Health and Safety Manual

Issue Date

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General Policy Statements

Management, staff, and hourly employees of MPIC must have a common objective to be successful. Our objective is the healthy, safe, environmentally sound, and productive operation of all MPIC. 's activities. We have an obligation to preserve the human, physical, and financial resources of our company. In satisfying this obligation, worker safety and health will always be our #1 priority. As such, this basic policy must be considered in every phase of our business including acquisition, job planning, job setup, and performance. Accordingly, our principal objectives are to:

- Provide a work environment that is free of unmitigated recognized hazards.
- Comply with all laws that regulate employee safety, health, and our environment.
- Recognize the priority of safety and health factors over purely economic considerations.
- Hold each employee accountable for the safe execution of all jobs assigned and full compliance with all environmental, safety, and health related procedures and training.
- Train our employees in safe and proper job procedures and required compliance with established procedures, policies and practices.
- Provide comprehensive New Employee Safety Training to all new hires.
- Hire only those persons who demonstrate the capacity to comprehend and execute all jobs in a safe and healthful manner consistent with the policies and procedures of the company and the training and job instruction provided.
- Promote worker health and safety both on and off the job.
- Maintain leadership in safety and accident/incident prevention by continuously improving safety performance and work methods and procedures.

First-line supervision has the greatest impact and thus the greatest opportunity to influence and promote safe work practices among our work force in the field. **The prevention of accidents/incidents requires everyone's concerted effort and daily attention. Everyone has equal authority and responsibility to take appropriate action to correct unsafe acts/ or conditions.**

A properly planned and executed job will eliminate the chance for losses and return benefits that satisfy needs in each of these areas:

- Health, Safety, & Environment
- Cost
- Quality
- Morale
- Production
- Customer Satisfaction

All employees will contribute to the company environmental, health, and safety program by following all policies and procedures, bringing unsafe conditions/acts to the attention of management, and recommending actions to improve the effectiveness of the program. Supervisors shall insist that employees observe and obey every rule and regulation necessary for the safe conduct of work and shall take such action necessary to obtain compliance.

(SIGNATURE HERE)

Name/Title of Executive

Drug and Alcohol Policy

The company's safety sensitive work, the widespread availability and use of unauthorized, prohibited, illegal or controlled substances, and the company's commitment to maintain a drug free work force, requires the pre-employment, post-accident and unannounced periodic or random drug and alcohol testing of all employees. Additionally, all employees will be subject to searches and inspections of their person, vehicle and personal effects for the presence of illegal or controlled drugs, chemicals or substances, alcohol, explosives, contraband or firearms.

Administration

Prohibited Activity

The Use, bringing onto company property or job site, possession, concealment, transportation, promotion or sale of the following substances or items, by any employee, contractor, subcontractor, their employees and invitees is strictly prohibited, to wit:

- Illegal drugs, unauthorized controlled substances, look-a-likes, designer, synthetic or any other drug which may affect an employee's motor functions or alter a person's perception
- Prescription drugs/over the counter medication except under the following conditions:
  - The employee shall inform his supervisor prior to using any prescription drugs or over the counter medication and receive written permission to possess such drug while working on the job.
  - The prescription vial shall be labeled by the dispensing pharmacy and the label shall show the employees name, physician, prescription number, date the prescription was filled and the dosage rate. Prescriptions more than 30 days old will not be allowed.
  - The over the counter medication will be in its original package or container.
  - The employee shall only possess enough medication for his normal shift.
- Alcoholic beverages.
- Firearms, weapons, explosives, and ammunition
- Unauthorized items such as stolen property or drug paraphernalia

Enforcement

As a condition of employment or continued employment, all employees shall be deemed to have and agreed to cooperate with the implementation of this policy and abide by its terms. In addition, as a condition of employment or continued employment, all employees shall be deemed to have agreed to the following enforcement procedures.

Searches and Inspections

- An individual's entry into, or presence at, company property, or project work sites, is conditioned upon such persons to consent to the right of the company, its authorized representative, or appropriate law enforcement personnel to search the person, his vehicle and personal effects for the presence of unauthorized, prohibited, illegal, or controlled drugs, chemicals or substances, alcohol, explosives, contraband, or firearms.

Drug and Alcohol Testing

- A pre-employment drug and alcohol screen will be required of all persons, prior to being approved for work on the premises of any customer.
- A post-accident drug and alcohol screen will be required of any employee involved in an on-the-job accident resulting in injury, to himself or others; a serious or potentially serious accident or incident in which safety rules and precautions were violated; issuing unsafe orders or instructions, damaging equipment or property of the company or others, usually careless acts, or where the cause was employee's failure to wear required personal protective equipment.
- A "for cause" drug and alcohol screen will be required of all persons who show signs of possible intoxication or using or being under the influence of drugs or alcohol, or when such other circumstances exist that would lead a prudent supervisor to be concerned about the employee's safety and the safety of others. All employees will be subject to unannounced drug and alcohol testing, unless prohibited by law or regulation.
- Random or periodic testing will be conducted, as permitted by statute or regulation. These tests will be without cause, suspicion, detectable performance problems, or the occurrence of an accident, incident or safety violation.
- Employees involved in a rehabilitation program as outlined below will be given random drug and alcohol screens for a period of 5 years following its completion.

All searches, inspections and drug screens will be performed in a professional manner, with concern for the privacy and confidentiality of all individuals.

Testing Procedures

Laboratory Testing

The company will designate the laboratories to perform substance testing on blood or urine specimens in accordance with standards set for the by the National Institute for Drug Abuse. The substances and detection levels covered by this testing program are set forth below. Employees may be asked by collection site personnel to indicate whether there is the potential that they will test positive for prescription or other

substances. A consent form and information sheet will be provided. If the employee fails to provide and acceptable urine specimen the company may take the following steps:

- Extend the stay of the employee at the designated collection site, if feasible, until an acceptable specimen can be collected.
- Reschedule the test due to unusual circumstances, i.e. post-operative situations.
- Discipline the employee, up to and including termination, on the first offense for failing to cooperate or refusing to provide an acceptable specimen.

All positive urine specimen test results for employees on active status will be confirmed by standard laboratory procedures, generally gas chromatography/mass spectrometry (GC/MS), using a portion of the same specimen. In case of testing by means other than urine (i.e. breath or other samples), reliable laboratory or instrument testing procedures will be followed.

Non-Lab Testing

A visual one-step panel immunoassay for simultaneous, qualitative detection of multiple drugs and metabolites in human urine may be used for the purpose of administering Random, Post Accident and For Cause drug screens in the field.

- In the event of a positive reading, the specimen will be sealed, and a chain of custody form will be completed and it will be sent to a NIDA certified lab for GC/MS analysis.
- If the additional test results are positive, or if the employee fails or refuses to execute the Chain of Custody forms as directed by the company, termination will result. If this additional drug screen is required and the results are positive for the presence of drugs or alcohol the employee will authorize the company to deduct, from his/her final paycheck, the sum of $50.00 to defray its cost of administering the program.
- If the additional drug screen results are negative, the employee will return to work and compensated for time lost from job.

Disciplinary Action for Policy Violation

Applicants

If the final result of a pre-employment drug screen is positive, the applicant will not be employed. No applicant can be reconsidered for employment sooner than six (6) months following the date of the positive drug screen.

Employees

- No search, inspection or drug test will be conducted without written consent. However, any employee who refuses to provide such written consent and fully cooperate with this policy will be subject to disciplinary action up to and including discharge from employment.
- Under certain circumstances, disciplinary action may include a mandatory referral to and enrollment in an approved rehabilitation program at the employee's expense. This action may also require and indefinite suspension of regular employment.
- An employee's job is not in jeopardy by reason of his voluntary admission to having a substance problem and request for help and referral to an approved rehabilitation program, provided there has been no prior violation of this policy, and the employee has not previously been through rehabilitation while employed with the company, and further provided that such request is made prior to, and well in advance of, any consideration of being tested under the provisions of this policy. The cost of this rehabilitation will be at the employee's expense. The employee will be placed on a one time administrative leave, without pay, for no longer than 30 calendar days. Employees participating in this rehabilitation program will be subject to follow-up or "maintenance" testing for a 5-year period.
- If the final result of a "random", "for cause", "post-accident" or "maintenance" drug screening is positive, the employee will be terminated from employment, and he may not then request rehabilitation. No terminated employee can be reconsidered for employment sooner than six (6) months following termination.
- Any terminated employee who is subsequently rehired and later fails another drug screen will no longer be eligible to be reconsidered for employment under any circumstances.

Contractors, Subcontractors, Vendors, Their Employees' Agents, Servants or Representatives.

- No search, inspection or drug test will be conducted without written consent. However, anyone who refuses to provide such written consent and does not fully cooperate with this policy will be subject to disciplinary action up to and including removal from the job or job site, as may be appropriate. Preliminary findings of a policy violation may require that the individual involved be suspended from the job pending the results of the company investigation.
- If the final result of a "random", "for cause" or "post-accident" drug screen is positive, the individual will be permanently barred from job.

Administrative Guidelines

- All employees will be informed regarding this policy at the time of employment. Additionally, it will be discussed periodically at "tail gate" safety meetings.
- In the even an employee or terminated employee requests a review be conducted regarding his/her positive test result, the laboratory will conduct a retest of a portion of the same sample previously tested and will make the results of the retest available to the employee or terminated employee provided the request is made within 12 months following the initial test. In the event that the retest is also positive, the employee or terminated employee will be required to pay for the cost of such retest.
- A good faith effort will be made to advise any employee who receives a positive test result via a meeting with the employee's Supervisor.
- An employee who has a substance problem is encouraged to seek immediate assistance. The Human Resources Department will provide the employee with the name and address of local agencies or facilities that are equipped to provide the rehabilitation assistance needed by the employee.
- The employee may be eligible for a one-time leave of absence from work for a period of up to 30 days, for the purpose of enrolling in an approved rehabilitation program. As a condition of employment such employee must test negative on a substance test in order to return to work. Such request must be made well in advance of any request by the company to submit to a random or for-cause substance screen.
- The employee cannot use as a defense against termination the existence or availability of a rehabilitation program or make any claim that participation in any program is a reason for reinstatement or job retention.

Target Substances

As a minimum, the following substances and detection levels shall be tested for:

Alcohol	.04 BAL
Amphetamines	1000 NG/ML
Opiates	2000 NG/ML
Cannabinoids	50 NG/ML
Cocaine	300 NG/ML
Phencyclidine	25 NG/ML

Concentrations at or in excess of the above levels shall be conclusive proof of unacceptable levels of unauthorized, prohibited, illegal or controlled substances.

Client Requirements

In the event that an Operator/Client has Drug Testing Guidelines that are more stringent than those outlined above, the client's guidelines will be followed for all work done with that client. Examples of more stringent guidelines include but are not limited to:

- A greater number of substances (panels) to be tested for
- A lower detection/cut off levels
- Specified number or percent of employees to be tested on site
- DOT or similar mandated programs

Disciplinary Policy

Purpose

The purpose of this policy is to define behavior which is considered unacceptable on MPIC jobsites and to define the corrective measures which will be taken in response to unacceptable behavior.

