Midland Area Soils Project

Health and Safety Plan

Midland, Michigan

The Dow Chemical Company
Michigan Division
Midland, Michigan

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INTRODUCTION

This Health and Safety Plan (HASP) was developed specifically for The Dow Chemical Midland Area Soils (MAS) Project to assign responsibilities, establish personal protection standards and mandatory safety procedures, and provide for contingencies that may arise while operations are being conducted. It complies with, but does not replace, Federal Health and Safety Regulations, as set forth in OSHA 29 CFR 1910 and 1926, and applicable state regulations. Project personnel will use the HASP as a supplement to these rules, regulations, and guidance, and will augment it with individual contractor company specific Health and Safety Programs and Management Systems as well as with applicable portions of Dow's Health and Safety Program.

Changing and/or unanticipated site conditions may require modification of this HASP to maintain a safe and healthful work environment. Any proposed changes to this plan will be reviewed with a project health and safety professional prior to their implementation. If this is not feasible, the Site/Project Manager may modify the plan and record all changes on the revision history section. Under no circumstances will modifications to this plan conflict with federal, state, or other governmental health and safety regulations.

A copy of this project HASP will be provided to each project contractor to fulfill their obligation under OSHA 29 CFR 1910.120(b) to inform everyone working on the project of its site hazards. Also, each project contractor will provide documentation to Dow that describes their plan for addressing applicable health and safety requirements for activities that are unique to their scope of services.

Midland Area Soils Project

Scope of Work

Site History
Pursuant to its Part 111 Hazardous Waste Management Facility Operating License (License), Dow, with oversight from the Michigan Department of Environmental Quality (MDEQ), has investigated the City of Midland area soils. An Interim Response Designed to Meet Criteria Work Plan (Work Plan) has been developed to address historic releases to Midland Area Soils.

Site Description
The study area is called the Presumptive Remedy Zone. The initial sampling area is generally defined as the area near the Michigan Operations site, north to Eastlawn Drive, west to Rodd Street, and east to Waldo Avenue. A smaller area to the southeast of the intersection of Washington and Ashman Streets will also be sampled. (See Figure 1)

Implementation of the presumptive remedy will begin in areas that are in closest proximity to Michigan Operations and then progress outwards in subsequent years. The year 1 implementation plan addresses approximately 30 acres with a total of 113 properties. Year 1 encompasses two areas, one northwest of the facility and one east of the facility (See Figure 1).

The project office, Midland Resolution Center, is located at 1008 Jefferson Ave. The office is in an industrial area just north of Michigan Operations.

Project Description
Access agreements will be obtained from the property owners within the remedy area for the current year's implementation plan. For properties where access is granted, soil samples will be collected, analyzed and evaluated according to the work plan. Properties in which the dioxin concentration exceeds the site specific criteria of 250 ppt will be eligible for remedy implementation. Remedy implementation will include development of parcel specific field activity plan, excavating 12 inches of soil where possible, replacing with clean backfill and topsoil, laying sod or planting grass seed, and replacing all landscaping. Other field activities may include repairing damaged sidewalks and driveways, cutting down trees, and repairing permanent structures that might be damaged during construction (i.e. fences, patios, decks, etc).

Project Safety Requirements
Project personnel are expected to meet the basic requirements for all Dow operations, including the tasks and expectations outlined in the Agreement for Services, the Rules & Procedures for Contractors as outlined in the Contractor "Blue" Book, and new and existing Dow initiatives. The "Blue" Book shall be available at all times as a reference and is also available at the Midland Resolution Center (1008 Jefferson Road).

The expectation for all work on the MAS project is zero injuries. Planning and preparation for all work will consider and address safety as a priority concern. Dow minimum safety requirements will be met by:

- Compliance to DOW policies and procedures
- An individual dedicated to safety for day-to-day involvement in and management of Dow work and, when identified, additional personnel may be allocated to mitigate or monitor specific project hazards
- Conduct independent audits, participate in Dow required self-audits and implement corrective actions when needed
- Conduct Pre-Job Safety Conferences with all involved parties and maintain documentation to verify that all contractor and subcontractor employees reviewed and understood job site safety information
- Conduct daily safety tailgates for all project work and periodic safety meetings incorporating Dow safety communications
- Track and keep current all site training requirements and other site- or job-specific training
- Near miss incidents or newly identified safety hazards or conditions will be evaluated, addressed, and communicated to the team
- Continuous Hazard Analysis Tool (CHAT) cards will be completed and tracked for compliance by the SSO
- Conduct Behavior Based Performance (BBP) observations and track by the SSO
- The authority to stop work is granted to all project personnel for the purposes of correcting an unsafe environment or work practice

A large portion of the MAS project is located in residential areas. Due to performing construction type activities in a residential area, a Construction Safety flyer for homeowners and/or occupants has been generated and is included as Appendix 1. The contents will be individually discussed with each resident prior to commencing any work activity. This flyer will include detail on where the occupant can park during construction, emphasize that flagging and barricades limiting access to heavy equipment and/or exposed soils must be strictly adhered to, and if there is a safety concern to contact the Midland Resolution Center.

SITE ORGANIZATION

Safety Roles and Responsibilities

Site Manager (SM)

The SM will direct site operations. The SM may delegate all or part of these duties to a properly qualified employee. The SM is responsible for:

- Establishing that project personnel are aware of the provisions of this HASP, are instructed in the work practices necessary to ensure safety; are familiar with planned procedures for dealing with emergencies; and have the resources, tools and equipment to conduct work in accordance with the Dow Zero Injury expectation

- Establishing that project personnel have completed all relevant health and safety training and that all field personnel have appropriate medical clearance, as required by OSHA 29 CFR 1910.120, including fit testing for the appropriate respirators
- Facilitating ongoing initiatives to ensure compliance with federal, state, and Dow training and performance expectations
- Correcting any project contractor work practices or conditions that may result in injury or exposure to hazardous substances
- Halting project operations, if necessary, in the event of an emergency or to correct unsafe work practices

Project Manager (PM)

The PM will direct project operations and will report to the Site Manager. The PM may delegate all or part of these duties to a properly qualified employee. The PM is responsible for:

- Seeing that appropriate personal protective equipment (PPE) and monitoring equipment are available and properly used by all project personnel
- Seeing that all personnel are aware of the potential hazards associated with project operations
- Monitoring the safety performance of all personnel to see that required work practices are employed, including implementation of any applicable safe work or health and safety plans
- Correcting any work practices or conditions that may result in injury or exposure to hazardous substances
- Preparing any accident/incident reports for project activities
- Halting project operations, if necessary, in the event of an emergency or to correct unsafe work practices
- Reviewing the project HASP, communicating safety expectations with project personnel, and conducting the Pre-Job Safety Conference

