Midland Engineering Co., Inc.
JOB HAZARD ASSESSMENT POLICY

PURPOSE

Job hazard analysis procedures provide a mechanism through which the information needed to anticipate, recognize, identify, and evaluate job hazards can be obtained and called to Management's attention. The information thus gained is utilized in the design and implementation of employee safety and environmental protection programs and Corrective Action Plans.

SCOPE

These work area hazard assessment guidelines apply to all Midland Engineering Co., Inc. divisions and field construction and maintenance projects. The outcome of the hazard assessments will be utilized in determining specific personal protective equipment requirements for employees.

POLICY

This procedure will be implemented on an as needed basis where a thorough understanding of all work area hazards has not been established. All Job Hazard Analysis are conducted by the Safety Director or trained designee.

REGULATIONS

Except to the extent that more explicit or more stringent requirements are written directly into these guidelines, the primary regulatory reference relating to employee protection and the performance of work area hazard assessment activities shall be Title 29 Code of Federal Regulations Part 1926.20, 1926.35 and 1910.38. These regulations, promulgated and enforced by the Occupational Safety and Health Administration (OSHA), are applicable to the work performed by the company.

PROCEDURE

Work area hazard assessment activities shall proceed in at least two distinct phases:

<u>Initial Assessment</u>

- Prior to initial deployment of employees into a work area, a preliminary hazard survey of the work area(s) may be completed. The survey should be made by an individual who is familiar with the type of industrial process involved in recognizing and evaluating exposures to potentially harmful materials.

- The individual should be accompanied by qualified plant personnel to explain any process or steps in manufacture that are not evident to the surveyor. Among the personnel who are best suited to the role of guide for the investigator are management, the supervisor of the work area under investigation, and the client Safety Manager.

- This initial phase of assessment will provide information about the facility to be occupied, about the process, raw materials present, waste materials present, and will serve to provide information useful in the development of hazard communication and personnel protection programs.

- Once the initial assessment has been completed and the data obtained evaluated, the procurement of appropriate, necessary equipment and services can be initiated.

- Information obtained from the initial assessment will serve to facilitate deployment of the workforce in a manner that is safe, in conformance with applicable regulations, is timely, and cost effective.

Periodic Assessment

- It is important to recognize that work area hazard assessment is a continuous process. For each phase of work, i.e., contract specification, a work area hazard assessment shall be performed and evaluated to define the hazards that the work area and/or assignment may pose. This assessment shall be used to develop the safety and health strategy for the next phase of work.

- In addition to the formal information gathering that takes place during the phases of work area hazard assessment described here, all work area personnel should be constantly alert for new information about work area conditions.

- Any new equipment used will be evaluated to establish adequate safety procedures and training.

- The sections below detail the components of the two phases of work area hazard assessment and provide a general guide which should be adapted to meet each specific work situation.

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JOB HAZARD ANALYSIS

- JHA's are to be completed in the preliminary bid, during field changes, and on a set schedule to accommodate unforeseen field changes.
- Job hazard information can be obtained by two methods: the preliminary survey and investigative survey.

PRELIMINARY SURVEY

- There should be as much data as possible collected from the facility/client personnel prior to any personnel deployment into the work area. The preliminary survey relies heavily on information being provided by the facility operator/owner to the company. The preliminary survey is usually made with no equipment for measurement purposes other than those portable pieces of equipment that can be conveniently carried on the person, such as a sound level meter.

- The surveyors should always determine the presence of control measures and provide an opinion about: The probable need for or effectiveness of control, The type of personnel, in terms of training, skill, or knowledge of the potential hazards in the workplace, and The attitude of management, supervising staff, the personnel employed at the work site toward health and safety practices, along with the control measures currently in effect and proper maintenance procedures.

- Additionally, where possible, the following information should be incorporated into the preliminary survey: Exact location of the work area(s) within the facility, mapped locations of buildings, containers, impoundments, pits, ponds, and tanks, detailed description of the activity that is to be performed in the work area, and anticipated duration of the activity.

- Hazardous substances involved and their chemical and physical properties. Information sources may include: company records, receipts, logbooks, ledgers, records from state and federal pollution control regulatory and enforcement agencies, state Attorney Generals Office, state occupational safety and health agencies, state Fire Marshal's office, waste storage inventories and manifests or shipping papers, and Interviews with facility personnel (all interview information should be verified).

- Vehicular traffic patterns/parking areas at the facility.

- Observations of labels, markings, or placards on containers or vehicles.

- Observations of deterioration or damage of containers or vehicles.

- Detection of unusual odors.

- Utilization of Preliminary Survey Data - Information obtained from the preliminary survey is to be used in the formulation of the project's hazard communication training program. Additionally, the data will assist the company in the selection of appropriate personal protective equipment for work activities.