It is MPIC policy to treat our fellow employees in a fair and even manner while maintaining the discipline necessary to assure the safety, quality, and productivity of our operations. The following is a list of violations which are unacceptable:

Class "A" Violations

Class "A" Violations are considered behavior of such a serious nature as to warrant immediate termination. Class "A" Violations are as follows:

- Fighting or disorderly conduct on Company or Customer premises.
- Theft or willful destruction of Company property
- Violation of MPIC prohibition of illegal drugs, alcohol, or other articles.
- Willful endangerment of the life, safety, or health of oneself or one's fellow employees.

Class "B" Violations

Class "B" Violations are recognized as unacceptable and require disciplinary action which may include termination. Class "B" Violations are as follows:

- Abuse or destruction of Company or Customers property
- Dishonesty
- Excessive absenteeism
- Failure to follow instructions
- Falsification of Employment Applications or MPIC time sheets.
- Harassment based on an individual's sex, race, color, national origin, religion, disability, or age in any form by an employee.
- Inability to perform assigned tasks.
- Insubordination
- Leaving the job without permission or job abandonment
- Solicitation or distribution of literature on Company or Customer property.
- Tardiness or excessive absenteeism

- Theft
- Unsafe behavior
- Violation of safety rules
- Other violations for which MPIC feels that corrective action is warranted.

This list is to be representative of the types of activities which may result in disciplinary action. It is not intended to be comprehensive and does not alter the employment at-will relationship between the employee and MPIC.

Violations will be reported to the Supervisor for resolution. The infraction will be reviewed with the employee, and a written copy of the incident shall be prepared. The employee will be required to acknowledge the infraction by signing the written copy of the incident. The written copy of the incident and the resulting actions taken will be filed in the employee's personnel file. Subsequent violations by the employee will be causes for suspension or termination, at the discretion of the MPIC Safety Officer.

Audits shall be performed by the Safety Officer to evaluate each site's commitment to safety performance. Supervisors whose projects display an overall lack of safety commitment shall be notified by the MPIC. Safety Officer for review. This review will include an overview of company safety policies and objectives, discussion of the infractions, and the corrections deemed necessary to correct the infractions. A written copy of the review shall be signed by the supervisor and kept in the supervisor's employee file. Continued lack of safety performance on the supervisor's project shall be cause for suspension or termination, at the discretion of the Safety Officer.

Accident Investigation and Reporting

Procedures Policy

MPIC requires all employees to immediately report to their supervisor all accidents and incidents that result in injury or property damage, and all near misses with the potential for serious injury or property damage. Supervisors will report the accident promptly to management. Each incident will be analyzed to determine causes and contributing factors and the analysis will be used to reduce or eliminate the risk of further incident.

Definitions

An **Accident** is defined as an unplanned event that causes harm to people or damage to property. Accidents are categorized as one of the following:

Lost Time Injury (LTI) refers to any injury that prevents a worker from coming to work on the day following the day of the injury.

Medical Aid refers to any injury not severe enough to warrant more than the day of injury off, but where medical treatment by a doctor is given.

First Aid refers only to injuries that can be treated on the job without any days lost.

An **Incident** is defined as property damage but with no injury to workers.

A **Near Miss** is a situation in which no injury or damage occurred but might have if conditions had been slightly different.
Occupational Illness is defined as a condition resulting from a worker's exposure to chemical, biological or physical agents in the workplace to the extent that the health of the worker is impaired.

Critical Injury is defined as an injury of a serious nature that:

- Places life in jeopardy;
- Produces unconsciousness;
- Results in substantial loss of blood;
- Involves the fracture of a leg or arm but not a finger or toe;
- Involves the amputation of a leg, arm, hand or foot but not a finger or toe;
- Consists of burns to a major portion of the body; or
- Causes the loss of sight to an eye.

Role of Supervisor in an Accident Investigation

The Supervisor and the Safety Officer must investigate all accidents and incidents that involve workers. This includes completing the Accident Investigation Report (See Accident Report, Attachment 4-1), taking statements from witnesses (See Witness Statement Form, Attachment 4-2) and collecting any other pertinent information and ensuring the injured worker has received the necessary medical assistance.

The supervisor is responsible for ensuring that all accident reports are transmitted to the Safety Department as described below. If a worker sustaining a First Aid later seeks medical aid, the supervisor must advise the Safety Department and have the treating practitioner complete a Functional Abilities Form.

The supervisor should contact the injured worker as frequently as the injury deems, or at least once a week. If you require assistance, contact the Safety Officer.

Procedure

- The employee reports a work related accident
- Administer first aid as required
- Arrange for transportation for injured employee to medical treatment if required
- Ensure Return to Work package accompanies worker
- Eliminate the hazard if possible or guard the accident scene if worker is critically injured
- Investigate the cause of the accident and report findings in the Accident Incident Report form. Ensure all areas of the form are completed.
- Send copy of the form to Safety Officer
- Report all accidents/incidents as follows:

    - Lost Time Injuries
    - Medical Aid
    - First Aid
    - Incidents and Near Misses

Attachment 4-1 - Accident Report

Injured Worker's Last Name	First Name	Occupation

Location where injury/accident occurred	First Aid Provider
Hospital or Clinic Attended for Medical Aid	**Treating Physician's Name**
Nature of Injury	Project Location of Accident/Injury

Person who transported employee					
Will this be a lost time injury?	No ❑	Yes ❑	Is injury work-related?	No ❑	Yes ❑
Were any subcontractors involved?	No ❑	Yes ❑			

Injury Details

Date and Hour of Injury					Date and Hour Reported to Employer				
Day	Month	Year	Time		Day	Month	Year	Time	
				a.m. p.m.					a.m. p.m.

Date and Hour Last Worked				Normal Working Hours			
Day	Month	Year	Time	From		to	
			a.m. p.m.		a.m. p.m.		a.m. p.m.

Who was the injury reported to?	

What caused the injury? Describe the injury, the body part involved and specify left or right side (use back of sheet if necessary).

Describe the worker's activities at the time of the injury. Include details of equipment or materials used (use back of sheet if necessary).

Did anyone else witness the accident or know more about the injury?

Attachment 4-2 - Witness Statement Form

Date of injury/incident: _____ Injury/incident number: _____

Name of witness: _____

Date: _____

Name of interviewer: _____

Details of interview:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Signature of witness: _____

Signature of interviewer: _____

Attachment 4-3 - Corrective Action Form

Date of injury/incident: _____ Injury/incident number: _____

Date: _____

Corrective action taken (as indicated on the Accident/Investigation Form):

_____

_____

_____

_____

Recommendations:

Date assigned:

Responsibility assigned to:

Details of what has to be done:

Who has completed it?

When was it completed?

Injured Worker's Early and Safe Return to Work Policy

Return to work is the process or strategy of safely returning employees to the workplace on a timely basis.

Policy

The Management of MPIC is committed to cooperating with all of their employees who have been injured on the job site and will do everything they can for an early and safe return to work. At MPIC , we will provide a modified work program to any of our injured employees until he/she is able to return to their pre-accident job, wherever possible.

Roles and Responsibilities

Employer

Employer will:

- Contact injured worker ASAP and stay in regular contact. Cooperate in providing suitable work.
- Provide workers with Functional Abilities Form (Attachment 5-2) to take to the testing practitioner for completion.
- Educate workers about the return to work program.
- Set specific time frames for the return to work.
- Review worker's progress regularly.
- Pay full wages and benefits for the day or shift on which the injury occurred.
- Make certain that workers understand their obligations to co-operate.
- Set clear procedures to follow in reporting injuries.

Worker

Worker will:

- Contact supervisor immediately of any injury. If not available, phone office and contact employer.
- Stay in regular contact.
- Help identify and cooperate in suitable work arrangements.
- Return to work within 24 hours with the completed form to develop with the employer an early and safe return to work.
- Choose a doctor or qualified practitioner.

Goals

MPIC will:

- Assess each individual's situation according to any practitioner's report and recommendations and will provide some kind of modified work to suit the degree of injury.

- Assist in the employee's active recovery and encourage the worker to return to work to their pre-accident job, wherever possible.

Identify jobs that are suitable for accommodating injured workers on a temporary basis in order to facilitate the early and safe return to work program and limit any loss of their earnings

Accommodations

A change or modification to the job or workplace so that the work is within the injured or ill person's functional capabilities and the risk of injury is reduced.

Types of Accommodations:

- Reduce hours
- Graduate RTW hours
- Re-assign duties
- Restructure the job
- More frequent rest breaks
- Work platform vs. ladders
- Ladders for climbing scaffolds
- Mini stretch breaks (10-15 minutes)
- Chair with back support vs. Picnic table
- Anti-vibration tools (e.g. anti-vibration jackhammer)
- Make heavy tools available at waist height
- Light shop work, general clean-up
- Painting trailers, containers (light work with brush)
- Washing trucks
- Pickup or delivery
- Training in their selected field, where possible
- Computer training in safety prevention, if available
- Increasing of awareness

First Aid

First Aid Stations are available at all job sites. ONLY Employees with Valid First Aid Certificate will provide first aid assistance when required.

Attachment 5-1 - Return to Work – Letter to Attending Physician

Dear Doctor:

MPIC has adopted a Return to Work Program for its employees. Through this program, we are committed to return our employees to their regular jobs following an occupational or non-occupational sickness or injury.

With leadership from the project supervisor, the program is designed to help reintroduce the employee back into their work environment as quickly as possible. The program can be up to 6 weeks duration of reduced hours and modified or suitable work.

In order to accomplish the return to work of your patient (our employee), we request that you complete this form and have the employee return it to his/her Supervisor.

Thank you for your assistance and cooperation.

Name: _____

Signature: _____

Date: _____

Attachment 5-2 - Functional Abilities Form

Name of Patient	Date of Birth	SSN

A.	**RECOMMENDATIONS for RETERN TO WORK**
1	Have you discussed return to work with your patient? ▫ Yes ▫ No Please explain:
2	Does your patient require assistance or retraining in preparing for return to full duties, etc.? ▫ Yes ▫ No Please explain:
3	Recommendations for work hours and start date: ▫ Regular full-time hours effective _____. ▫ Modified hours effective _____, _____ hours/day and/or _____ hours/week. ▫ Graduated hours effective _____, _____ hours/day for ____ week(s), then _____ hours/day for _____ week(s)
4	Recommended date of next appointment to review abilities and/or restrictions:

B	**ABILITIES AND LIMITATIONS** – Include comments in Section C			
5	**Walking:** ▫ Full Abilities ▫ Up to 2 hours/day ▫ Up to 4 hours/day ▫ Other (please specify)	**Standing:** ▫ Full Abilities ▫ Up to 2 hours/day ▫ Up to 4 hours/day ▫ Other (please specify)	**Sitting:** ▫ Full Abilities ▫ Up to 2 hours/day ▫ Up to 4 hours/day ▫ Other (please specify)	**Lifting from floor to waist:** ▫ Full Abilities ▫ Up to 10 lbs. ▫ 10 – 20 lbs ▫ Other (please specify
	Lifting from waist to shoulder: ▫ Full Abilities ▫ Up to 10 lbs. ▫ 10 – 20 lbs ▫ Other (please specify	**Stair Climbing:** ▫ Full Abilities ▫ 1 - 2 flights at a time ▫ 3 – 4 flights at a time ▫ Other (please specify)	**Ladder climbing:** ▫ Full Abilities ▫ None ▫ Limited to _____	**Travel to work:** Ability to use public transit ▫ Yes ▫ No Ability to drive a car ▫ Yes ▫ No

Cognitive limitations: ▫ Full Abilities ▫ Memory ▫ Concentration ▫ Fatigue ▫ Interaction with others ▫ Other (please	**Bending/twisting repetitive movement:** ▫ Full Abilities ▫ None ▫ Limited to _____	**Work above chest/ shoulder level: R L** ▫ Full Abilities ▫ None ▫ Limited to _____	**Forceful or repetitive grasping with: R L** ▫ Full Abilities ▫ None ▫ Limited to _____	**Pushing/pulling with: R L** ▫ Full Abilities ▫ None ▫ Limited to _____

Kneeling or squatting: ▫ Full Abilities ▫ None ▫ Limited to _____	**Operating motorized equipment (i.e. forklift):** ▫ Full Abilities ▫ None ▫ Limited to _____	**Other:**

C	**COMMENTS – Abilities and Limitations**
6	Additional Comments on abilities and limitations listed above:
7	From the date of this assessment, the abilities and limitations noted above will expire on:

D	**PHYSICIAN'S INFORMATION**	
Physician's Name (Please Print):	Physician's Signature:	Date: Email:
Degree/Specialty:	Address:	Phone: Fax:

Access to Employee Exposure and Medical Records

Purpose

The purpose of this section is to provide employees and their designated representatives a right of access to relevant exposure and medical records in order to fulfill responsibilities under the Occupational Safety and Health Act. Access by employees and their representatives, is necessary to yield both direct and indirect improvements in the detection, treatment, and prevention of occupational disease.