Site Safety Officer (SSO)

The SSO is responsible for managing the following:

- Implementing the project HASP and reporting any deviations from the anticipated conditions described in that plan to the Project Manager
- Determining that monitoring equipment is used properly by project personnel and calibrated in accordance with manufacturer's instructions or other standards and calibration and monitoring results are properly recorded and filed
- Ensuring project team members have current medical clearances and training and maintaining training documentation
- Conducting safety meetings for project personnel
- Conducting and documenting site safety inspections/assessments/observations
- Providing ongoing review of protection level needs as project work is performed and informing team members of the need to upgrade/downgrade protection levels, as appropriate
- Ensuring any required health and safety documentation is completed and maintained
- Halting site operations, if necessary, in the event of an emergency or to correct unsafe work practices

- Maintaining the visitor log as appropriate for project operations
- Delegating health and safety tasks as appropriate to qualified personnel
- Assuming any other safety related duties as directed by the Project Manager

Field Task Leader or Site Supervisor (FTL)

The FTL is responsible for field operations and reports to the Project Manager. The FTL ensures the implementation of the HASP requirements and procedures in the field. The specific responsibilities are:

- Executing the work plan and schedule as detailed by the PM
- Coordination with the SSO on health and safety requirements
- Ensuring site work compliance with the requirements of this HASP and/or any project-specific safe work or health and safety plans
- Halting site operations, if necessary, in the event of an emergency or to correct unsafe work practices

Field Team Member(s)

Project personnel involved in obtaining access, on-site sampling, development of parcel specific field activity plan, and operations at the direction of the Field Task Leader or Project Manager and are responsible for:

- Taking all reasonable precautions to prevent injury to themselves and to their fellow employees
- Performing only those tasks that they believe they can do safely, and immediately reporting any accidents and/or unsafe conditions
- Implementing the procedures set forth in the HASP and reporting any deviations from the procedures described in it
- Notifying the SSO and/or FTL of any special medical problems (i.e., allergies), and seeing that all on-site personnel are aware of such problems
- Reviewing the project HASP and acknowledging that in writing

Dow Senior Remediation Leader

- Signing the Project Management Scope of Work (PMSOW)
- Approving the Work Plan and Project Schedule, and ensuring proper review of documents
- Assisting in issue resolution

Site Organization Contacts

Role	Name	Company	Phone	email
Site Manager	Marty Crook	URS Corporation	989-942-0406	martin.crook@urs.com
Project Manager	Scott Madill	URS Corporation	989-859-0376	samadill@dow.com
Field Task Leader	Gary Waugh	URS Corporation	989-696-4075 989-737-3374	Gwaugh2@dow.com
Site Safety Officer	Don Burnell	Fisher	989-860-9577	
Dow Senior Remediation Leader	Steve Lucas	The Dow Chemical Company	989-638-6012 989-859-3352	sclucas@Dow.com

Hazard Analysis

Project Hazard Assessment

A Hazard Assessment has been conducted for the MAS project based on information provided by the project team, site visits, and detailed information regarding each stage of work, in accordance with OSHA 29 CFR 1910.132(d).

A risk assessment for project related tasks has been performed. Please note that the level of contamination on the site was considered in assignment of the severity rating beyond the task level.

Type of Activity Performed	Severity Rating (1-5)	Frequency Rating (1-5)	Risk Assigned (1-3)
Obtaining Access	1	5	1
Soil Sampling	2	5	1
Development of parcel specific field activity plan	1	1	1
Excavation	4	3	2
Soil management	2	1	1
Soil replacement and grading	4	3	2
Sod Installation	3	3	2
Hydroseeding	3	3	2
Landscape Installation	3	3	2
Operation & Maintenance Activities	3	3	2
Construction Oversight/Safety Support	3	3	2
Concrete replacement	3	1	2
Tree removal	5	1	3
Irrigation system installation	2	1	1
Administrative Functions & Support	1	5	1

Operations included on this list are further broken down for hazard awareness and mitigation in the Hazard Control Measures section contained in the HASP.

Hazard Control Measures

The purpose of this section is to list activities to be performed for this project, identify the associated hazards, and present actions to be taken to control or mitigate exposure to the hazard. All members of the site team should be aware of the potential hazards and control measures. Training to the specific hazards and control measures is the single most important mitigation activity for work conducted on the site.

Project pre-job safety conferences, safe work permits, daily CHAT cards, safety meetings, and checklists are designed to identify and mitigate project specific hazards. All team members are to participate fully in these initiatives. Some activities may have unique hazards in addition to or caused by hazards of other activities. Mitigation actions should be taken for all involved hazards. Inspections/observations can be conducted at any time by project personnel, and Dow and care should be taken to ensure all hazards are identified and mitigated to avoid unnecessary injuries, accidents, incidents, complaints, citations or fines.

Engineering and administrative hazard controls will be implemented preferentially to PPE.

A hazard analysis has been conducted for tasks that are associated with the MAS project. These tasks include driving, property visits, sampling, excavation/backfill, vegetation replacement/landscaping/irrigation system installation, post remedy care (O&M) mowing, fertilizing, landscape replacement, concrete replacement, and tree removal and/or trimming. Each individual hazard analysis is included in Appendix 2.

Individual contractor firms that will conduct this work will be required to provide their own Job Safety Analysis for their specific activities as a supplement to the MAS Job Safety Analysis. This HASP, along with the individual contractor Job Safety Analyses will provide a comprehensive hazard analysis for each task to be performed.

Chemicals of Concern

The primary chemicals of concern for the MAS Project are dioxins and furans in excavated soils and air particulates. Route of exposure may be via skin contact and/or inhalation. Soil analysis of dioxins and furans levels will be used to confirm soil concentrations; therefore it will not be necessary for workers to employ PPE beyond the general project requirements. In the unlikely event that soil monitoring shows dioxin and furan concentrations above 990 ppt, this HASP will be amended to address safety requirements. Dust control measures are discussed elsewhere in this HASP, under Hazard Control Measures.

Dioxins and furans

"Dioxins and furans" refer to a group of chemical compounds that share certain similar chemical structures and biological characteristics. Dioxins and furans are an unwanted byproduct of combustion, both from natural sources like forest fires and from man-made sources like power plants, backyard burn barrels, and industrial processes.

Dioxins and furans falling to land from air emissions tend to bind tightly to vegetation and soil. When dioxins and furans are released into water, they tend to settle into sediments where they can become trapped and stationary, or be ingested by fish and other aquatic organisms. Dioxins and furans trapped in sediment can be further transported during activities that dislodge sediment, such as flooding or dredging.

