2= 2mglm^3
Mini Ram Level D: 0-2mglm^3 as dust levels increase, implement more stringent dust control measures
Level C: 2-4mglm^3 Stop work: 4mglm^3 and above

c. Description of Levels

Task(s)	1,2,3			
	Level D		Level D	
Head	(X) Hard Hat	( )	( )	( )
Eye & Face	(X) Safety Glasses	( )	( )	( )
Hearing	(X) Ear Plugs	( )	( )	( )
Arms & Legs only	( )	( )	( )	( )
Whole Body	(X) Work Uniform	( )	( )	( )
Apron	( )	( )	( )	( )
Hand - gloves	(X) surgical	( )	( )	( )
- gloves	(X) nitriles (as	( )	( )	( )
- gloves	( ) necessary)	( )	( )	( )
Foot - Boots	(X) Steel Toe	( )	( )	( )
- Boots	(X) Booties (as	( )	( )	( )
- Boots	( ) necessary)	( )	( )	( )

c. Description of Levels of Protection. (Cont.) Levels C and B

Task(s)	1,2,3			
	Level C		Level	
Head	(X) Hard Hat	( )	( )	( )
Eye & Face	(X) Safety Glasses	( )	( )	( )
Hearing	(X) Ear Plugs	( )	( )	( )
Arms & Legs only	( )	( )	( )	( )
Whole Body	(X) Saranex	( )	( )	( )
Apron	( )	( )	( )	( )
Hand - gloves	(X) Surgical	( )	( )	( )
- gloves	(X) Silver Shields	( )	( )	( )
- gloves	(X) Nitriles	( )	( )	( )
Foot - Boots	(X) Steel Toe	( )	( )	( )
- Boots	(X) Booties	( )	( )	( )
- Boots	( )	( )	( )	( )
APR - Neg. Pres. Half Face Cart./Canister	( )	( )	( )	( )
Full Face	(X) MSA-Ultra twin	( )	( )	( )
Cart./Canister	(X) GMC-H	( )	( )	( )
PAPR	( )	( )	( )	( )
Cart./Canister Type C	( )	( )	( )	( )
SAR - Airline	( )	( )	( )	( )
SCBA	( )	( )	( )	( )
Comb.Airline/SCBA	( )	( )	( )	( )
Cascade Syst.	( )	( )	( )	( )
Compressor	( )	( )	( )	( )
Fall Protection	( )	( )	( )	( )
Floatation	( )	( )	( )	( )
Duct Tape	(X) Tape wrists and ankles securely	( )	( )	( )

IV. Site or Project Hazard Monitoring Program

A. Direct Reading Air Monitoring Instruments

1. Instrument Selection & Initial Check Record

	No.	Task No.(s)	Instrument checked upon receipt	Initials
CGI-	( )	_____	( )_____	_____
O_2 -	( )	_____	( )_____	_____
CGI/O_2-	( )	_____	( )_____	_____
CGI/O_2/tox-PPM,H_2S,H_2S/CO	( )	_____	( )_____	_____
RAD-GM,	( )	_____	( )_____	_____
-NaI	( )	_____	( )_____	_____
-ZnS	( )	_____	( )_____	_____
-OTHER_____	( )	_____	( )_____	_____
PID -HNU 10.2	(X)	1,2,3	( )_____	_____
-HNU 11.7	( )	_____	( )_____	_____
-HNU 9.5,	( )	_____	( )_____	_____
-PHOTOVAC,TMA,OTHER	( )	_____	( )_____	_____
FID -FOX-128	( )	_____	( )_____	_____
-FOX 128GC	( )	_____	( )_____	_____
-HEATH,AID,OTHER_____	( )	_____	( )_____	_____
RAM, Mini-RAM, Other_____	(X)	1,2,3	( )_____	_____
MONITOX-HCN	( )	_____	( )_____	_____
H_2S	( )	_____	( )_____	_____
COCL,	( )	_____	( )_____	_____
SO_2,	( )	_____	( )_____	_____
OTHER_____	( )	_____	( )_____	_____
Bio-Aerosol Monitor	( )	_____	( )_____	_____
Detector Tubes				
Pump - MSA,Draeger,Sensidyne	( )	_____	( )_____	_____
- Tubes(No.)/type	( )	_____	( )_____ ( )	_____
- Tubes(No.)/type	( )	_____	( )_____ ( )	_____