Scope

This section applies to all employee exposure and medical records, and analyses thereof, made or maintained in any manner, including an in-house or contractual basis. MPIC shall assure that the preservation and access requirements of this section are complied with regardless of the manner in which records are made or maintained.

Notification

Upon initial employment employees will be briefed and at least annually thereafter, informed via a bulletin board posting of the following:

- The existence, location and availability of employee records for exposure to toxic substances or harmful physical agents.
- The person responsible for maintaining and providing access to the records. Contact your Resources Manager or Safety Representative to initiate this request.
- The employee right of access to those records.
- The entire section pertaining to the Access to Employee Exposure and Medical Records is available for employee review by contacting the Safety Representative.

Record Keeping

- The Human Resources Manager is responsible for maintaining and providing access to employees' medical records. These records are kept separately from other employee records.
- The medical records of employees who have worked for less than (1) year for the employer need not be retained beyond the term of employment if they are provided to the employee upon the termination of employment.
- Employee exposure records shall be maintained for the duration of employment and for 30 years thereafter and should include the following:

    - Environmental (workplace) monitoring including personal, area, grab, swipe (wipe over a designated area), etc. type samples.
    - Biological monitoring—level of chemical in the blood, urine, hair, fingernails, etc.
    - Safety data sheets or a chemical inventory or any other record which reveals where and when used and the identity (e.g., chemical, common, or trade name) of a toxic substance or harmful physical agent.

Access

- Each employee or designated representative has the right to request access to his/her records. The company shall assure that access is provided in a reasonable time, place, and manner.
- The employee may access his/her records by making a request to the **Human Resources Manager or Safety Representative**. The company will release an employee's medical records only if the employee has given specific, written consent (see Attachment 6-1).
- If the company cannot reasonably provide access to the record within fifteen (15) working days, the company shall within the fifteen (15) working days apprise the employee or designated representative requesting the record of the reason for the delay and the earliest date when the record can be made available.
- In the case of an original X-ray, the employer may restrict access to on-site examination or make other suitable arrangements for the temporary loan of the X-ray.
- Records or copies will be provided at no cost to the employee.

    - Whenever a record has been previously provided without cost to an employee or designated representative, the company may charge reasonable, non-discriminatory administrative costs (i.e., search and copying expenses but not including overhead expenses) for a request by the employee or designated representative for additional copies of the record.
    - No charge for an initial request for a copy of new information that has been added to a record which was previously provided.
    - No charge for an initial request by a recognized or certified collective bargaining agent for a copy of an employee exposure record or an analysis using exposure or medical records.

Transfer of records

- Whenever ceasing to do business, the company shall transfer all records subject to this section to the successor employer. The successor employer shall receive and maintain these records.
- Whenever ceasing to do business and there is no successor employer to receive and maintain the records subject to this standard, the company shall notify affected employees of their rights of access to records at least three (3) months prior to the cessation of business.

References

Code of Federal Regulation, Title 29, Part 1910.1020

Attachment 6-1 - Release of Employee Medical Records

Sample Authorization letter for the release of employee medical record information to a designated representative

I, _____, (full name of worker/patient) hereby authorize _____ (individual or organization holding the medical records) to release to _____ (individual or organization authorized to receive the medical information), the following medical information from my personal medical records:

_____
_____
_____

(Describe generally the information desired to be released).

I give my permission for this medical information to be used for the following purpose:

_____
_____

But I do not give permission for any other use or re-disclosure of this information.

(Note: Several extra lines are provided below so that you can place additional restrictions on this authorization letter if you want to. You may, however, leave these lines blank. On the other hand, you may want to (1) specify a particular expiration date for this letter (if less than one year); (2) describe medical information to be created in the future that you intend to be covered by this authorization letter; or (3) describe portions of the medical information in your records which you do not intend to be released as a result of this letter.)

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Full name of Employee or Legal Representative

_____

Signature of Employee or Legal Representative & Date

_____

First Aid Policy

This policy is to ensure that prompt and effective medical assistance is provided to the employees of MPIC in case of workplace injury or illness, the following first aid and medical services procedure is provided.

It is the responsibility of each manager / supervisor to assure that compliance to the First Aid & Medical Services Procedure is provided.

This policy covers minimum performance standards applicable to all MPIC employees and locations. Local practices requiring more detailed or stringent rules, or local, state or other federal requirements regarding this subject can and should be added as an addendum to this procedure as applicable.

Purpose

This First Aid & Medical Services Procedure is designed to establish specific common guidelines for MPIC . to follow in assuring that prompt medical attention is provided to employees suffering from either a work related or non-work related injury or illness.

MPIC facility and jobsites must ensure that readily available medical personnel and first aid supplies are available to all employees to provide advice and consultation within reason, regarding matters of employee occupational health and to respond in case of accident. This includes identifying and posting the location of a designated medical treatment facility and/or emergency care center in a conspicuous location at each fixed location or fixed jobsite. Should outside medical services be unable to respond in a reasonable amount of time as defined by OSHA (3 to 4 minutes), MPIC facility and jobsites may use various strategies to provide access within this time frame, such as training internal personnel who will be capable of acting as voluntary first responders.

Scope

Applies to all MPIC work sites, i.e., offices, client job sites, etc., and includes visitors, vendors, and subcontractors.

Definitions

Established Medical Treatment Facility means the occupational medical treatment provider and/or emergency care center identified as being capable of, and established by an MPIC location to initially treat employee injuries and illnesses.

First Aid means the following types of treatment:

- Using non-prescription medications at non-prescription strength
- Cleaning, flushing, or soaking wounds on the skin surface
- Using wound coverings, such as bandages, ‘BandAids’, gauze pads, etc., or using ‘SteriStrips’ or butterfly bandages
- Using hot or cold therapy

- Using any totally non-rigid means of support, such as elastic bandages, wraps, etc.
- Using temporary immobilization devices while transporting an employee, such as splints, slings, neck collars, or back boards
- Drilling a fingernail or toenail to relieve pressure, or draining fluids from blisters
- Using eye patches
- Using simple irrigation or a cotton swab to remove foreign bodies not embedded in or adhered to the eye
- Using irrigation, tweezers, cotton swab or other simple means to remove splinters or foreign material from areas OTHER than the eye
- Using finger guards
- Using massages
- Drinking fluids to relieve heat stress

Illness can be classified as a skin disease/disorder, respiratory condition, poisoning, or other illnesses resulting from an event in the work environment. Examples include, but are not limited to:

- Contact dermatitis
- Eczema
- Silicosis
- Asbestosis
- Toxic inhalation
- Poisonings by lead, mercury, or other metals
- Poisonings by carbon monoxide, hydrogen sulfide, or other gases
- Poisonings by organic solvents or by other chemicals
- Heatstroke, sunstroke, heat exhaustion, or other heat-related factors
- Freezing, frostbite, or other cold-related factors
- Effects of Non-ionizing radiation (welder's flash or lasers)
- Bloodborne Pathenogenic diseases
- Microbial Exposure
- Ionizing Radiation

Injury means any wound or damage to the body resulting from an event in the work environment. Examples include:

- Cut/laceration
- Puncture
- Abrasion
- Contusion/bruise
- Fracture
- Chipped tooth
- Amputation
- Insect bite
- Electrocution
- Thermal, chemical, electrical or radiation burn

- And, sprain/strain injuries to muscles, joints and connective tissues when the result from a slip, trip, fall or other similar accident

Medical Treatment means the managing and caring for a patient for the purpose of combating disease or disorder. The following activities are NOT medical treatment:

- First aid
- Visits to a doctor solely for observation or counseling
- Diagnostic procedures, including the administering prescription medications that are used solely for diagnostic procedures

Work-related Injury or Illness means an injury or illness resulting from an event or exposure in the work environment causing or contributing to the condition or significantly aggravating a preexisting condition.

Work Environment means includes work sites where one or more employees are present as a condition of their employment.

Requirements

Designated Medical Treatment Facility

MPIC will ensure that readily available medical personnel are available to employees to provide advice and consultation within reason regarding matters of employee occupational health.

The facility and jobsite must identify and post the location of a designated medical treatment facility and/or emergency care center including name, address, telephone number, and hours of operation. This information should be posted in a conspicuous location at the facility or job site. The designated medical treatment facility or emergency care center should maintain similar hours of operation as the facility and be able to respond to a workplace emergency within a reasonable amount of time.

First Aid

ALL INJURIES, REGARDLESS OF HOW SMALL, MUST BE REPORTED TO THE EMPLOYEE'S IMMEDIATE SUPERVISOR AND TREATED AS SOON AS POSSIBLE AFTER AN ACCIDENT.

If an employee becomes injured or ill anywhere due to a work-related or nonwork related problem and needs immediate medical aid, it must be reported to his/her Supervisor or the Safety Officer. Failure to report minor injuries or to receive supervised medical treatment may result in serious infections or complications to the employee's health.

In the absence of a clinic or hospital near the workplace, OSHA regulations require that a person or persons be trained to render first aid and that first aid supplies be readily available. Although the term "readily available" has not been defined in the regulations, OSHA has indicated that 3-4 minutes is acceptable as the time frame within which to begin first aid.

OSHA's interpretation presents a challenge to a service company like **MPIC .** because our "workplace" is not always in a fixed location -- it is a changing environment that follows the employee wherever they may be working. Accordingly, MPIC will use various strategies to provide employees with access to First Aid. These may include training MPIC personnel to self-administer First Aid; training MPIC personnel who are willing to serve as "first responders" and render First Aid/CPR to others on a voluntary basis; providing access to trained individuals from other companies who work alongside MPIC at job sites; providing access to client medical clinics; or calling 9-1-1 or local emergency phone numbers as indicated in the Health and Safety Plan.