INVESTIGATIONAL SURVEY

- Components of an investigational survey may include, but may not be limited to, the following: Monitoring the air for IDLH and other conditions that may cause death or serious harm (combustible or explosive atmospheres, oxygen deficiency, toxic substances), monitoring for ionizing radiation, visual observation for signs of actual or potential IDLH or other dangerous conditions, monitoring of welding operations for conditions of toxic metals exposure, measurement of ventilation systems for both volume and velocity characteristic, measurement of occupational noise exposure, measurement of organic vapor concentrations during painting operations, inspection and monitoring of asbestos containing materials, and measurement of organic solvent exposures during facility maintenance operations.

  Some situations warrant special consideration: Any indication of IDLH hazards or other dangerous conditions should be regarded as a sign to proceed with care and deliberation. Extreme caution should be exercised in continuing the work area survey when such hazards are indicted. If IDLH or other dangerous conditions are not present, or if proper precautions can be taken, continue the survey.

INFORMATION DOCUMENTATION

Proper documentation and document control are important for ensuring accurate communication, ensuring the quality of the data collected, and providing the rationale for safety decisions. Documentation can be accomplished by recording information on the Hazard Assessment Form pertinent to field activities, sample analysis, and work area conditions.

HAZARD ANALYSIS

Once the presence and concentrations of specific chemicals or classes of chemicals have been established, the hazards associated with these chemicals must be determined. This is done by referring to standard reference sources for data and guidelines on permissible levels of exposure, flammability, etc.

Threshold Limit Value (TLV) - TLVs can be used as a guideline for determining the appropriate level of worker protection. These values have been derived for many substances and can be found in Threshold Limit Values for Chemical Substances and Physical Agents, which are published annually by the American Conference of Governmental Industrial Hygienists (ACGIH). The ACGIH defines three categories of TLVS: time-weighted average (TWA), short-term exposure limit (STEL) and ceiling (C). All three categories may be useful in selecting levels of protection within a work area. Refer to the Threshold Limit Values for Chemical Substances and Physical Agents for additional details.

Permissible Exposure Limit (PEL) - Permissible exposure limits are enforceable standards promulgated by OSHA. In many cases they are derived from TLVs published in 1968. The PEL for a substance is the 8-hour time weighted average or ceiling concentration above which workers may not be exposed. Although personal protective equipment may not be required for exposures below the PEL, its use may be advisable where there is a potential for overexposure.

Recommended Exposure Limit (REL) - A NIOSH recommended exposure limit (REL) is the workplace exposure concentration recommended by NIOSH for promulgation by OSHA as a PEL, but is not enforceable as is the OSHA PEL. In some cases, NIOSH as described time-weighted average concentrations in terms of 10-hour, rather than 8-hour averages.

IDLH Concentrations - IDLH exposure concentrations have been established by the NIOSH/OSHA Standards Completion Program (SCP) as a guideline for selecting respirators for some chemicals. The definition of IDLH varies depending on the source. For example, the Mine Safety and Health Administration Standard defines IDLH conditions as those that pose an immediate threat to life or health or that pose an immediate threat of severe exposure to contaminants such as radioactive materials that are likely to have adverse cumulative or delayed effects on health. The NIOSH Pocket Guide to Chemical Hazards defined IDLH concentration as the maximum level from which one could escape within 30 minutes without any escape-impairing symptoms or any irreversible health effects. The American National Standards Institute, Inc. (ANSI) defines IDLH as any atmosphere that poses an immediate hazard to life or produces immediate irreversible debilitating effects on health. On projects, IDLH concentrations

should be assumed to represent concentrations above which only workers wearing respirators that provide the maximum protection (i.e., a positive-pressure, full-face piece, self-contained breathing apparatus (SCBA) or a combination positive-pressure, full-face piece, supplied-air respirator with positive pressure SCBA are permitted. Specific IDLH values for many substances can be found in the NIOSH Pocket Guide to Chemical Hazards.

Potential Skin Absorption and Irritation - Information on skin absorption is provided in the ACGIH publication, Threshold Limit Values for Chemical Substances and Physical Agents and in OSHA standard 29 CFR Part 1910.1000 and other standard references. These documents identify substances that can be readily absorbed through the skin, mucous membranes, and/or eyes by either airborne exposure or direct contact with a liquid. This information, like most available information on skin absorption is qualitative. It indicates whether, but not to what extent, a substance may pose a dermal hazard. Thus decisions made concerning skin hazards are necessarily judgmental. In addition, many chemicals, although not absorbed through the skin, may cause skin irritation at the point of contact. Signs of skin irritation range from redness, swelling, or itching to burns that destroy skin tissue. Standard references can be used to determine whether a chemical may act as an irritant.

Potential Eye Irritation - Quantitative data on eye irritation are not always available. Where a review of the literature indicates that a substance causes eye irritation, but no threshold is specified, a competent health professional should be consulted to evaluate the data to determine the level of personal protection needed for workers.