Reporting Format __X__1.Field notebook. ____2.Field data sheets. ____3.Air monitoring log.____4.Trip report.____5.Other:

Site Air Monitoring Program

Air Monitoring Instrument PID 10.2

Air Monitoring Frequency		Tasks
____	1. Periodically ____	____
____	2. Periodically ____	____
X	3. Continuous Tasks 1,2,3	
____	4. Other: ____	

Monitoring Locations		Tasks
X	1. Upwind/downwind of site activities.	1,2,3
____	2. Near residents, etc.	
X	3. Key site activity locations:	
____	decon area	
X	staging area	1,2,3
X	excavation area	1,2
____	field lab area	
____	storage tanks	
____	lagoons	
X	drums	3
____	4. Fixed stations	
X	5. Other: Breathing Zone	1,2,3

Air Monitoring Instrument Mini RAM

Air Monitoring Frequency		Tasks
____	1. Periodically ____	____
____	2. Periodically ____	____
X	3. Continuous 1,2	
____	4. Other: ____	

Monitoring Locations		Tasks
X	1. Upwind/downwind of site activities.	1,2
____	2. Near residents, etc.	
X	3. Key site activity locations:	
____	decon area	
X	staging area	1,2
X	excavation area	1,2
____	field lab area	
____	storage tanks	
____	lagoons	
____	Drums	
____	4. Fixed stations	
X	5. Other: Breathing Zone	1,2

D. Action Levels

____ 1. Explosive atmosphere: Tasks NA

Action Level	Action
<10% LEL	Continue investigation
10%-25% LEL	Continue on-site monitoring with extreme caution as higher levels are encountered.
>25% LEL	Explosion hazard. **Withdraw from area immediately.**

____ 2. Oxygen: Tasks NA

Action Level	Action
<19.5%	Monitor wearing SCBA. NOTE: Combustible gas readings may not be valid in atmospheres with <19.5% oxygen.
19.5%-25%	Continue investigation with caution, as Oxygen levels > 21% require extreme caution. Other than normal level may be due to presence of other substances.
>25%	Fire hazard potential. Stop work and Consult a fire safety specialist.

____ 3. Radiation: Tasks NA

Action Level	Action
3 x Bkg - <2 mR/hr	Radiation above background levels (normally 0.01-0.02 mR/hr)g signifies possible source(s) radiation present. Continue investigation with caution. Perform thorough monitoring. **Consult with a health physicist.**
> 2 mrem/hr	Potential radiation hazard. Evacuate site. Continue investigation only upon the advice of a health physicist.

__X__ 4. Organic gases and vapors: See Page 10

____ 5. Inorganic gases and vapors:

Action Level	Action
Depends on chemical	Consult standard reference manuals for air concentration/ toxicity data. Action level depends on PEL/REL/TLV.

These Action Levels, if not defined by regulation, is some percent (usually 50%) of the applicable PEL/REL/TLV. That number must also be adjusted to account for instrument response factors.

IV. DECONTAMINATION PLAN

1. Personnel Decontamination

Section III C. lists the tasks and specific levels of protection required for each. Consistent with the levels of protection required, step by step procedures for personnel decontamination for each Level of Protection are attached.

2. Levels of Protection Required for Decontamination Personnel

The levels of protection required for personnel assisting with decontamination will be [___ Level B, ___ Level C, X Level D].
(CHECK) Modifications include: Saranex, Surgical Gloves, Silver Shields, Nitrile Gloves, Booties; and all openings taped

4. Equipment Decontamination

A procedure for decontamination steps required for non-sampling equipment and heavy machinery folllows: Removal contractor will decontaminate their equipment (method TBD). Air Monitoring equipment will be wiped down and cleaned prior to leaving site.