Because of the potential for exposure to bloodborne pathogens and significant liability concerns, there is no job in the Company that requires an employee to render First Aid or cardiopulmonary resuscitation (CPR) in the course and scope of their employment, unless such a requirement becomes necessary due to local, State or Federal Safety and Health Regulations.

Transportation of injured persons will be by ambulance unless a volunteer chooses to assist by driving the injured employee to a medical facility. If there is any question as to the best method of transportation an ambulance should be utilized.

When MPIC's strategy for providing access to First Aid/CPR involves the use of "first responders", a First Responders Program should be established and administered at the local level. The Safety Officer is responsible for monitoring and maintaining this program, if implemented.

Elements of the First Responder Program should include:

- Safety Officer must be certified in basic First Aid & CPR per a recognized certification source such as the Red Cross, local hospital, etc. The Red Cross first aid course and CPR course are approximately 8 hours in duration. CPR requires annual refreshers. First Aid requires refreshers every three (3) years.
- Safety Officer will seek employees who wish to volunteer to be trained and certified in basic First Aid & CPR per a recognized certification source as defined by local or State requirements. These employees must maintain "current" First Aid and CPR certification, appropriately documented, in their personnel file.
- Basic First Aid & CPR will be administered by First Responders only to stabilize the employee until professional medical attention can be provided.

Employee First Aid / CPR

Employee training in basic First Aid and cardiopulmonary resuscitation (CPR) is encouraged because of its value and benefit to individuals, their families and the community.

The company also supports any employee who, while on the job, chooses to act as a "Good Samaritan" to assist a fellow employee or another person with First Aid or CPR. It is MPIC's intent that first Aid supplies and basic personal protective equipment against bloodborne pathogens be accessible to employees at every work site during all shifts.

If an employee makes the decision to provide first aid to someone, universal precautions shall be followed, and it should be assumed that all blood and bodily fluids are contaminated with bloodborne pathogens. In addition, they should wear protective medical gloves found in the First Aid Kit and use any other personal protective equipment (such as protective glasses with side shields or a full-face shield) to help avoid exposure to blood in the eyes or on the face.

First Aid providers should follow the example of emergency medical personnel, doctors and nurses who wear personal protective equipment to prevent exposure to bloodborne pathogens.

If blood or potentially contaminated material gets on the skin, it must be washed off immediately using water and a non-abrasive soap. If available, an antiseptic soap or rinse must be used. If blood ever gets in the eyes, lips, mouth or nose, the employee must go to a sink, water fountain, eye wash or body wash station and flush the area with running water as quickly as he/she can.

The supervisor must always be aware of the potential exposure to a bloodborne pathogen after the employee has washed or flushed the exposed area. Decontamination of the exposed surfaces, tools and equipment should be conducted. This must be done immediately, and no later than the end of the shift or work period. **Remember that there is a vaccine for Hepatitis B.** This must be discussed with a physician as soon as possible after a potential exposure.

First Aid Stations / First Aid Kits

A First Aid Station or First Aid Kit is to be readily available to employees as described previously. For employees working off-premises, a first aid kit should be provided in each company vehicle, signed-out for use when traveling in personal vehicles and rental vehicles, or provided on the jobsite.

Whether within the facility or in a vehicle, each First Aid Kit must be stored in a properly labeled weather-proof container, stocked with the basic supplies specified in the inventory in Attachment 7-1. The physician's approval of the inventory list is not required but may be needed to address unusual exposure situations.

IMPORTANT: If an employee declines First Aid and/or medical treatment for a reported on-the-job injury after the Supervisor recommends it, that employee should NOT be allowed to continue work. Supervisors should discuss each situation with the Safety Officer or Project Manager before allowing that employee to return to duty.

The Safety Officer, or someone he/she may designate, is responsible for checking and maintaining the First Aid Cabinets. Supervisors on jobsites are responsible for assuring suitable supplies are provided in the first aid kits on-site or in their vehicles. This person will take a weekly inventory of supplies and make sure the station or kit remains adequately stocked. A basic inventory list for First Aid Kits is provided on Attachment 7-1.

Because of the variety of operations that the Company is involved in, it is suggested that consultation with the Facility's designated medical treatment facility be arranged to determine if the First Aid Kits are

adequate for the operational exposures of your particular workplace. Attachment 7-1 can be photocopied and used as a guide for re-ordering supplies.

Emergency Eye / Body Wash Stations

Where the eyes and/or body of any employee may be exposed to injurious chemical / corrosive materials, suitable eye and/or body drenching and/or flushing facilities shall be provided whether at the MPIC facility or at a temporary worksite. Emergency eye and/or body wash stations can be either of temporary or permanent installation.

In areas where the extent of possible exposure to injurious chemical / corrosive materials is very low, a specially designated pressure controlled and identified water hose can be used when proper personal protective equipment also is used (e.g. full-face shield). The hose system must be equipped with a proper face and body wash nozzle and provide copious amounts of low velocity potable water. An appropriate portable eye wash device containing not less than one gallon of potable water, would also be acceptable under these conditions.

At locations where hazardous chemical / corrosive materials are handled by employees (e.g. battery servicing facility), proper eyewash and body drenching equipment must be available. Although OSHA has not adopted specific requirements regarding flow rates for drenching/flushing facilities, ANSI Z358.1 provides detailed information regarding the installation and operation of emergency eyewash and shower equipment, including the requirements for flow rate.

Section 4.1 of ANSI Z358.1 specifies that emergency shower heads shall be capable of delivering a minimum of 20 gallons per minute (gpm) of flushing fluid at a velocity low enough to be non-injurious to the user. A sufficient volume of flushing fluid shall be available to supply the flow rate for a minimum fifteen-minute period. As such, both temporary and permanently installed eye / body wash stations must provide at least 20 gpm for 15 mins.

Inspection and maintenance of eye wash systems should be provided at least weekly by assuring sanitary conditions and /or following the manufacturer's requirements for maintenance. Plumbed systems should also be provided a water flow test to minimize contaminants in the line. Inspection and maintenance should be properly documented.

Bloodborne Pathogens (Universal) Precautions Training

When an employee comes into direct contact with blood, bodily fluids or body tissues of another person, they are at risk of becoming infected with diseases that may be carried in the other person's body fluids. Accidental exposures can happen on or off the work site, in any number of day-to-day situations.

This is why the Company believes that each employee should have a basic understanding and awareness of the dangers of contracting a potentially deadly disease through such exposures. Communicating basic information about these hazards, including information contained in this policy, is part of the Company's safety and health program.

Therefore, employees should receive a basic awareness level training concerning "Universal Precautions" such that employees may follow Universal Precautions in the event of potential exposure to blood or other body fluids.

Training Requirements

Training records must be maintained by the Safety Officer containing the date of the training, a summary of the training session, names and qualifications of the instructors conducting the training and the names and job titles of the persons attending the training.

Training records must be maintained for a minimum of three (3) years from the date the training was conducted. Training must be conducted by a qualified and competent person knowledgeable in the subject matter.

First Responder Exposure

If an employee is a First Responder or decides to be a "Good Samaritan" and provides first aid on an injured victim involving blood or bodily fluids, personal protective equipment must be used and Universal Precautions followed treating all bodily fluids as infectious. Refer to OSHA 29CFR 1910.1030 - Bloodborne Pathogens Standard and Policy Section 9 – Bloodborne Pathogens for specific information.

In addition to those items listed in Attachment 7-1 and/or possibly required by a consulting physician, First Aid Stations must at least include the following supplies:

- latex gloves
- one-way valve CPR mask
- biohazard bags
- plastic baggies
- tongs

References

OSHA 29 CFR 1926.50

OSHA 29 CFR 1910.151

Attachment 7-1 - First Aid Kit Inventory Checklist

The First Aid Kit should contain the following or similar items but commercially available Kits vary widely and need not be identical in every respect.

Item	Quantity	Need
Protective Rubber Gloves (Surgical Type)	2 pair	_____
Protective CPR Mask w/One-Way Valve	1 each	_____
Protective eyewear and face covering	1 each	_____
Antiseptic Soap	1 each	_____
Absorbent gauze, 24” x 72”	1 pkg.	_____
Spool of absorbent gauze	1 spool	_____
Large adhesive bandages, 1”	1 pkg.	_____
Small adhesive bandages, 1/2”	1 pkg.	_____
Bandage compresses, 4”, 1 per pkg.	1 pkg.	_____
Eye dressing	1 pkg.	_____
Bandage scissors	1 pair	_____
Tweezers	1 pair	_____
Triangular bandages, 1 per pkg.	3 pkg.	_____
Antiseptic pads, 3 per pkg.	2 pkg.	_____
Medical adhesive tape	1 roll	_____
Self-activating cool packs	2 each	_____
Burn ointment	4 pkg.	_____
Sterile eye wash, in bottle	1 each	_____
Heavy-duty sealable plastic bags	3 each	_____
Disposable splints	1 set	_____
Approved biohazard bags, red in color	4 each	_____
Large Baggies	4 each	_____
Tongs		_____
American Red Cross Pocket First Aid Guide		_____
First Aid Kit Inventory Checklist forms First Aid Report Forms		_____

Date of order: _____ By: _____

For location: _____

Consulting Physician (If Applicable.): _____

Address: _____

Telephone Number: _____

Designated Medical Treatment Facility

Attachment 7-2

IN CASE OF EMPLOYEE ACCIDENT OR INJURY, THE FOLLOWING DESIGNATED MEDICAL TREATMENT FACILITY HAS BEEN IDENTIFIED TO DIRECT THE INJURED EMPLOYEE FOR IMMEDIATE TREATMENT:

NAME OF FACILITY: _____

ADDRESS: _____

_____

TELEPHONE NUMBER: _____

EMERGENCY TELEPHONE NUMBER: _____

HOURS OF OPERATION: _____

SUPERVISOR OR SAFETY OFFICER: _____

SUPERVISOR OR SAFETY OFFICER CELL / PAGER NUMBER: _____

ALL WORK-RELATED INJURIES OR ILLNESSES MUST BE IMMEDIATELY REPORTED TO THE SUPERVISOR.

Bloodborne Pathogen Exposure Control Plan

Purpose

This Bloodborne Pathogen Exposure Control Plan has been established to ensure a safe and healthful working environment and act as a performance standard for all employees. This program applies to all occupational exposure to blood or other potentially infectious materials.

Scope

This program addresses all occupational exposure to blood or other potentially infectious materials. Certain Regulatory Agencies and Client Sites requires that all employers that can "reasonably anticipate exposure" of employees to infectious material to prepare and implement a written exposure control plan.

Responsibilities

Managers and Supervisors will have an overall responsibility for developing and implementing Exposure control procedures for all facilities.

Employees will know what tasks they perform that have an occupational exposure, plan and conduct all operations in accordance with MPIC work practices, and develop good personal hygiene habits.

Training

MPIC shall ensure that all employees with occupational exposure participate in a training program. Training is conducted for all employees with occupational exposure before initial assignment and within 1 year of previous training. Training shall be provided at the time of initial assignment & within 1 year of an employee's previous training. Training shall include:

- What bloodborne pathogens are; how to protect themselves from exposure
- Methods of warnings (signs, labels, etc.)
- The requirements of bloodborne pathogens The Hepatitis B vaccine shall be made available to all employees that have occupational exposure at no cost to the employee(s).