Human exposure to dioxins and furans
In the United States, the primary way people are exposed to dioxins and furans is through eating meat and dairy products. The animals we eat are exposed to background levels of dioxins and furans in the soil, on vegetation and in some commercial animal fees. Eating meat or dairy products exposes us to these low levels of dioxins and furans. Over time, we accumulate dioxins and furans in the fatty tissues of our own bodies.

For more information on human levels of dioxin, please see the U.S. Centers for Disease Control and Prevention (CDC)'s Fourth National Report on Human Exposure to Environmental Chemicals.

For further information on dioxins and furans, see Dow's dioxin information website.

Project Required PPE
During sampling activities, all personnel are required to wear steel-toed boots, safety glasses with attached side shields and appropriate gloves for the task. During remedy implementation or other O & M activities, all personnel are required to wear a hard hat, steel-toed boots, safety glasses with attached side shields, and gloves appropriate to the task. Dow requires that all personnel have gloves with them at all times and that gloves are to be worn for all work unless the wearing of the glove presents a greater hazard. The type of glove to be worn will be determined in accordance with the hazards of the task. In addition, safety reflective vests are required whenever work is done around heavy equipment and roadways. This defines Level D PPE for the project, a work uniform affording basic protection, used for nuisance contamination only.

Property specific work plan development, including property owner meetings and walk throughs will not require specific PPE.

Soil concentrations of dioxins and furans within the project area have been determined to be well below the trigger level required for PPE upgrade (990 ppt). Should a PPE upgrade be needed for any reason, this HASP must be amended to include at a minimum an additional hazard assessment, updated monitoring plan, and detailed hazard control measures.

Required Training
Project employees will be required to complete project specific communications training and initial Project Orientation training.

Safe Work Permits
Safe work permits (SWP) must be issued for all field operations unless a procedure is in place. Dow MiOps SWP forms will be used, in accordance with Dow's Safe Work Permit Standard with

Midland additions. SWP's may only be issued by trained and authorized personnel, and the SWP will only be good for the time listed on the permit, not to exceed one work shift.

Safe Work Permits must be *cancelled* in the following events:

- Complete change in work crew
- Change in work conditions or scope such that the hazards and safeguards have changed

Safe Work permits must be *suspended* in the following events and reauthorized before work can resume:

- Work stoppage due to an emergency or weather related occurrence
- Work stoppage due to a change in work conditions or scope with no change in hazards and safeguards
- Work has taken longer than originally permitted

Under all circumstances, a SWP will require a joint, initial on-site inspection by the permit issuer and the permit receiver. A copy of the SWP must remain at the job site for the duration of the work. The issuer's copy will be posted in dedicated project vehicles.

At the end of the permitted work, the status of the job and equipment must be reviewed by the issuer and the receiver, and the receiver's copy of the permit must be matched with the issuer's copy and signed by the receiver (the issuer may sign the next day if circumstances warrant). Other associated permits and checklists will be stapled to the SWP, placed in dedicated project file within the project vehicles, and retained for the specified time.

INSERT TAB TITLED: EMERGENCY RESPONSE

Provides an easy quick reference

EMERGENCY PLANNING AND PROCEDURES

The initial response to an emergency is to notify all site personnel, secure the safety of personnel and report the emergency through the appropriate channels. All emergencies will be reported to Dow, the Project Manager, Site Supervisor, Site Safety Officer, and any involved subcontractor representatives.

All incidents will be appropriately documented following Dow and individual contractor firm reporting policies..

Employees should call 9-1-1 for emergencies, but report all incidents through the SSO once the situation has been secured. Emergencies will be treated through MidMichigan Medical Center, 4000 Wellness Drive, Midland, MI 48670. General directions to the hospital from the MAS project area are:

Proceed west on Saginaw Road approximately 3-5 miles (past Eastman Road) to Wellness Drive. The hospital entrance is on the south.

An area map depicting the hospital is included on the proceeding page.

Non-emergency offsite injuries should be reported immediately to the SM and/or the SSO and appropriate treatment will be arranged. The SM will be responsible for ensuring all offsite injuries are reported through the appropriate URS and Dow channels per the DBU Incident Management protocol. Generally, a Covenant Occupational Medical facility will be selected as a primary treatment facility; however, an alternate may be selected depending upon work location and clinic hours. See table below.

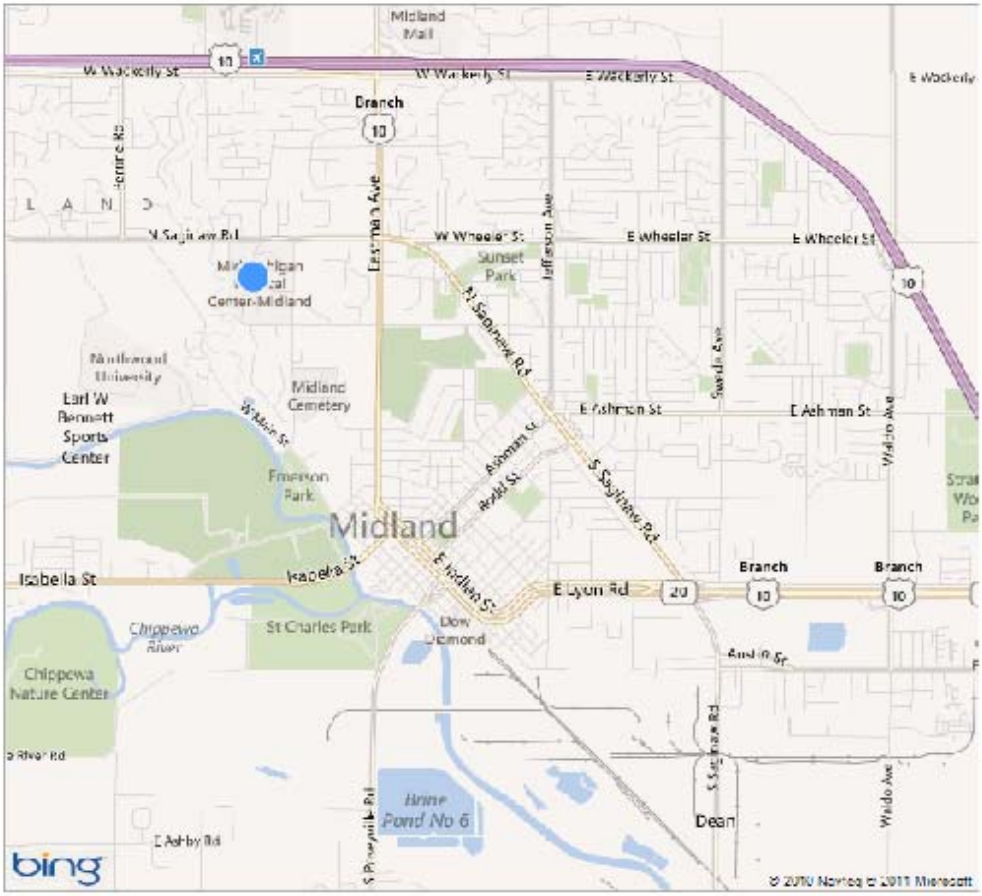
Clinic	Address	Phone	Hours
Covenant Occupational Health and Wellness Midland	1549 Washington Street, Midland, Michigan 48640	989-837-2647	Monday - Friday • 8:00 am - 5:00 PM
MidMichigan Urgent Care	3009 North Saginaw Road, Midland, Michigan 48640	989-633-1350	Monday - Friday 8 a.m. - 8 p.m. Saturday & Sunday 8 am - 4 pm
Midland Redi-Med	4615 Eastman, Midland, Michigan	989-631-7110	Weekdays: 8:00am to 8:00pm Sat: 8:00am to 6:00pm Sun: 10:00am to 6:00pm