5. Sampling Equipment Decontamination

Sampling equipment will be decontaminated in accordance with the following procedure:
No Sampling

3. Disposition of Decontamination Wastes

(Provide a description of waste disposition including identification of storage area, hauler, and final disposal site if applicable.)
All PPE and decontamination fluids used by contractor will be disposed of with surface waste material

V. Contingencies

A. Emergency Contacts and Phone Numbers

Agency	Contact	Phone Number
Local Medical Emergency Facility	McLaren-E.R.	(313)762-2000
WESTON Medical Emergency Contact	AGATHA	(513) 421-3063
WESTON Health and Safety	George Crawford	(215) 430-7406
Fire Department	Flint	(313) 232-2222
Police Department	Dispatcher	(313)732-9911
On Site Coordinator	———	———
Site Telephone	Mobile Phone	TBD
Nearest Telephone	" "	TBD
MDNR PEAS (Emergency Hotline)	(Location)	1-800-292-4706

B. LOCAL MEDICAL EMERGENCY FACILITY(S)

1. Primary

Name of Hospital McLaren General

Address: G-1080 N. Ballenger Hwy, Flint,MI Phone No. (313)762-2000

Name of Contact Emergency Room Phone No. ———

Type of Service - Physical Trauma only ( ) Chemical Exposure only( )
Physical Trauma & Chemical Exposure (X) Available 24 Hours (X)

Route to Hospital: (Attach Map) Turn left(north) on linden Road from site. Go right(east) on court; take court to Ballenger Hwy; go left(north) on Ballenger to Hospital.

*Travel Time From Site (Minutes)_____ *Distance to Hospital (Miles)____ Name/No. of 24 Hr. Ambulance Service Flint Fire Dept. (313)232-2222

2. Secondary or Specialty Services Provider

Name of Hospital St. Joseph's Hospital

Address: 302 Kensington Road Flint, MI Phone No. (313)762-8710

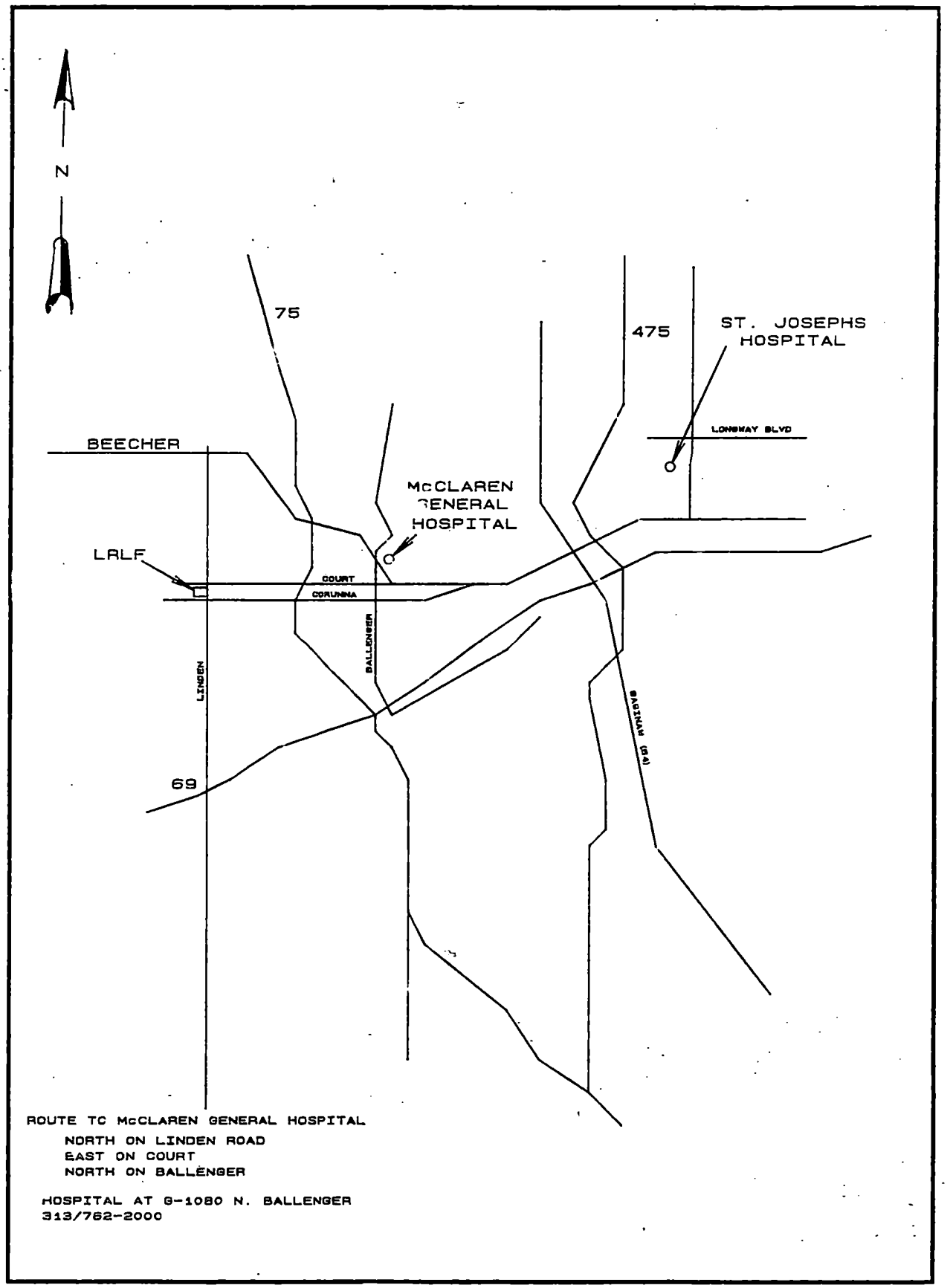
Name of Contact Emergency Room Phone No._____