Procedures

All employees will have access to a copy of the exposure control plan. Access to a copy of the exposure control plan shall be provided in a reasonable time, place, and manner. The procedure is reviewed annually and updated whenever we establish new functional positions within our facility that may involve exposure to biohazards.

Exposure Determination

- There are no job classifications in which some or all employees have occupational exposure to bloodborne pathogens that may result from the performance of their routine duties.
- Designated employees are trained to render first aid and basic life support. Rendering first aid or basic life support will expose employees to bloodborne pathogens and will require them to adhere to this program.
- In addition, no medical sharps or similar equipment is provided to, or used by, employees rendering first aid or basic life support.
- This exposure determination has been made without regards to the Personal Protective Equipment that may be used by employees.
- A listing of all first aid and basic life support trained employees in this work group shall be maintained at each work site and at each first aid kit.

Methods of Compliance

Universal Precautions

Under circumstances in which differential between body fluids is difficult or impossible, all body fluids will be considered potentially infectious.

Engineering Controls

Engineering and work practice controls shall be used to eliminate or minimize employee exposure. Engineering controls should be examined and maintained or replaced on a regular schedule to ensure their effectiveness. Hand washing facilities shall be readily available at all work locations. If provision of hand washing facilities is not feasible, then an appropriate antiseptic hand cleanser in conjunction with cloth/paper towels or antiseptic towelettes shall be provided by MPIC.

Containers for contaminated reusable sharps that our clients provide have the following characteristics: Puncture-resistant; Color-coded or labeled with a biohazard warning label; Leak-proof on the sides and bottom.

Secondary containers which are: Leak-proof; Color-coded or labeled with a biohazard warning label; Puncture-resistant, if necessary.

Work Practice Controls

- Employees shall wash their hands immediately, or as soon as feasible, after removal of potentially contaminated gloves or other personal protective equipment.
- Following any contact of body areas with blood or any other infectious materials, employees wash their hands and any other exposed skin with soap and water as soon as possible.
- Hand washing facilities shall be available. If hand washing facilities are not feasible MPIC will provide either an appropriate antiseptic hand cleanser in conjunction with cloth/paper towels or antiseptic towelettes.
- Contaminated needles and other contaminated sharps should not be handled if you are not

AUTHORIZED or TRAINED to do so. Contaminated needles and other contaminated sharps are not bent or recapped.

- Eating, drinking, smoking, applying cosmetics or lip balm and handling contact lenses is prohibited in work areas where there is potential for exposure to biohazardous materials.
- Food and drink is not kept in refrigerators, freezers, on countertops or in other storage areas where potentially infectious materials are present.
- All equipment or environmental surfaces shall be cleaned and decontaminated after contact with blood or other infectious materials.
- Specimens of blood or other potentially infectious materials must be put in leak proof bags for handling, storage and transport.
- If outside contamination of a primary specimen container occurs, that container is placed within a second leak proof container, appropriately labeled,-for handling and storage.
- Bloodborne pathogens kits are located on top of first aid kits and are to be used in emergency situations by the caregiver. Once the seal is broken on kit and any portion has been used it is not to be reused. Pathogen Kits shall be ordered and replaced promptly. Biohazard bags are identified by stickers and located in the first aid area. Contaminated supplies are to be disposed at once.

Personal Protective Equipment

When the possibility of occupational exposure is present, PPE is to be provided at no cost to the employee such as gloves, gowns, etc. PPE shall be used unless employees temporarily declined to use under rare circumstances. PPE shall be repaired and replaced as needed to maintain its effectiveness. All PPE shall be of the proper size and readily accessible.

Our employees adhere to the following practices when using their personal protective equipment:

- Any garments penetrated by blood or other infectious materials are removed immediately.
- All potentially contaminated personal protective equipment is removed prior to leaving a work area.
- Gloves are worn whenever employees anticipate hand contact with potentially infectious materials or when handling or touching contaminated items or surfaces.
- Disposable gloves are replaced as soon as practical after contamination or if they are torn, punctured or otherwise lose their ability to function as an "exposure barrier".
- Masks and eye protection (such as goggles, face shields, etc.) are used whenever splashes or sprays may generate droplets of infectious materials.
- Any PPE exposed to bloodborne pathogens shall be disposed of properly.
- PPE shall be used unless employees temporarily declined to use PPE under rare circumstances.
- PPE should be cleaned, laundered & properly disposed of if contaminated.
- MPIC will repair and replace PPE as needed to maintain its effectiveness.

Housekeeping

Our staff employs the following practices:

- All equipment and surfaces are cleaned and decontaminated after contact with blood or other potentially infectious materials.
- Protective coverings (such as plastic trash bags or wrap, aluminum foil or absorbent paper) are removed and replaced.
- All trash containers, pails, bins, and other receptacles intended for use routinely are inspected, cleaned and decontaminated as soon as possible if visibly contaminated.
- Potentially contaminated broken glassware is picked up using mechanical means (such as dustpan and brush, tongs, forceps, etc.).

Post-Exposure and Follow Up

If there is an incident where exposure to bloodborne pathogens occurred we immediately focus our efforts on investigating the circumstances surrounding the exposure incident and making sure that our employees receive medical consultation and immediate treatment. The MPIC Safety Manager/ Supervisor investigates every reported exposure incident and a written summary of the incident and its causes is prepared and recommendations are made for avoiding similar incidents in the future. We provide an exposed employee with the following confidential information:

- Documentation regarding the routes of exposure and circumstances under which the exposure incident occurred.
- Identification of the source individual (unless not feasible or prohibited by law).

Once these procedures have been completed, an appointment is arranged for the exposed employee with a qualified healthcare professional to discuss the employee's medical status. This includes an evaluation of any reported illnesses, as well as any recommended treatment.

We will forward the following information to the Health care Professional:

- Description of the incident
- Other pertinent information

After the consultation, the health care professional provides our facility with a written opinion evaluating the exposed employee's situation. We, in turn, furnish a copy of this opinion to the exposed employee. The written opinion will contain only the following information:

- Whether Hepatitis B Vaccination is indicated for the employee.
- Whether the employee has received the Hepatitis B Vaccination.
- Confirmation that the employee has been informed of the results of the evaluation. Confirmation that the employee has been told about any medical conditions resulting from the exposure incident which require further evaluation or treatment.
- All other findings or diagnoses will remain confidential and will not be included in the written report.

Accurate medical records for each employee with occupational exposure must be maintained for at least the duration of employment plus 30 years and shall include at least the following:

- Employee's name, Social Security number and Pro-Soil employee number.
- Employee's Hepatitis B vaccination status, including vaccination dates.
- All results from examinations, medical testing and follow-up procedures, including all health care
- professional’s written opinions.
- Information provided to the health care professional.
- Any Hepatitis B Vaccine Declinations.

Training records shall be maintained for 3 years from the date on which the training occurred and shall include at least the following:

- Outline of training program contents.
- Name of person conducting the training.
- Names and job titles of all persons attending the training.
- Date of training.

Information provided to our employees includes:

- The Biohazards Standard itself.
- The epidemiology and symptoms of bloodborne diseases.
- The modes of transmission of bloodborne pathogens.
- Our facility's Exposure Control Procedure (and where employees can obtain a copy).
- Appropriate methods for recognizing tasks and other activities that may involve exposure.
- A review of the use and limitations of methods that will prevent or reduce exposure.
- Selection and use of personal protective equipment.
- Visual warnings of biohazards within our facility including labels, signs and "color-coded" containers.
- Information on the Hepatitis B Vaccine.
- Actions to take and persons to contact in an emergency involving potentially infectious material.
- The procedure to follow if an exposure incident occurs, including incident reporting.
- Information on the post-exposure evaluation and follow-up, including medical consultation.

Attachment 8-1 - Vaccination Declination Form

Date:

Employee Name:

I understand that due to my occupational exposure to blood or other potential infectious materials I may be at risk of acquiring Hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with Hepatitis B vaccine, at no charge to myself. However, I decline the Hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring Hepatitis B, a serious disease. If, in the future, I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with hepatitis B vaccine, I can receive the vaccination series at no charge to me.

Employee Signature: Date:

Facility Representative Signature Date:

Emergency Action Plan

Purpose

To provide a systematic method of implementing an Emergency Action Plan for a mobile and seasonal workforce, so as to ensure a minimum of confusion and injury in an emergency.

Policy

Because our employees work in a variety of client facilities and in multiple locations within a location, an Emergency Action Plan needs to be adaptable to any situation. The project superintendent on a job is responsible for coordinating with the client on the evacuation route and emergency procedures for the job, and thereafter advising all employees of that information.

Procedures

The emergency evacuation plan for a temporary job trailers or office areas shall identify the safest most direct route to the client's gate.

Due to the dispersion of our personnel around a plant it is not practical to attempt to draw evacuation maps for every unit in the facility. In lieu of evacuation plans, all personnel have been instructed to have the senior representative on their job coordinate with the client contact person to ascertain the evacuation route to be taken by client's personnel in the unit being worked at the beginning of the project. Employees will follow the individual evacuation plans to be used by client in the various jobsites. After the safe rally point has been reached, the senior employee will ask a client's representative to call the Company’s site supervisor on the radio with an accurate head count and location.

In the event that an employee is the first person to spot a fire or other emergency he/she is authorized to sound an alarm. Employees shall vacate the area as soon as an alarm is sounded. The most important function of all employees is to report to the senior representative on site. Employees are not employed to fight fires.

All employees are informed of their responsibilities under this plan upon initial assignment to the plant. All employees have their emergency duties reinforced in regular safety meetings.

The Company will continue to provide a detailed emergency evacuation plan and map during all jobs and projects.

Job Hazard Analysis

Purpose

The purpose of the Hazard Analysis is to provide a method for a supervisor and his/her crew to inspect an upcoming job, identify potential hazards related to that job, and to arrive at agreement on the development of a Safe Work Plan for completing their assignment.

Policy

Once the client/owner has issued a permit, it is each MPIC employee's responsibility to ensure that the Safe Work Plan for the work he/she is about to do is properly developed. After receiving a valid work permit from the client/owner and before starting a job, each crew shall review the permit requirements and perform a thorough Hazard Analysis. The Hazard Analysis process serves as MPIC Safe Work Plan. As such, by completing the process and signing on the back of the form, employees are indicating that they are prepared to accomplish the assigned task efficiently and safely.

In the event conditions change, the Hazard Analysis Form must be updated. Potential hazards, including those specific to the task and those general to the work area, must be discussed and a plan formulated to eliminate or minimize identified hazards. Each person on the crew must understand his/her role relating to the tasks at hand. When a new worker is assigned to a job in progress, the Hazard Analysis must be reviewed with this person and he/she must sign the form before beginning work.

Procedure

Once the client/owner work permit has been issued, the assigned crew shall conduct a thorough Hazard Analysis session at the job site, which includes, but is not limited to:

- Walking the job and reviewing all elements of the assignment. The supervisor shall identify all equipment that is to be worked on.
- Identifying existing and/or potential hazards and take appropriate action to eliminate or minimize identified hazards; reaching agreement on the safest plan to complete the assigned task. Each person on the crew must thoroughly understand their role in the upcoming tasks.
- Evaluating PPE requirements and upgrading permit required PPE or providing additional PPE whenever necessary to provide maximum level of employee protection.
- Ensuring that all workers know and are properly trained for their assignment(s).
- Posting the completed form(s) along with the work permit in a conspicuous place in the work area. In the event it is not possible to post the form(s), they shall be kept readily available at the job site. The forms shall be kept in a manner that protects them from weather damage.