bing Maps

Wellness Dr, Midland, MI 48640

Proceed west on Saginaw Road (past Eastman Road) to Wellness Drive. The hospital entrance is on the south.

On the go? Use **m.bing.com** to find maps, directions, businesses, and more



Reporting and Investigation

Dow may impose penalties for not reporting injuries or illnesses, up to and including, removal of involved employees or contractors from the site.

Dow requires a preliminary written report to be submitted to the Remediation Leader and the SSO within 24 hours of the incident. Upon completion of an investigation, a final report will be submitted to Dow. Written reports are required for any injury, illness, near miss, unplanned event, fire, hazardous condition or property damage incident, even if an injury did not occur.

A near miss is an incident which given a slight change in circumstance may have resulted in an injury, illness, or property damage. Dow uses near miss data to identify potential hazards and implement controls to prevent any future occurrence. Near miss events are to be recorded on the Near Miss/Safety Suggestion cards and turned in to the SSO for entry into the Dow near miss reporting tool.

In certain extremely hazardous situations, the SSO or Site Supervisor may request that site operations be temporarily suspended while the underlying hazard is corrected or controlled.

Project personnel will evacuate from areas of hazardous material emergencies and to summon outside assistance from agencies with personnel trained to respond to the specific emergency. These procedures are to be reviewed during the on-site safety briefings conducted by the SSO.

In the event of a fire or medical emergency, the emergency numbers identified in the included Emergency Contact List shown below should be called for assistance.

The emergency response will consist of employees who assume the following roles:

- Emergency care provider(s) will provide first aid/CPR as needed.
- Communication Coordinator - The role of the communication coordinator is to maintain contact with appropriate emergency services and to provide as much information as possible, such as the number injured, the type and extent of injuries, and the exact location of the accident scene. The communication coordinator will be located as close to the scene as possible to transmit to the emergency care providers any additional instructions that may be given by emergency services personnel in route.
- Field Task Leader - The FTL will survey and assess existing and potential hazards, evacuate personnel as needed, and contain the hazard. Follow up responsibilities include replacing or repairing damaged equipment, documenting the incident, and notifying appropriate personnel/agencies described under Incident Reporting. Responsibilities also include reviewing and revising site safety and contingency plans as necessary.

At least one project member on-site will hold a current certificate in American Red Cross Standard (or equivalent) First Aid. If a medical emergency exists, personnel should:

1. Consult the emergency contacts number list and request an ambulance immediately.
2. Perform First Aid/CPR as necessary.

3. Stabilize the injured; decontaminate if necessary, and extricate only if the environment the injured/ill person is in is dangerous or unsafe and ONLY if the rescuers are appropriately protected from potential hazards that might be encountered during the rescue.
4. When emergency services personnel arrive, communicate all first aid activities that have occurred.
5. Transfer responsibility for the care of the injured/ill to the emergency services personnel.
6. Once situation is stabilized, contact the SSO or SM so that incident management procedures can be enacted.

Emergency Contacts

Role (Location)	Name		Phone	Notes
OFFSITE: Emergency	Local Emergency Services in county of work		9-1-1	
OFFSITE: Non-emergency	Midland: Covenant Occupational		989-837-2647	Non-emergency treatment should be determined after reporting to the SSO.
Site Manager	Marty Crook	URS Corporation	989-638-9552 989-942-0406	martin.crook@urs.com
Project Manager	Scott Madill	URS Corporation	989-859-0376	samadill@dow.com
Field Task Leader	Gary Waugh	URS Corporation	989-737-3374	Gary.waugh@urs.com
Site Safety Officer	Don Burnell	Fisher	989-860-9577	
Dow Remediation Leader	Steve Lucas	Dow Chemical	989-638-6012 989-859-3352	sclucas@dow.com

First Aid Kits

The following items and emergency response equipment will be located within easy access at all times:

1. First aid kit and infection control kit.
   *Note: Dow procedures allow for the use of first aid supplies from the time of incident until the ambulance arrives to treat the injury/illness. Supplies are not to be used in lieu of treatment. First aid supplies will be maintained in URS trucks for remote sites.
2. Eyewash Station: a 15 minute eyewash (required if corrosives are present), or an appropriate amount of portable sterile eyewash bottles, will be available on-site for flushing foreign particles or contaminants out of eyes. The SSO will demonstrate the proper operation of the unit(s) prior to the start of work.
3. Emergency telephone numbers list.
4. Portable radios or cellular phones for emergency communications in remote areas.

Drugs, inhalants, medications, and expired items will not be included in the first aid kit. Supplies should be reordered as they are used. A quarterly inventory must be done on the first aid kit and infection control kit contents, and supplies that have been used must be reordered.

Safety Management Standards

Dow and individual contractor firms have developed Safety Standards to protect the health and safety of project personnel. Standards are also used to facilitate or exceed compliance to federal safety standards and industry best-practices. In the event that an individual contractor firm standard conflicts with a Dow requirement, the more stringent of the two standards will be applied. Dow procedures are generally to be adapted and applied, though questions regarding conflicts should be presented to the Site Manager.

The following standards generally apply to all field projects.

Emergency Preparedness Plans	Sanitation
Housekeeping	Inspections by Regulatory Agencies
Vehicle Safety Program	Health, Safety, and Environment Training
New Employee HSE Orientation	Injury/Illness/Incident Reporting and Notifications
Incident Investigation	Injury Management
Behavior Based Safety	Managing HSE Related Risks

The following standards only apply when specific activities are conducted by project personnel. If you answer "Yes" to any of the questions below, review the appropriate standard and determine the appropriate steps necessary to ensure project compliance with the requirements.