Type of Service - Physical Trauma only ( ) Chemical Exposure only( )
Physical Trauma & Chemical Exposure ( ) Available 24 Hours ( )

Route to Hospital: (Attach Map) Turn Left(north) on Linden from site; make 1st right onto Court (east); take COurt into Flint, MI; turn left(north) onto Kensington Road; Hospital is at 302 Kensington on left hand side of road.

*Travel Time From Site (Minutes)_____ * Distance to Hospital (Miles)____ Name/No. of 24 Hr. Ambulance Service Flint Fire Dept. (313)232-2222

*Travel times and distances to Hospitals will be identified when SHSC travels routes to hospitals prior to start of site work.



ROUTE TO McCLAREN GENERAL HOSPITAL

NORTH ON LINDEN ROAD
EAST ON COURT
NORTH ON BALLENGER

HOSPITAL AT G-1080 N. BALLENGER
313/762-2000

V. Contingencies (Continued)

C. Response Plans

1. Medical - General

Apply 1st Aid/CPR to victims as necessary
Contact Emergency Service transport to Hospital.
Evacuate area as necessary.

a. First Aid Kit - Type / Location

Type	Location
General	Work Vehicle

b. Eyewash required (Y)Y/N

Location	Location
Field Vehicle	

c. Safety Shower N/A

Location	Location

2. Special First Aid Procedures
Hydrofluide on site ( )Y/N
a. Attach HF procedure and ensure solution is on site.

Cyanides on site ( )Y/N
b. Confirm that Local Med. Emerg. Facility has antidote kit.

c.

3. Plan for Response to Fire/Explosion

Stop Work
Evacuate Area
Account for the personnal and assist injured
Contact Fire Department
Contact WESTON Project Manager or Project Director

4. Fire extinguisher

a. Type	b. Location
ABC	Work Vehicle

5. Plan for Response to Spill/Release

Stop Work
Mitigate spill if possible and safe to do so.
Evacuate if necessary
Contact Fire Department and/or appropriate state, local,or federal agencies
Contact WESTON Project Manager or Project Director