Whenever possible the supervisor shall be involved in the Hazard Analysis Session. However, there are times when this is not possible. Should the supervisor find that he/she will not be available, he/she shall assign a competent person to lead the session. As soon as practical following the beginning of a job, the supervisor

shall review all Hazard Analysis Forms of crews assigned to him/her and sign the back of the form in the section provided.

General Instructions

- Print and make sure the form is legible/readable. The only place you do not print required information is when you place your signature on the back of the form.
- Involve the entire crew in the process. The more eyes and experience used to identify hazards, the better.
- Whenever possible, the completed Site Safety Plan should be reviewed for proper completion and signed by the designated lead person, foreman, supervisor or Safety dept. representative **before** the work is started. If this is not possible, the form should be reviewed as soon as practical.
- When the form (s) is completed, it must be posted & readily available at the job site.

Site Safety Plan Form

Date - Enter the date the work will be performed and the time you started the Hazard Analysis process.

Emergency Communication - Enter the phone number(s) for reporting emergencies at that location

Site Name – Enter the name of site where work will be performed.

Location - Enter the city/state where the work will be performed.

Tech. Team Leader - Enter the name of the immediate foreman or supervisor.

Support Technicians - Clearly **print** the name(s) of each person that will be working on the job. This may include employees not associated with MPIC, such as other contractors or client personnel working with you.

Yes, No, N/A Questions - Each one of these questions requires an answer. Carefully consider each question and how it will affect or apply to the work being performed. If the question doesn't apply to the job, mark it "N/A" (Not applicable). Each question is important.

Departure Time – Time the crew completed work on site.

Arrival Time – Time the crew arrived on site.

Site Contact - Enter the name of the client contact person for that job.

Tech. Team Leader Signature - Now that you have filled in the blanks and answered the questions, review the Site Safety form with all crewmembers and any other contractor client personnel working on the job. Tech. Team Leaded will sign form ONLY after all technicians have reviewed the site safety form.

Additional Special Instructions/Comments – Include any additional special instructions or comments

Now you can start the job! Remember, the form is complete, but **the process continues**. Always remain alert for changing conditions. The Site Safety Plan must be modified/updated if conditions change or new hazards are found. Any modifications must be communicated with all crewmembers. *Remember to review the Site Safety Plan with any new crewmembers that are added while the job is in progress. Their name(s) must also be added to the Hazard Analysis form. Post all completed forms in a conspicuous and readily available location.

Attachment 9-1 - Site Safety Plan

MPIC .

SITE SAFETY PLAN

Date: _____ Emergency Communication: _____

Site Name: _____ Location: _____

Tech. _____

*(This person is responsible for keeping attendance

Support Technicia _____

_____

_____

_____

DESCRIPTIONS	Y	N	N/	COMMENTS
Is the scope of work fully				
Has the Job Order been				
Has the site map and layout				
Has the site manager been				
Have all technicians completed HAZWOPER training within the				
Are technicians aware of				
Have site hazards been				
Are all technicians aware of the				
Are all technicians aware of the hazards that may be				
Is a confined space entry/				
Is Fire Extinguisher on board				
Has Fire Extinguisher been				
Is the First Aid Kit on board				

Are lock-out/tag-out supplies loaded on vehicle?

Has the integrity of extension cords been

Have non-sparking tools (if required) been loaded?

Has the following personal protective equipment been

Steel Toed Shoes

Long Pants/Long Sleeved Shirt

Hard Hats/Safety Glasses/ Hearing Protection

Back Braces

Nomex Coveralls/Tyvek Coveralls

Respirators

Have ladders (if any) been

Has lockout/tagout been performed?

Has proper lighting equipment been installed?

* If a confined space entry is required, an **MPIC .** Confined Space Entry form must be completed and proper equipment must be loaded prior to mobilization.

Departure Time: _____ Site Contact: _____

Arrival Time: _____ Tech. Team Leader (signature): _____

Additional Special Instructions/Comments: _____

REMEMBER: SMOKING IS PROHIBITED AT ALL JOB SITES

Personal Protective Equipment Policy

Protective equipment, including personal protective equipment for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers, shall be provided, used, and maintained in a sanitary and reliable condition if necessary because of hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation, or physical contact.

Personal Protective Equipment Training

MPIC employees expected to wear Personal Protective Equipment (PPE) will be trained as follows:

- Exposures and how to identify them
- Types of PPE to wear as protection from each exposure
- When to wear them
- How to wear PPE properly
- How to care for, clean and properly store PPE.

An employer shall verify that each affected employee has received and understood the required training through a written certification that contains all of the following information:

- The name of each employee trained.
- The date of training.
- The subject of certification.

Personal Protective Equipment Use

Head Protection

Approved hard hats must be worn if employees could be struck by falling objects, are in danger of striking their heads on fixed objects, or there is a shock hazard from working near exposed electrical conductors.

Do not drill holes in the hard hat for ventilation; it destroys the integrity to protect you from blows to the head.

Hard hats shall comply with ANSI Z89.1-1986, Class A or B. Class B is required for exposure to high voltage shocks, above 600 volts.

Where there is risk of injury from hair entanglements in moving parts of machinery, combustibles, or toxic contaminants, employees shall confine their hair with nets, or other suitable restrictive devices to eliminate the hazard.

Eye and Face Protection

Employees working in locations where there is a risk of receiving eye injuries such as punctures, abrasions, contusions, or burns as a result of coming in contact with flying particles, hazardous substances, projections, or injurious light rays which are inherent to the work or environment shall be safeguarded by means of face or eye protection.

Suitable screens or shields isolating the hazardous exposure may be considered adequate safeguarding for nearby employees, i.e. welding screens.

Where eye protection is required and the employee requires vision correction, the following eye protection shall be provided:

- Safety glasses with suitable corrected lenses, or
- Safety goggles designed to fit over glasses, or
- Protective goggles with corrective lenses mounted behind the protective lenses.

The wearing of contact lenses is prohibited in working environments having harmful exposure to materials, or light flashes, except with medically approved devices.

Side shields shall be worn whenever the hazard of flying objects is angular as well as frontal.

Body Protection

Protection such as rubber aprons or sleeves may be necessary in certain environments where splashing of Hazardous materials or other common substances such as water would pose a risk to the employee. Flying metal particles or molten metal are examples of hazards that could penetrate normal clothing and injure the employee, requiring leather protective sleeves and/or vests.

In all cases, clothing appropriate for the work being done shall be worn. Loose sleeves, tails, ties, lapels, cuffs, or other loose clothing which can become entangled in moving machinery will not be worn.

Clothing containing flammable liquids, corrosive substances, pesticides, irritants, or oxidizing agents shall be removed and not worn until properly laundered.

Hand Protection

There are many types of gloves and made of many different types of materials, each with a specific application. Gloves will be worn as precaution from the following exposures:

- Chemicals - check the Safety Data Sheets (SDS) for listed PPE required for safe handling
- Cuts
- Hot work

No glove can protect against all hazards so select the appropriate glove for the job.

Where there is risk of injury from glove entanglement in moving parts of machinery, employees shall not wear gloves and use other methods to protect their hands from injury exposure.

Jewelry, such as rings has caused the loss of many fingers. Be aware that wrist watches, and other jewelry can be caught in moving machinery, or caught on a protruding hook or nail. Never wear metallic jewelry or other objects when working around electrically energized equipment.

Foot Protection

For work in areas where feet are in danger of:

- Being struck by falling or heavy rolling objects and crushed or penetrated, steel-toed shoes, or steel covers are recommended.
- Working around boards with nails, or scrap metal, you need protection from punctures.

Hearing Protection

Hearing protection will be made available to all employees exposed to sources of noise 85 dB or greater, as measured by a sound level meter or identified by the contracting company. In general, anytime someone must elevate their voice to be heard, hearing protection will be worn.

Hearing protector equipment consists of ***ear plugs (various NRR) or muffs (industrial)***.

Hearing Conservation Program

MPIC has established a Hearing conservation Program to protect worker from the hazards of noise on the job. OSHA regulations require that each employer implement a hearing conservation program when workers are exposed to noise levels exceeding 85 dB. It is not hard to exceed this level of noise on many of the jobs sites. Typically, noise levels exceeding 85 dB are experienced when working with any type of pneumatic chipper or hammer, metal saw, and grinders. See Attachment 11-1 for a list of some common noise levels.

Responsibility

The Manager of Operations is responsible for the developing a written Hearing Conservation Procedure and overseeing the training of all employees in the company. The Manager of Operations is also responsible for the monitoring and administering this procedure.

Introduction

The OSHA Standard on Occupational Noise Exposure, 29 CFR 1910.95, established the permissible limit of noise as 85 dB(A) (decibels), expressed as an eight-hour (8-hours), time-weighted average, (TWA). This standard allows short-term unprotected noise exposure up to a maximum of 115dB (A), peak sound.

The noise standard requires the identification by personnel monitoring of employees who may be exposed above the 85 db (A), 8-hour, TWA. Hearing protection is also required for specific activities or using certain types of equipment.

Procedures

MPIC has taken a conservative approach to this noise hazard by establishing this program. The following elements establish the program:

- An Audiometric Testing Program when required
- An Employee Education and Training Program
- Monitoring and Analysis of Workplace Noise Levels
- Providing Suitable Engineering Controls when appropriate
- Providing Hearing Protectors when required
- Maintain required records for the above.

Audiometric Testing

Each new employee whose work exposes them to noise levels above the “OSHA action level” will receive an Audiometric test as part of a pre-screening physical examination to establish a baseline audiogram against which subsequent audiograms can be compared as required by the OSHA Standard.
Annually, all employees who are exposed to noise levels exceeding the 85-dB standard will be given a follow-up Audiometric examination to monitor for any significant changes in their hearing ability.

Employees will be formally notified if there is any change in their hearing as the result of the testing. The Standard has defined this shift as a change in hearing threshold relative to the baseline audiogram of an average of 10 dB or more at 200, 3000 and 4000 Hz in either ear.

When audiometric testing is required, each affected employee must not be exposed to any workplace noise for at least 14 hours prior to his/her test. This requirement may be met by wearing hearing protectors which will reduce the employee's exposure to a sound level of 80 db (A) or below.

Audiometric tests shall be performed by a licensed or certified audiologist, otolaryngologist, or other physician, or by a technician who is certified by the Council of Accreditation in Occupational Hearing Conservation, or who has satisfactorily demonstrated competence in administering audiometric examinations, obtaining valid audiograms, and properly using, maintaining and checking calibration and proper functioning of the audiometers being used. A technician who operates microprocessor audiometer does not need to be certified. A technician who performs audiometric tests must be responsible to an audiologist, otolaryngologist or physician.

An audiologist, otolaryngologist or physician will review problem audiograms and shall determine whether there is a need for further evaluation. The company will provide to the person performing this evaluation the following information:

- A copy of the 29 CFR 1910.95 Hearing Conservation.
- The baseline audiogram and most recent audiogram of the employee to be evaluated.
- Measurement of background sound pressure in the audiometric test room as required in 29 CFR 1910.95 Appendix D.
- Records of audiometric calibrations as required by 20 CFR 1910.95 Appendix E.