Will project activities involve any of the following?	Yes	No	Will project activities involve any of the following?	Yes	No
Abrasive blasting or exposure to abrasive blasting media or waste?	☐	☒	Excavations or exposure to excavation hazards?	☒	☐
Potential exposure to ticks, snakes, poisonous plants, and other biological hazards?	☒	☐	Flammable or combustible materials used or stored which could constitute a fire hazard?	☒	☐
Use of aerial lifts?	☐	☒	Use of portable, gas powered, electric, and/or powder actuated hand tools?	☒	☐
Potential exposure to air contaminants in hazardous concentrations?	☒	☐	Hazardous materials shipping?	☐	☒
Asbestos surveys or abatement oversight?	☐	☒	Hazardous substances – chemical or health hazards?	☒	☐
Potential exposure to Bloodborne Pathogens (i.e. blood or other bodily fluids)?	☒	☐	Hazardous waste activities (investigative or remedial)?	☐	☒

Will project activities involve any of the following?	Yes	No	Will project activities involve any of the following?	Yes	No
Work over or near water?	☐	☒	Heat Stress potential to employees working in: • Hot environments; or • Impermeable Chemical Protective Clothing?	☒	☐
California job activities?	☐	☒	Heavy equipment in use at this project site?	☒	☐
Corrosive materials used or handled?	☐	☒	Hot Work (welding, cutting, grinding)?	☒	☐
Confined space entries?	☐	☒	Industrial site access of any kind?	☒	☐
Cranes or hoists?	☒	☐	Lead exposures (lead paint removal, lead in dust, etc)?	☐	☒
Demolition activities of any type of structures?	☐	☒	International travel?	☐	☒
Drilling activities?	☐	☒	Use of Manbasket (Crane Suspended Personnel Platforms) for working at heights?	☒	☐
Use of small watercraft (e.g., boats, canoes)?	☐	☒	Work on or near streets and/or roadways?	☒	☐
Exposure to chemical/physical/biological agents and/or activities that require Medical Surveillance? Examples would include exposures to; Noise, Asbestos, Lead, Hazardous Waste, High Altitudes, Carcinogens, Respirator Use.	☒	☐	Exposure to uncontrolled energy sources including electrical, fluid, pneumatic, fuel, steam, gravity, and hazardous material?	☒	☐
Noise exposures?	☒	☐	Potential exposure to subsurface and/or overhead utilities?	☒	☐
Ladder use?	☒	☐	Potential exposure to Unexploded Ordnance/Chemical Warfare agents?	☐	☒
Exposure to eye, head, hand, foot, or other hazards that require the use of PPE?	☒	☐	Underground Storage Tank investigation, removal, etc.?	☐	☒
Nuclear density gauge use?	☐	☒	Work with live electrical systems?	☐	☒

Will project activities involve any of the following?	Yes	No	Will project activities involve any of the following?	Yes	No
Respiratory protection use – required and/or voluntary?	☐	☒	Work at altitudes greater than 7,000 feet (~ 2,100 meters)?	☐	☒
Scaffolding?	☐	☒	Working at heights of greater than 4 feet (1.22 meters) or 6 feet (1.83 meters) for construction/demolition?	☒	☐
Manual lifting and/or material handling?	☒	☐	Use of computer workstations for data entry, CADD, word processing, etc.?	☒	☐
Work on or near railroad transportation systems?	☒	☐	Exposure to recognized hand hazards?	☒	☐
Work at a client site requiring compliance with the OSHA Process Safety Management Standard?	☐	☒	Are employees or contractors required to operate Powered Industrial Vehicles (i.e. forklift trucks)?	☒	☐
Subcontractors to perform high risk activities (including drilling and excavation) with their own personnel and/or equipment?	☒	☐	Potential exposure to ionizing radiation?	☐	☒
Potential personnel exposure to temperatures below 32^{o}F?	☒	☐	Down-hole geologic logging operations associated with geotechnical explorations or caisson inspections?	☐	☒
URS personnel newly hired or transferred from another position?	☒	☐	Potential inhalation of chromium VI (hexavalent chromium)?	☐	☒
Diving activities?	☐	☒	Working alone in an area where they cannot be seen/heard by another person?	☒	☐
Work at a site regulated by the Mine Safety Health Administration (MSHA)?	☐	☒	Hoists, elevators or conveyors being used?	☐	☒
Coordinate building material storage on-site?	☒	☐	Tunnels, shafts and caissons?	☐	☒
Operating and testing compressed air systems?	☐	☒	Signs, signals or barricades will be used onsite?	☒	☐
Temporary floors being created?	☐	☒	Project security will be required?	☒	☐

Will project activities involve any of the following?	Yes	No	Will project activities involve any of the following?	Yes	No
Concrete will be poured or handled?	☒	☐	Installation of cofferdams being performed?	☐	☒
Steel erection activities being performed?	☐	☒	Use or handling of explosive or blasting agents?	☐	☒
Work on or transfer to/from marine transportation (e.g. barge, vessel)?	☐	☒	Mining operations are conducted or controlled by URS?	☐	☒

Chemical Hazards
Chemical exposure for each project must be considered by the project manager and, where necessary, specific safe work plans initiated to eliminate hazardous exposure. Work requiring respiratory protection will require an annual medical clearance and equipment fit test. Project Managers, in coordination with Dow Industrial Hygienists, will establish specific protective systems, including PPE, which will be strictly enforced.

Material Data Safety Sheets (MSDS) for materials to be utilized on the project will be available to project personnel. The majority of materials to be used by project staff are general consumer products (i.e., insect repellent, poison ivy wipes).

Decontamination
All sampling equipment should be decontaminated prior to sample collection or at the end of each workday. Wash water and other fluids generated during decontamination will be managed at the MiOps Wastewater Treatment Plant.

To manage track out at specific parcels, all heavy equipment will be broomed and inspected to ensure that all loose soil particles are removed prior to demobilization. Any material generated through decontamination will be handled similar to removal efforts. Designated floor mats for project staff vehicles will be utilized to manage foot traffic carry-over that may occur after leaving project parcels. Any substantial material accumulated on the floor mat will be handled as part of removal efforts.

Fire
To protect against fires, the following special precautions must be taken:

- A Safe Work Permit must be obtained for any Hot Work to be done and Dow Hot Work procedures must be followed.
- Type ABC fire extinguishers will be available on-site to contain and extinguish small fires.

Communication
A communication system or network must be set up to alert site personnel of emergencies and to summon outside emergency assistance. Where voice communication is not feasible, an alarm system (i.e., sirens, horns, etc.) will be set up to alert employees of emergencies.