6. Spill Response Gear

Description	Location

6.Plan for Response to Security Problems None Anticipated

VI. Site Personnel and Certification Status -TBD

A. WESTON

Name	Title	Task(s)	Medical Current a.	Fit Test Current Qual. b.	Fit Test Current Quant. b.	Training Current c.	Certification Level or Description
1.			( )	( )	( )	( )	( )
2.			( )	( )	( )	( )	( )
3.			( )	( )	( )	( )	( )
4.			( )	( )	( )	( )	( )
5.			( )	( )	( )	( )	( )
6.			( )	( )	( )	( )	( )
7.			( )	( )	( )	( )	( )
8.			( )	( )	( )	( )	( )
9.			( )	( )	( )	( )	( )
10.			( )	( )	( )	( )	( )
11.			( )	( )	( )	( )	( )
12.			( )	( )	( )	( )	( )
Site Health and Safety Coordinator (SHSC)							
14.			( )	( )	( )	( )	( )

(a) Training - All personnel, including visitors, entering the exclusion or contamination reduction zones must have certifications of completion of training in accordance with OSHA 29 CFR 1910 29, CFR 1926/1910 or 29 CFR 1910.120.

(b) Respirator Fit Testing - All persons, including visitors, entering any area requiring the use or potential use of any negative pressure respirator must have had as a minimum, a qualitative fit test, administered in accordance with OSHA 29 CFR 1910.134 or ANSI within the last 12 months. If site conditions require the use of a full face negative pressure, air purifying respirator for protection from Asbestos or lead, employees must have had a Quantitative fit test, administered according to OSHA 29 CFR 1910.1002 or 1025 within the last 6 months.

(c) Medical Monitoring Requirements - All personnel, including visitors, entering the exclusion or contamination reduction zones must be certified as medically fit to work, and to wear a respirator, if appropriate, in accordance with 29 CFR 1910, 29 CFR 1926/1910 or 29 CFR 1910.120.

The Site Health and Safety Coordinator is responsible for verifying all certifications and fit tests.

TBD - To Be Determined

B. Subcontractor's Health and Safety Program Evaluation -TBD

Name and address of subcontractor: _____

_____

Activities to be conducted by subcontractor: _____

_____

EVALUATION CRITERIA

Item	Acceptable	Unacceptable	Comments
Medical Program meets OSHA/WESTON Criteria	( )	( )	_____
Personal Protective Equipment Available:			
a. meets OSHA criteria,	( )	( )	_____
b. is as specified in WLHASP	( )	( )	_____
On-Site Monitoring Equipment Available, Calibrated and Operated Properly	( )	( )	_____
Safe Working Procedures Clearly Specified	( )	( )	_____
Training meets OSHA/WESTON Criteria	( )	( )	_____
Emergency Procedures	( )	( )	_____
Decontamination Procedures	( )	( )	_____
General Health and Safety Program Evaluation	( )	( )	_____

Additional Comments: _____

_____

Evaluation conducted by: _____ Date: _____

C. Subcontractor

Name	Title	Task(s)	Medical Current a.	Fit Test Current Qual. b.	Fit Test Current Quant. b.	Training Current c.	Certification Level or Description
1.			( )	( )	( )	( )	( )
2.			( )	( )	( )	( )	( )
3.			( )	( )	( )	( )	( )
4.			( )	( )	( )	( )	( )
5.			( )	( )	( )	( )	( )
6.			( )	( )	( )	( )	( )
7.			( )	( )	( )	( )	( )

TBD - To Be Determined

VII. HEALTH AND SAFETY PLAN APPROVAL/SIGN OFF FORMAT

1. Site Name Linden Road Landfill 2. WO# 1138-58-02

Work Location Address Linden Rd. Flint, Michigan
(Street Address) (City) (State) (Zip)

I have read, understood, and agreed with the information set forth in this Health and Safety Plan (and attachments) and discussed in the Personnel Health and Safety briefing.

Site Safety Co-ordinator	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
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Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date

VIII. Training and Briefing Topics

The following items will be covered at the site specific training meeting, daily or periodically.