If a comparison of the annual audiogram to the baseline audiogram indicates a standard threshold shift as defined by OSHA, the employee will be informed of this fact, in writing, by the company within 21 days of determination.

Unless a physician determines that the standard threshold shift is not work related or aggravated by occupational noise exposure, the company will ensure that the following steps are tank when a standard threshold shift occurs:

- An employee hot using hearing protectors will be fitted with hearing protectors, trained in their use and care, and required to use them; and
- An employee already using hearing protectors shall be refitted and retrained in the use of hearing protectors and provided with hearing protectors offering greater attenuation if necessary.
- Refer the employee for a clinical audiological evaluation or an ontological examination, as appropriate, if additional testing is necessary or if the company suspect that a medical pathology of the ear is caused or aggravated by the wearing of haring protectors.
- Inform the employee of the need for an ontological examination if a medical pathology of the ear which is unrelated to the use of hearing protector is suspected.

If subsequent audiometric testing of an employee whose exposure to noise is less than an 8-hour TWA average of 90 decibels indicates that a standard threshold shift is not persistent the company:

- Will inform the employee of the new audiometric interpretations: and
- May stop the required use of hearing protectors for that employee.

See Attachment 11-2

Employee Education and Training

MPIC . employees must be trained on the use of personal hearing protection equipment. Also each employee must know how to clean and maintain the hearing protection equipment. The training will cover the following:

- Training will be for all employees who are exposed to noise at or above the 8-hour TWA of 85 dB.
- The training will be repeated annually for each employee included in the hearing conservation program.
- The effects of noise on hearing
- The purpose of hearing protectors, the advantages, disadvantages, and the attenuation of various types and instruction on selection, fitting, use and care
- The purpose of audiometric testing, and an explanation of the test procedures.
- Access to information and training materials.

Monitoring and Analysis of Workplace Noise Levels

MPIC will periodically or as necessary, conduct noise level surveys of the workplace. The results of these surveys will be made available to employees upon request.

Any job area or company location found to be in excess of the allowable designated noise levels that cannot be brought into compliance with the noise standard will be designated as an area where hearing protectors are to be worn. When signs are posted employees must wear hearing protection. The signs may read as follows:

NOTICE
EAR PROTECTION
REQUIRED
IN THIS AREA

Provide Suitable Engineering Controls

Where appropriate, MPIC will provide engineering controls to reduce noise exposure. Due to the complexity of most job sites, it is difficult if possible, to institute effective engineering controls for most noise exposures. Should this be the case, then employees will be required to wear suitable hearing protection.

Provide Hearing Protectors Where Required

MPIC will provide and required employees with hearing protectors if his/her 8-hour TWA is above the 85dB (A). MPIC will also make hearing protectors available to all employees exposed to a TWA above 85dB (A) at no cost to the employee. Any employee who may have a significant threshold shift of hearing level will be required to wear hearing protection if they are exposed to noise TWA of 85dB. MPIC will provide workers with a choice of at least one type of ear plug and one type of ear muff (ear muff cannot be used when anything prevent the seal of the ear muff, such as safety glasses) On some job site there will be a choice of two different ear plugs. MPIC will make a concerted effort to fine the right protector for each employee, one that offers the right attenuation, is accepted on the terms of comfort, and is used by the employee.

Responsibilities

A Client Will:

- Determine all sources of noise at or above 85dD.
- Determine if personnel have 8-hour TWA exposures at or above fifty-percent (50%) of the OSHA allowable.
- Review noise exposures annually for all job classifications with TWA
- Exposure at or above fifty-percent (50%)
- Ensure that audiograms are made annually for personnel whose TWA exposures are at or above fifty-percent (50%) of the OSHA allowable.

Job Site Supervision Will:

- Will require hearing protection in all area with noise levels at or above the 85dB(A) and for all task which generate such noise level (i.e., grinding, hammering).
- Ear plug shall be required in an area and/or on tasks with the sound levels exceeding 105dB.
- To alert employees to possible hazardous noise exposures, Signs shall be posted in work areas in which the sound levels may exceed 85dB. These signs will be posted by the client.
- Evaluate the need for engineering and/or administrative controls to reduce the noise levels below the 85 dB and, where feasible, develop a plan to reduce all personnel exposures to less than fifty percent (50%) of the OSHA allowable.
- Make hearing protection available and enforce its use by all employees with TWA exposures at or above the fifty percent (50%) of the OSHA allowable and/or by those who must enter or work in areas where the noise level is 85dB or above.

Remember - The client determines if a unit or work area is classified as a high noise area. After the determination is made, **MPIC** employees will be instructed to wear the appropriate hearing protection.

Recordkeeping

All record-keeping for this program will be maintained in the office. Records will include:

- Audiometric tests
- Noise surveys
- Employee training
- Engineering controls implemented
- Record of purchase of hearing protector

Work Requiring Hearing Protectors

There are many jobs or types of work that generally produces noise level that intermittently or for short durations exceed the permissible TWA. It is the policy of MPIC to require all workers who are engaged in these jobs to wear hearing protectors.

Hearing Protectors

Employees may choose the type of hearing protection that best suits their particular assignment and personal preference for among those listed below. Each employee required to wear hearing protection is responsible for carrying hearing protection on his/her person. Hearing protection is furnished at no cost to employees.

Ear Plugs

Most ear plugs, when worn properly, have a noise reduction rating (NRR) on the package. Most ear plugs have NRR of about 30.

Ear Muffs

Adjustable muffs can be worn in three positions:

Position	NRR
Over the Head	24 (depends on the NRR of Ear Muff)
Under the Chin	20
Behind the Head	20

Computing the Hearing Protection Level

To compute the actual hearing protection level under the protector, subtract 7dB(A) from the Noise Reduction Rating (NRR), divide the number by 2, and subtract the remainder form the measured noise level dB (A).

For example: NRR of 29 -7 = 22 dB(A)
22 Db(A) ÷ 2 = 11 dB(A)
Noise level of 95 dB(A) – 11 = 84 dB(A)
Therefore, this device offers a protection level of 11 dB(A).

Attachment 11-1 - Common Noise Levels

The following list represents some work activities and equipment which will require the use of hearing protection:

Activities and/or Equipment Typically Resulting in High Noise Level	Estimated Average Noise Level dB(A)
Air Arc Gouging	115
Air Compressor	95
Chain Saw	107
Electric Disc Grinder	100
Forklift Inside a Trailer	98
Heavy Equipment Working	100
Impact Tools	108
Pneumatic Chipping Hammer	110
Abrasive Blasting	100
Welding Machines	95

Attachment 11-2 - Follow Up Training Record

FROM: _____
Manager or Supervisor

The employee listed below recently was found to have a confirmed significant shift in the hearing threshold (as defined by OSHA). An investigation and additional training is required. When this form is completed and reviewed with the employee, please file in the office.

EMPLOYEE NAME: _____
Print or type First, MI, Last Name

_____ _____
Social Security Number or Employee Number **Reported Date**

JOB CATEGORY _____
Current Assignment

The Potential for noise exposure and specific requirements for using hearing protection in their area should be reviewed with this employee within 2 weeks. If hearing protection requirements have not been established in this work area, it must be done as soon as possible.

The retraining for this employee should include:

- The temporary and permanent effects of noise on hearing
- Established hearing protection requirements
- Any questions the employee may have on the use of hearing protection
- The proper use of hearing protection
- Comments the employee has on potential off-the-job noise exposure

Comments on discussion held: _____

_____

I have discussed the above items with this employee:

_____ _____ _____
Manager or Supervisors Name (print) Signature Date of Discussion

Respiratory Protection

Purpose

Improper use of or failure to wear respiratory protection when required can have devastating effects on the life and/or health of workers. Lack of a respirator, early removal of a respirator and improperly fitting respirators has resulted in needless worker injury and death.

The purpose of this policy is to establish a respiratory protection program that ensures that workers are provided with the necessary information, training, and equipment to protect themselves from respiratory hazards in the workplace, and complies with OSHA, ANSI and other applicable standards and regulations.

Policy

It is management's responsibility to implement this program at no cost to the employees and it is the employee's responsibility to comply with all aspects of this program. Any voluntary use of respiratory protection equipment by employees shall be governed by the provisions of this program, also at no expense to the employees.

Procedure

Responsibilities

Management

Has the responsibility of overseeing the implementation of this policy and assigning program administrators for each site location. These administrators must be suitably trained and have the appropriate accountability and responsibility to fully manage the site respiratory program. The program administrator will report, at least annually, on the effectiveness of the program to management, and be authorized to make appropriate changes to the site program. The administrators will be identified by name in the specific site program.

Supervisory

It is the responsibility of the supervisor to ensure that all personnel under their control are completely knowledgeable of the respiratory requirements of this program. Supervisors are to ensure that employees have been trained and are medically fit to use respiratory equipment safely. It is the supervisors' duty to monitor the employees' diligence in following procedure and take appropriate action when deficiencies are observed.

Employees

It is the responsibility of the employee to be aware of and practice the information presented in the training. Specifically, employee responsibilities are to report equipment malfunctions, seal check their respirator before every use, and to report medical or physical changes that could affect respirator use.

Hazard Assessment

Respiratory hazard determination starts at the planning stage of a job. The responsible party is to identify all known hazards as required by the hazard communication standard. Evaluation of the hazards consists of exposure duration, potential for contact, and known or potential concentrations. When the hazard is a federally controlled substance, that hazard shall be assessed and monitored as dictated by that specific standard. A respiratory hazard may not have an established OSHA permissible exposure limit documented; however, all provisions of this program will be enforced to protect the health of the employees.

Acceptable methods for estimating respiratory hazards include:

- Personal exposure monitoring is the most reliable and accurate method to determine exposure.
- Use of objective data – This is the use of data obtained from industry studies, trade associations or from tests conducted by chemical manufacturers. The objective data shall represent the highest contaminant exposures likely to occur under reasonably foreseeable conditions of processing, use or handling. If objective data is used for assessment, the data must be documented as part of the written program.
- Mathematical Approach – The use of physical and chemical properties of air contaminates, combined with information on room dimensions, air exchange rates, contaminant release rates, and other pertinent data including exposure patterns and work practices to estimate maximum exposure levels in the workplace.
- Where employee exposure cannot be identified or reasonably estimated, the atmosphere will be considered immediately dangerous to life and health (IDLH). Also atmospheres that are oxygen deficient will be treated as IDLH conditions.
- Accidental release or emergency response must be a consideration when estimating hazard exposure.

Hazard Control

Engineering Controls

This should be the first consideration when evaluating hazard exposure.

- Substitution of a less or non-toxic substance to replace a more harmful one. Example: Sandblasting with black grit instead of silica sand.
- Isolation or encapsulation of the process. Example: To spray asbestos insulation with glue paste to lessen exposure levels.
- Ventilation to remove contamination from the work area before exposure. Example: Mechanical dust collection system installed to capture contaminants and reduce buildup.

Administrative Controls

- Especially effective for repetitive stress and heat stress control, crew rotation could increase productivity in contaminated atmospheres.
- Adjust the length of the work shift. Instead of two 12-hour shifts, it may be more effective to have three 8 hour shifts.
- Change scheduled work to limit the number of employees exposed. The scheduling of other work near the exposure area could be limited until exposure is gone.