Cell phone and radio communication may be used to communicate with personnel in a construction zone. Site personnel will be trained on the use of the site emergency communication system or network. Emergency phone numbers will be posted at the phone or radio used for outside communication. The SSO is responsible for establishing the communication network prior to the start of work and for explaining it to all site personnel during the site safety briefing.

In the event of an emergency, personnel will use the following hand signals where voice communications are not feasible. This will be communicated to the entire project team:

Signal	Definition
Arms Extended Straight Out	Emergency Stop
Hand Extended to the Front	Stop/Wait
Arms Waving Overhead	Need Assistance
Thumbs Up	OK/I'm Ok/Proceed
Thumbs Down	No/Negative

Approval Signatures

_____
Steve Lucas
Dow Senior Remediation Leader

_____
Marty Crook
URS Site Manager

_____
Don Burnell
MAS Site Safety Officer

Health & Safety Plan Revisions

Date	Name	Description of Revision	Revision Approved by:
4/16/12	Scott Madill	Created MAS project specific HASP	

By signing below, I acknowledge that I have read the Health & Safety Plan (HASP), understand it and agree to comply with all of its provisions. I understand that I could be prohibited from working on the project and may be subject to disciplinary actions for violating any of the safety requirements specified in the HASP.

Employee Signature	Employee Printed Name	Employee Number

By signing below, I acknowledge that I have read the Health & Safety Plan (HASP), understand it and agree to comply with all of its provisions. I understand that I could be prohibited from working on the project and may be subject to disciplinary actions for violating any of the safety requirements specified in the HASP.

Employee Signature	Employee Printed Name	Employee Number

APPENDIX 1

CONSTRUCTION SAFETY FLYER FOR HOMEOWNERS AND/OR OCCUPANTS

YOUR SAFETY IS OUR PRIORITY

There are safety concerns on every construction site. To keep you and your family safe while work is being completed at your house, we ask that you...

DO:

- Park in designated areas to allow construction vehicles to access your property
- Remain outside of barricaded areas
- Pay close attention to hazards that could cause potential slips trips and falls
- Feel free to ask questions or express concerns with designated property liaison (identified in orange shirt)

DON'T:

- Allow children to touch the equipment
- Allow children to play unsupervised in areas near construction work
- Allow pets to roam unsupervised in construction area
- Approach a worker while they are operating equipment

The Dow Chemical Company is committed to making the remedy process as easy as possible for the you

Midland Resolution Center, 1008 Jefferson Avenue, Midland, MI 48640
(989) 631-2270 www.midlandresolution.com

APPENDIX 2

JOB SAFETY ANALYSIS

MAS Job Safety Analysis		
Work Activity: Driving to and from Site		
Key Hazard (s)	**Training Requirements**	**Protective Equipment Use**
• Wet/slippery road conditions • Other drivers • Pedestrians • Construction site traffic and personnel • Line-of-Fire • Deer or other animals in or on the side of the road • Backing hazards • Distracted by the cell phone	URS personnel only • URS LMS - Vehicle Safety • NSC DD course (or equivalent) • Hazard Awareness Training	• Seatbelt
Equipment Required	**Other Hazard Control Measures**	
• NA	• Completion of STAC/CHAT cards • No cell phone use while driving • All occupants must wear seat belts • Use defensive driving techniques • Plan ahead to avoid feeling rushed – find destination on map prior to mobilizing • Have all paperwork available including maps and stop vehicle to review; if needed	

MAS Job Safety Analysis		
Work Activity: Property Visits to Obtain Access and Develop Work Plan		
Key Hazard (s)	**Training Requirements**	**Protective Equipment Use**
• Property owner/tenant interface • Slips/trips/falls (i.e, wet grass, uneven sidewalks, etc.) • Biological hazards (i.e., bees, poison ivy, mosquitoes, snakes, pets, etc) • Unfamiliarity with area (i.e., planters, edging, holes, etc.) • Walking and writing at the same time • Weather exposure (sun, rain, wind) • Be aware of children and pets	• Communications training • Project Orientation training • Hazard Awareness training	• Proper attire and footwear (long pants and rain gear if appropriate) • Poison ivy wipes • Sunscreen wipes
Equipment Required	**Other Hazard Control Measures**	
• PPE • Paperwork	• Completion of STAC/CHAT cards • Buddy system • Watch step; don't multi-task while walking, stop to write things down • Ask and be aware of pets • Have available insect repellent, wasp spray and dog mace • Be aware of surroundings • Shuffle feet while walking through grass or tall brush • Use handrails on steps • Pass out Homeowners Safety Bulletin	

MAS Job Safety Analysis		
Work Activity: Soil Sampling		
Key Hazard (s)	**Training Requirements**	**Protective Equipment Use**
• Working near traffic • Lifting heavy loads • Ergonomic hazards (irregular positions) • Direct soil contact • Pinch points in truck beds, car doors, sampling tools • Property owner/tenant interface • Underground utilities • Weather exposure (i.e., sun, rain, wind) • Heat stress • Biological hazards (i.e. bees, poison ivy, snakes, pets, etc) • Hand Injuries • Slips/trips/falls • Beware of children and pets	• Communications training • Project Orientation training • PPE training (use) • Hazard Assessment training	• Proper attire (long pants and rain gear if appropriate) • Poison ivy wipes • Sunscreen wipes • Steel toed boots • Gloves-leather and nitrile; as appropriate to the task • Safety glasses with side shields Pg. 1 of 2

MAS Job Safety Analysis	
Work Activity: Soil Sampling	
Equipment Required	**Other Hazard Control Measures**
• Use project approved sampling tools, including hand tools • Bottles, coolers • PPE • Support truck • Paperwork	• Completion of STAC/CHAT cards • Buddy system • Watch step; don't multi-task while walking • Ask and be aware of pets • Be aware of potential areas for bees and wasps, and have nests larger than softball size sprayed • Be aware of surroundings • Use handrails on steps • Take breaks and drink plenty of water • Rotate tasks • Use MISS DIG to identify underground utilities • Be aware of hand placement (wear right glove for task) • Use proper cutting tools • Practice proper lifting techniques; use two-person lift for objects heavier than 50 lbs. • Stage equipment away from potential traffic • Have available insect repellent, wasp spray and dog mace • Shuffle feet while walking through grass or tall brush • Practice good housekeeping (eliminate or identify potential hazards) • Designate a 'working' area (i.e. a section of the parcel) and 'non-working' area (i.e. table with paperwork, maps, etc.) and emphasize that property owners/tenants remain only near the non-working area • Pass out Homeowners Safety Bulletin