Explosion and Flammability Ranges - The lower explosive limit (LEL) or lower flammable limit (LFL) of a substance is the minimum concentration of gas or vapor in air below which the substance will not burn when exposed to a source of ignition. This concentration is usually expressed in percent by volume. Below this concentration, the mixture is too "lean" to burn or explode. The upper explosive limit (UEL) or upper flammable limit (UFL) of a substance is the maximum concentration of gas or vapor above which the substance will not burn when exposed to a source of ignition. Above this concentration, the mixture is too "rich" to burn or explode. The flammable range is the range of concentrations between the LFL and UFL where the gas-air mixture will support combustion. The flashpoint of a substance is the minimum temperature at which it gives off sufficient vapor to form an ignitable mixture with the air just above the surface of the substance. Ignition of a substance at the flashpoint is not continuous. The ignition temperature or auto-ignition temperature is the minimum temperature required to initiate or cause self-sustained combustion without an ignition source. When evaluating the fire or explosion potential in a work area, all equipment used should be intrinsically safe or explosion-proof. Where flammable or explosive atmospheres are detected, ventilation may dilute the mixture to below the LEL/LFL.

However, ventilation is generally not recommended if concentrations exceed the UFL/UEL, since the mixture will pass through the flammable/explosive range as it is diluted. Note that combustible gas indicator readings may not be accurate when oxygen concentrations are less than 19.5 percent.

Hazardous Substance Information Form - Information on the chemical, physical, and toxicological properties of each compound known or expected to be present in the work area should be recorded on a Hazardous Substance Information Form. Response personnel will then have the necessary health and safety information in one place, and can personnel be quickly briefed. As many reference sources as possible should be used to fill out the sheets because the information may vary from one source to another. Material Safety Data Sheets provided by chemical manufacturers is one source for this information.

Monitoring - Because work area activities and weather conditions change, an ongoing air monitoring program should be implemented after hazard assessment has determined that the work area is safe for routine operations.

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TASK HAZARD ANALYSIS ASSESSMENT FORM

INSTRUCTIONS: COMPLETE AND UPDATE THE FOLLOWING QUESTIONNAIRE WITH SPECIFIC INFORMATION REGARDING BOTH SELF-PERFORMED WORK AND OTHER CONTRACTOR-PERFORMED WORK THROUGHOUT THE SCOPE AND DURATION OF THIS JOB. REVIEW IT CONTINUOUSLY. LOOK FOR CHANGING CONDITIONS. UPDATE AS NEEDED. SHARE IT WITH EVERYONE ON THE JOB. ALWAYS BE AWARE. THIS ANALYSIS AND PLAN IS SPECIFIC FOR THE FOLLOWING PROJECT:

PROJECT NAME:_____PROJECT NUMBER:_____

NAME OF PERSON PREPARING:_____DATE:_____

TASK HAZARD ANALYSIS:

1. WHAT IS THE JOB TASK AND WORK LOCATION ON THIS PROJECT?

   _____

2. SPECIFIC WORK DESCRIPTION - WHAT DO WE HAVE?

   _____

   _____

3. SPECIFIC SAFETY HAZARD - HOW CAN IT HURT US?

   _____

   _____

4. SPECIFIC SAFETY MEASURE (NECESSARY PROCEDURES, RULES AND/OR EQUIPMENT) WHAT CAN WE DO ABOUT IT? ELIMINATE? PREVENT? CONTROL?

   _____

5. NAME OF PERSON RESPONSIBLE FOR SPECIFIC SAFETY MEASURE .WHO WILL DO IT?

   _____

6. DATE - WHEN WILL THIS PLAN TAKE EFFECT?

   _____

7. ANY CHANGES SHOULD BE NOTED HERE:

   _____

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Daily Work Hazard Analysis

Supervisor: _____ **Date:** _____

Work Area: _____ **Task:** _____

Description of Work:

_____
_____
_____
_____
_____

Hazard Identification (check all that apply)

___Falling Objects	___Electrical	___Lifts	___Rigging
___Hot Work	___Sharp Objects	___Air Quality	___Falls – working above 6 feet
___Lifting	___Open Holes	___Noise	___Confined Space
___Traffic	___Dust	___Chemicals	___Working above another craft

___Other _____

Resources

Equipment Required: _____

Tools: _____

Scaffolding: _____

Other: _____

Safety Checklist & Control Measures

___Area Secured	___Caution Tape	___Signage	___Barricades/Barriers
___Respirator	___Hearing Protection	___Permit	___Harness/Lanyard
___Hard Hat	___Safety Glasses	___Work Boots	___Fire Extinguisher
___Face Shield	___Tyvek	___Cones	___Fire Watch

___Other: _____

Verification of Understanding (crew sign-in)

Print Name:	Sign Name:
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

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JOB HAZARD ANALYSIS (JHA)

Supervisor: _____

Project: _____Work Area: _____Date: _____

Major Task to Complete	Hazards Involved	Safeguards
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Safety Training

Training Topic: _____

Suggestions Made: _____

Jobsite Safety Requirements: _____

Instructor Signature: _____ Title: _____

Attendee Signatures:

1. _____ 12. _____
2. _____ 13. _____
3. _____ 14. _____
4. _____ 15. _____
5. _____ 16. _____
6. _____ 17. _____
7. _____ 18. _____
8. _____ 19. _____
9. _____ 20. _____