Site Specific Training Meeting	Daily	Periodically	
X	X		Site characterization and analysis, Sec. 3.0; 29 CFR 1910.120 i.
X	X		Physical hazards, Table 3.2.
X	X		Chemical hazards, Table 3.1.
X		X	Animal bites, stings and poisonous plants.
			Etiologic (Infectious) Agents.
		X	Site control, Sec. 8.0; 29 CFR 1910.120 d.
X	X		Engineering controls and work practices, Sec. 8.5; 29 CFR 1910.120 g.
X		X	Heavy Machinery.
			Forklift
X	X		Backhoe
X	X		Equipment
X		X	Tools
			Ladder 29 CFR 1910.27 d.
			Overhead and Underground Utilities
			Scaffolds
			Structural Integrity
			Unguarded Openings-wall, Floor, Ceilings (?).
			Pressurized Air Cyclinders
X		X	Personnel Protective Equipment, Sec. 5.0; 29 CFR 1910.120 g; 29 CFR 1910.134

Site Specific Training Meeting	Daily	Periodically	
X	X		Respiratory Protection Sec. 5.8; 29 CFR 1910.120g; Z88.2-1980.
			Level A
			Level B
X	X		Level C
X	X		Level D
X	X		Monitoring, Sec. 7.0; 29 CFR 1910.120 h.
X	X		Decontamination, Sec. 9.0; 29 CFR 1910.120 k.
			Emergency Response, Sec. 10.0; 29 CFR 1910.120 l.
			Elements of an Emergency Response, Sec. 100; 29 CFR 1910.120 l.
X		X	Procedures for Handling Site Emergency Incidents, Sec. 10.0; 29 CFR 1910.120 l.
			Off Site Emergency Response, 29 CFR 1910.120 l.
X	X		Handling Drums and Containers, 29 CFR 1910.120 j.
			Opening Drums and Containers
			Electrical Material Handling Equipment.
			Radioactive Waste.
			Shock Sensitive Waste.
			Laboratory Waste Packs.
			Sampling Drums and Containers.
			Shipping and Transport, 49 CFR 172.101
			Tank and Vault Procedures.
			Illumination, 29 CFR 1910.120 m.
X		X	Sanitation, 29 CFR 1910.120 n.

Attachment 1. Level D/Modified Level D Decontamination
[Check indicated Functions or add steps as necessary]

STEP	FUNCTION	DESCRIPTION OF PROCESS, SOLUTION AND CONTAINER
(X)	Segregated equipment drop	
( )	Boot cover and glove wash	
( )	Boot cover and glove rinse	
(X)	Tape removal - outer glove and boot	Place in bag
(X)	Boot cover removal	Place in bag
(X)	Outer glove removal	Place in bag
	HOT-LINE	
( )	Suit/safety boot wash	
( )	Suit/boot/glove rinse	
( )	Safety boot removal	
(X)	Suit Removal	Place in bag
( )	Inner glove wash	
( )	Inner glove rinse	
(X)	Inner glove removal	Place in bag
( )	Inner clothing removal	
	CRC/SAFE ZONE BOUNDARY	
(X)	Field wash	Soap & Water
( )	Redress	

DISPOSAL PLAN:
END OF DAY: Collect contaminated items in garbage bags, secure bags with ties.

END OF WEEK:

END OF PROJECT: Collect & dispose of decontamination waste with waste materials to be disposed.

Attachment 2. LEVEL C DECONTAMINATION
[Check indicated Functions or add steps as necessary]

STEP	FUNCTION	DESCRIPTION OF PROCESS, SOLUTION AND CONTAINER
(x)	Segregated equipment drop	
( )	Boot cover and glove wash	
( )	Boot cover and glove rinse	
(x)	Tape removal - outer glove/boot	Place in bag
(x)	Boot cover removal	Place in bag
(x)	Outer glove removal	Place in bag
	HOT-LINE	
( )	Suit/safety boot wash	
( )	Suit/boot/glove rinse	
( )	Safety boot removal	
(x)	Suit Removal	Place in bag
( )	Inner glove wash	
( )	Inner glove rinse	
(x)	Face piece removal	Set aside for cleaning
(x)	Inner glove removal	Place in bag
( )	Inner clothing removal	
	CRC/SAFE ZONE BOUNDARY	
(x)	Field wash	Soap & Water
( )	Redress	

DISPOSAL PLAN:
END OF DAY: Collect contaminated items in garbage bags, secure with ties.

END OF WEEK:

END OF PROJECT: Disposal of decontamination waste with waste materials to be disposed.