MAS Job Safety Analysis		
Work Activity: Excavation and Backfill		
Key Hazard (s)	**Training Requirements**	**Protective Equipment Use**
• Hazards associated with heavy equipment use • Shoveling (back strains) • Ergonomic hazards • Line-of-Fire • Hitting and breaking underground lines • Hand/finger injuries • Eye exposures • Excessive noise • Pinch points • Slips/trips/falls • Potential overhead obstructions • Direct soil contact • Property owner/tenant interface • Backing hazards • Dust track out • Weather exposure (i.e., sun, rain, wind) including heat stress • Biological hazards (i.e. bees, poison ivy, snakes, pets, etc) • Operator leaving focus due to having an audience • Automobile traffic in roadway and driveways • Beware of children and pets	• Project Orientation training • Communications training • Heavy equip. operations • Hazard Awareness training • Soil Erosion and Sediment Control/Fugitive Dust training • Property Owner/Occupant Safety awareness training	• Hardhat • Steel-toed boots • Safety glasses with side shields • Gloves – leather gloves • Proper hearing protection when working near heavy equipment • Proper attire (long pants and rain gear if appropriate) • High Vis vest or shirt • Poison ivy wipes • Sunscreen wipes

MAS Job Safety Analysis	
Work Activity: Excavation and Backfill	
Equipment Required	**Other Hazard Control Measures**
• Back hoe • Shovels • Cones, caution tape, barricades • Bobcat • Tri-axel dump truck • Mini-excavator • Water truck • Street sweeper • Traffic control truck • PPE • Paperwork • Support truck	• Pre-job site visit, safe work permitting process • Buddy system • Completion of STAC/CHAT cards • Practice good housekeeping (eliminate or identify all potential slip/trip, fall hazards) • No jewelry, loose clothing. or loose long hair; no worn steel-toed boots • Utilize proper lifting and shoveling techniques and discuss personal limitations (use two-person lift for objects heavier than 50 lbs) • Account for all potential LOF hazards on daily STAC/CHAT and discuss during safety tailgate meeting; • Eye focus on hands during all handling activities (wear right glove for task) • Use proper cutting tools • Be aware of surroundings (watch where you place hands and feet) • Maintain LINE-OF-SIGHT at all times • Assign spotter when backing up (Utilized Dow Vehicle/Equipment Backing/spotting PTA Card) • Dust/track out monitoring and control using water truck and street sweeper • Utilize MISS DIG system to identify underground utilities (also ask property owner) • Take breaks and drink plenty of water • Ask and be aware of pets • Be aware of potential areas for bees and wasps, and have nests larger than a softball sprayed • Stage equipment away from potential traffic • Have available insect repellent, wasp spray and dog mace • Shuffle feet while walking through grass or tall brush • Enforce onlookers to remain in only designated areas heed equipment backup alarm warnings • Pass out Homeowners Safety Bulletin

MAS Job Safety Analysis		
Work Activity: Vegetation Replacement/Landscaping/Irrigation System Installation		
Key Hazard (s)	**Training Requirements**	**Protective Equipment Use**
• Hazards associated with heavy equipment use • Shoveling (back strains) • Ergonomic hazards • Line-of-Fire • Hitting and breaking underground lines • Hand/finger injuries • Eye exposures • Excessive noise • Pinch points • Slips/trips/falls • Potential overhead obstructions • Direct soil contact • Property owner/tenant interface • Backing hazards • Dust track out • Lifting heavy loads • Weather exposure (i.e., sun, rain) including heat stress • Biological hazards (i.e. bees, poison ivy, snakes, pets, etc) • Operator leaving focus due to having an audience • Automobile traffic in roadway and driveways • Beware of children and pets	• Project Orientation training • Communications training • Heavy equip. operations • Hazard Awareness training • Soil Erosion and Sediment Control/Fugitive Dust training • Property Owner/Occupant Safety Awareness training	• Hardhat • Steel-toed boots • Safety glasses with side shields • Gloves – leather gloves • Proper hearing protection when working near heavy equipment • High Vis vest or shirt • Poison ivy wipes • Sunscreen wipes • Proper attire (long pants and rain gear if appropriate)

MAS Job Safety Analysis	
Work Activity: Vegetation Replacement/Landscaping/Irrigation System Installation	
Equipment Required	**Other Hazard Control Measures**
• Shovels • Cones, caution tape, barricades • Bobcat • Mini-excavator • Water truck • Street sweeper • Traffic control truck • PPE • Paperwork • Support truck	• Pre-job site visit, safe work permitting process • Buddy system • Completion of STAC/CHAT cards • Practice good housekeeping (eliminate or identify all potential slip/trip, fall hazards • No jewelry, loose clothing. or loose long hair; no worn steel-toed boots • Utilize proper lifting and shoveling techniques and discuss personal limitations (use two-person lift for objects heavier than 50 lbs) • Account for all potential LOF hazards on daily STAC/CHAT and discuss during safety tailgate meeting • Eye focus on hands during all handling activities (wear right glove for task) • Use proper cutting tools • Be aware of surroundings (watch where you place hands and feet) • Maintain LINE-OF-SIGHT at all times • Assign spotter when backing up (Utilized Dow Vehicle/Equipment Backing/Spotting PTA Card) • Dust/track out monitoring and control using water truck and street sweeper • Utilize MISS DIG system to identify underground utilities (also ask property owner) • Take breaks and drink plenty of water • Ask and be aware of pets • Be aware of potential areas for bees and wasps, and have nests larger than a softball sprayed • Stage equipment away from potential traffic • Have available insect repellent, wasp spray and dog mace • Shuffle feet while walking through grass or tall brush • Enforce onlookers to remain in only designated areas Heed equipment backup alarm warnings • Pass out Homeowners Safety Bulletin

MAS Job Safety Analysis		
Work Activity: Post Remedy Care (O&M Activities)		
Key Hazard (s)	**Training Requirements**	**Protective Equipment Use**
• Hazards associated with commercial mower • Line-of-Fire • Ergonomic hazards • Hand/finger injuries • Eye exposures • Excessive noise • Pinch points • Slips/trips/falls • Property owner/tenant interface • Lifting heavy loads • Heat stress • Biological hazards (i.e. bees, poison ivy, snakes, pets, etc) • Heat stress • Beware of children and pets	• Project Orientation training • Communications training • Hazard Awareness training	• Steel-toed boots – at all times • Safety glasses with side shields • Gloves - leather • Proper hearing protection when mowing • High Vis vest or shirt • Poison ivy wipes • Sunscreen wipes • Proper attire (long pants and rain gear if appropriate)

MAS Job Safety Analysis	
Work Activity: Post Remedy Care (O&M Activities)	
Equipment Required	**Other Hazard Control Measures**
• Commercial mower • Hand spreader • Nutrient applicator • PPE • Support Truck • Paperwork	• Buddy system • Completion of STAC/CHAT cards • Practice good housekeeping (eliminate or identify all potential slip/trip, fall hazards • No jewelry, loose clothing. or loose long hair; no worn steel-toed boots • Utilize proper lifting and shoveling techniques and discuss personal limitations (use two-person lift for objects heavier than 50 lbs) • Account for all potential LOF hazards on daily STAC/CHAT • Eye focus on hands during all handling activities (wear right glove for task) • Use proper cutting tools • Be aware of surroundings (watch where you place hands and feet) • Inspect mower prior to use to ensure that the safety features are working • Use proper mowing technique • Be aware of potential areas for bees and wasps, and have nests larger than a softball sprayed • Have available insect repellent, wasp spray and dog mace • Take breaks and drink plenty of water • Ask and be aware of pets • Designate a ‘working’ area (i.e. a section of the parcel) and ‘non-working’ area (i.e. table with paperwork, maps, etc.) and emphasize that property owners/tenants remain only near the non-working area • Pass out Homeowners Safety Bulletin

MAS Job Safety Analysis		
Work Activity: Concrete Replacement		
Key Hazard (s)	**Training Requirements**	**Protective Equipment Use**
• Hazards associated with heavy equipment use • Shoveling and leveling (back strains) • Line-of-Fire • Hitting and breaking underground lines • Hand/finger injuries • Eye exposures • Excessive noise • Pinch points • Slips/trips/falls • Potential overhead obstructions • Direct soil contact • Property owner/tenant interface • Backing hazards • Dust track out • Contact with cement • Ergonomic hazards • Biological hazards (i.e. bees, poison ivy, snakes, pets, etc) • Heat stress • Beware of children and pets	• Project Orientation training • Communications training • Hazard Awareness training • Property Owner/Occupant Safety Awareness training • Soil Erosion and Sediment Control/Fugitive Dust training	• Hardhat • Steel-toed boots • Rubber boots – during cement placement • Safety glasses with side shields • Gloves – leather gloves • Proper hearing protection when working near heavy equipment • High Vis vest or shirt • Poison ivy wipes • Sunscreen wipes • Proper attire (long pants and rain gear if appropriate)

MAS Job Safety Analysis	
Work Activity: Concrete Replacement	
Equipment Required	**Other Hazard Control Measures**
• Shovels • Cones, caution tape, barricade • Bobcat • Water truck • Street sweeper • Traffic control truck • Concrete truck • Leveling tools	• Pre-job site visit, safe work permitting process • Buddy system • Completion of STAC/CHAT cards • Practice good housekeeping (eliminate or identify all potential slip/trip, fall hazards • No jewelry, loose clothing. or loose long hair; no worn steel-toed boots • Utilize proper lifting and shoveling techniques and discuss personal limitations (use two-person lift for objects heavier than 50 lbs) • Account for all potential LOF hazards on daily STAC/CHAT and discuss during safety tailgate meeting • Eye focus on hands during all handling activities (wear right glove for task) • Be aware of surroundings (watch where you place hands and feet) • Maintain LINE-OF-SIGHT with equipment operators at all times • Assign spotter when backing up (Utilized Dow Vehicle/Equipment Backing/spotting PTA Card) • Dust/track out monitoring and control using water truck and street sweeper • Utilize MISS DIG system to identify underground utilities (also ask property owner) • Rotate tasks • Take breaks and drink plenty of water • Ask and be aware of pets • Be aware of potential areas for bees and wasps, and have nests larger than a softball sprayed • Enforce onlookers to remain in only designated areas • Pass out Homeowners Safety Bulletin

MAS Job Safety Analysis		
Work Activity: Tree Removal		
Key Hazard (s)	**Training Requirements**	**Protective Equipment Use**
• Hazards associated with heavy equipment use • Line-of-Fire • Hitting and breaking underground lines • Hand/finger injuries • Eye exposures • Excessive noise • Pinch points • Slips/trips/falls • Potential overhead obstructions • Property owner/tenant interface • Backing hazards • Dust track out • Heat stress • Falling branches/trees • Lacerations • Biological hazards (i.e. bees, poison ivy, snakes, pets, etc) • Beware of children and pets	• Communications training • Heavy equip. operations training • Project Orientation training • Hazard Awareness training • Property Owner/Occupant Safety Awareness training	• Hardhat – at all times • Steel-toed boots – at all times • Safety glasses with side shields • Gloves – leather gloves • Proper hearing protection when working near heavy equipment • High Vis vest or shirt • Chaps (when operating chain saw) • Proper attire (long pants and rain gear if appropriate)

MAS Job Safety Analysis	
Work Activity: Tree Removal	
Equipment Required	**Other Hazard Control Measures**
• Chain saws • Chipper • Bucket truck/cherry picker • Ladders • Cones, caution tape, barricades	• Pre-job site visit, safe work permitting process • Buddy system • Completion of STAC/CHAT cards • Practice good housekeeping (eliminate or identify all potential slip/trip, fall hazards • No jewelry, loose clothing or loose long hair; no worn steel-toed boots • Utilize proper lifting and shoveling techniques and discuss personal limitations (use two-person lift for objects heavier than 50 lbs) • Account for all potential LOF hazards on daily STAC/CHAT and discuss during safety tailgate meeting • Eye focus on hands during all handling activities (wear right glove for task) • Use proper cutting tools • Be aware of surroundings (watch where you place hands and feet) • Maintain LINE-OF-SIGHT at all times • Assign spotter when backing up (Utilized Dow Vehicle/Equipment Backing/Spotting PTA Card) • Dust/track out monitoring and control using water truck and street sweeper • Utilize MISS DIG system to identify underground utilities (also ask property owner) • Take breaks and drink plenty of water • Ask and be aware of pets • Be aware of potential areas for bees and wasps, and have nests larger than a softball sprayed • OSHA approved ladder use policies • Enforce that non-essential personal remain outside of the barricaded limits; including property owners and/or tenants. • Pass out Homeowners Safety Bulletin

FIGURE

Midland Resolution Area

Dow Chemical
Michigan Operations

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Legend

- 2017 Study Area - as necessary
- 2016 Study Area - as necessary
- 2015 Study Area - as necessary
- 2014 Study Area
- 2013 Study Area
- 2012 Study Area
- economic_devel_residences *Economic Development Zone Residences, as necessary*
- Midland Resolution Area
- Dow Facility Boundary

URS
Dow Business Unit

Overview of Midland Resolution Area
The Dow Chemical Company
Michigan Operations
Figure 1

Drawn:	Checked:	Approximate Scale:
MDC	HAP	1" = 1050'
Date: 14 October 2011	Drawing File: Figure 2 Overview of Resolution Area with years.mxd	