Personal protective devices for the control of respiratory hazards are to be used as a last resort, and only when other means of control are not practical or feasible. Respiratory protection may be required while implementing engineering controls, or in conjunction with other control methods. Engineering controls may only lessen the exposure but required to be implemented along with personal protective devices.

Respirator Selection

Selecting the proper respirator can be very complex and is critical in having an effective respiratory program. The program administrator must solicit information from all available professional resources concerning exposure controls.

Factors that must be considered include:

- The nature of the hazardous operation or process
- The type of respiratory hazard (including physical properties, oxygen deficiency, physiological effects on the body, concentration of toxic material or airborne radioactivity level, established exposure limits for the toxic materials, established permissible airborne concentration for radioactive material, and established immediately dangerous to life or health concentration for toxic material)
- The location of the hazardous area in relation to the nearest area having respirable air
- The period of time for which respiratory protection must be worn
- The activities of workers in the hazardous area
- The physical characteristics and functional capabilities and limitations of the various types of respirators
- Respirator-assigned protection factors listed in Attachment 12-1, Table 1

Respirators for use under IDLH conditions:

The required respiratory protection for IDLH conditions caused by the presence of toxic materials, or a reduced percentage of oxygen, is a combination full face piece pressure demand supplied air respirator (SAR) with auxiliary self-contained air supply. For rescue applications, a full-face piece pressure demand SCBA certified by NIOSH for a minimum service life of thirty minutes is acceptable.

When respirators are worn under IDLH conditions, at least one standby person shall be present in a safe area. The standby person shall have the proper equipment available to assist the respirator wearer in case of difficulty. Communications (visual, voice, signal line, radio, or other suitable means) shall be maintained between the standby person and the wearer. While working in the IDLH atmosphere, the wearer shall be

equipped with safety harness and safety lines to permit removal to a safe area, if necessary. Provisions for rescue other than safety harness and lines may be used, if equivalent.

Breathing Air Quality

Workers using supplied breathing air equipment shall be thoroughly trained in its use.

Breathing air is typically supplied from cylinders or via a compressor. Appropriate measures shall be taken to ensure that all compressed breathing air meets at least the requirements for Grade D breathing air described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989, to include:

- Oxygen content (v/v) of 19.5-23.5%;
- Hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less;
- Carbon monoxide (CO) content of 10 ppm or less;
- Carbon dioxide content of 1,000 ppm or less; and
- Lack of noticeable odor.

Suppliers of breathing air cylinders shall provide the company with a certificate of analysis with each delivery certifying that the breathing air meets the requirements for Grade D breathing air; and that the moisture content in the cylinder does not exceed a dew point of -50 deg.F (-45.6 deg.C) at 1 atmosphere pressure. The certificate shall have the name of the breathing air supplier, the testing technician and date of test.

Breathing air cylinders shall be tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49 CFR part 173 and part 178).

Breathing Air Compressors

Compressors used to supply breathing air to respirators shall be constructed and situated so as to:

- Prevent entry of contaminated air into the air-supply system;
- Minimize moisture content so that the dew point at 1 atmosphere pressure is 10 degrees F (-5.56 deg.C) below the ambient temperature;
- If required to ensure delivery of Grade D air to the user, provide suitable in-line air-purifying sorbent beds and filters. All filters, cartridges and canisters shall be labeled and color coded with the NIOSH approval label and the label shall remain legible. Sorbent beds and filters shall be maintained and replaced or refurbished periodically following the manufacturer's instructions. A tag containing the most recent change date and the signature of the person authorized by the employer to perform the change shall be attached to the equipment.
- For compressors that are not oil-lubricated, the company shall ensure that carbon monoxide levels in the breathing air do not exceed 10 ppm.
- For oil-lubricated compressors, the company shall use a high-temperature or carbon monoxide alarm, or both, to monitor carbon monoxide levels. If only high-temperature alarms are used, the air supply shall be monitored at intervals sufficient to prevent carbon monoxide in the breathing air from exceeding 10 ppm.

- The air shall be routinely tested to ensure that it meets Grade D requirements.

In addition, a stand-by attendant shall be on watch anytime workers are using breathing air supplied directly by a compressor.

Breathing air couplings shall be incompatible with outlets for non-respirable worksite air or other gas systems. No asphyxiating substance shall be introduced into breathing airlines.

Training

To protect employees from exposure to respiratory hazards using OSHA and ANSI standards as minimum guidelines, all employees who will wear respiratory protection will be trained on this policy. Training will be provided prior to job assignment where respirator equipment is required, and annually thereafter. Additional training is required when there are deficiencies in the employee's knowledge/skills or when there is a change in the workplace or respiratory equipment that renders previous training obsolete. The training will include the following:

- Responsibilities of employees and supervisors
- How, why and for what jobs we use respirators
- Hazard assessment including limitations of respirators
- Hazard control
- Respirator selection
- Medical evaluation
- Respirator fit test
- Maintenance, care and storage
- Medical surveillance
- Program evaluation

All training shall be conducted in a way that is understandable to the employee and is documented.

<u>Why use respiratory protection</u>

- The nature, extent and effects of respiratory hazards
- Consequences of improper fit, usage and maintenance on respirator effectiveness

<u>Limitations and capabilities of the respirator</u>

- Air purifying respirators that filter either particles, or absorbing vapors and gases
- Air supplying respirators that supply air from an uncontaminated source
- Limitations of respirators in IDLH atmospheres and for emergency use only

<u>How respirators are inspected, donned, removed, seal checked and worn</u>

- What to do if respirators have defects

- Who to report problems to during use
- Proper technique for donning and removing the respirator, and how to store when not in use
- How to seal check using the positive and/or negative pressure method

Methods of maintenance and storage

- Visual inspection of parts for worn or defective items
- How to keep the issued respirator clean and sanitary
- Requirement to disinfect and sanitize before reissue to other employees
- Proper storage in a cool, clean and dry location, placing them in a clean, sealed plastic bag after drying

Medical signs and symptoms that may limit or prevent the effective use of respirators

- An awareness of physical conditions that may indicate warning signs
- An obligation to report signs and symptoms and the opportunity for medical reevaluation
- Changes in weight (gain or loss)
- Physical changes in facial structure
- Changes in endurance, stability or general health
- Medication for illness

Medical Evaluation

All employees whose job classification may require use of respiratory protection shall be evaluated and certified by a physician or a licensed health care professional (PLHCP) as being “medically fit” to wear a respirator. For new hires, the medical evaluation shall be made before any use of respiratory equipment. Thereafter, the evaluation shall occur at a minimum annually. The medical evaluation consists of, at a minimum, the administration of a health questionnaire meeting federal guidelines or provisions for a physical examination by a PLHCP that elicits the same information as the questionnaire. The PLHCP shall be provided with supplemental information by the employer on the description of the job classification, possible work conditions and any additional P.P.E. that may be required of the employee while using respiratory equipment. Also a copy of this program will be given to the PLHCP for reference along with the OSHA standard.

The administration of the health questionnaire will be done during work hours and at no cost to the employee. The information on the questionnaire shall remain confidential between the PLHCP and the employee. The employee must have access to the PLHCP for discussion and asking questions concerning their medical evaluation. The company will only receive a recommendation of the employee’s ability to wear respiratory equipment.

If an employee is restricted by the PLHCP from wearing a negative pressure respirator, but otherwise physically able to perform duties with a powered air respirator, then reasonable accommodations will be made by the program administrator not to have this restriction limit the employee’s ability to perform his job.

Respirator Fit Test

Respirator fit testing is required of all employees prior to using a positive or negative tight-fitting respirator. The fit test will be specific for respirator manufacturer, model and size. This test is to be repeated annually, or if there is a change in the respiratory equipment. Some substance specific standards may call for more frequent testing and dictate a specific protocol, which would take precedence over this program. A change in the employee's physical appearance can affect the seal of a respirator and may require re-testing. If the respirator is unacceptable to the employee due to comfort, irritation, or inability to get a seal, the employee will be offered a reasonable selection for an alternate choice of respirators.

The employee will be asked to wear the proposed respirator for a period of time to become familiar with the feel and fit. No obstacles can be between their face and the sealing surface of the respirator, including facial hair of 24 hours or more growth, sideburns that extend into the sealing surface or hair that is long enough to prevent proper function of the respirator. Jewelry, caps, hats, scarves and certain safety gear must be evaluated as part of the fit test if the employee is permitted or required to wear them during work. OSHA did not restrict the use of contact lens with respirators but did mandate that the use of corrective lens shall not interfere with the seal of the respirator. Any adaptive devices for vision correction with respiratory equipment will be supplied at no cost to the employee. The employee will be instructed on how to field check respiratory equipment. The positive and negative seal check methods of verifying a good seal shall be required before each and every entry into a respiratory hazard area. These seal checks are not to be considered a fit test.

Positive Seal Check

A positive seal check is accomplished by effectively sealing the exhalation valve and slowly exhaling. This should create a slight, positive pressure inside the face piece for a short period of time. The participant must be careful not to exhale too fast or small leaks can be nullified and/or large leaks artificially created.

Negative Seal Check

A negative seal check is accomplished by effectively sealing the inhalation ports of the respirator and inhaling slowly. The participant should be able to create a negative pressure inside the respirator and hold it for a short period of time. Inhaling too fast may nullify small leaks and/or artificially create other leaks.

Fit Test (See Attachment 12-5, Table 2 for "Acceptable Fit-Testing Methods")

- Qualitative fit test – a pass/fail test that relies on the subject to detect a challenge agent and is predicated on an individual's sensory response.
- Quantitative fit test – uses an instrument to measure the challenge agent inside the respirator and gives a numerical value to the test data.

If the qualitative testing is used, the employee should be informed of the exposure limitations. A limit of 10 times the permissible exposure level for an 8-hour duration is the maximum exposure for either a half mask, or full-face piece negative pressure respirator.

For OSHA guidelines, refer to Attachment 12-5, Table 2 for Acceptable Fit Test Methods.

Irritant Smoke Protocol

Irritant smoke protocol for qualitative fit testing is very effective, since it is the only challenge agent that does not rely on a voluntary response. This type of test requires that the tester be well trained in the correct and safe use of the irritant smoke tubes. The smoke tubes can be a health hazard if not used properly and in a well-ventilated room. Specific step by step procedures are referenced in Attachment 10-3.

Maintenance and Care

The company will provide for the cleaning and disinfecting, storage, inspection and repair of respirators that are issued to their employees. There are specific guidelines to follow in Attachment 12-4 to ensure the respirators are clean and disinfected. Respirators designated for the exclusive use of an employee shall be the responsibility of that employee to maintain and keep in a sanitary condition. Respirators issued to more than one employee shall be cleaned and disinfected before being worn by different individuals. Respirators maintained for emergency, training, or fit testing use shall be cleaned and disinfected after every use.

Storage

Respirators shall be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture and damaging chemicals. They shall be packed or stored to prevent deformation of the face piece. Emergency respirators shall, in addition, be kept accessible to the work area and stored in easily identifiable coverings. Reference manufacturer's instructions for other recommendations.

Inspection

Respirators are inspected on a regular basis and employees are instructed on how to inspect their respirator. All respirators used on a routine basis shall be inspected before each use and during cleaning. All emergency respirators shall also be inspected at least on a monthly basis. Respirator inspection shall include the tightness of connections and the condition of various parts including, but not limited to, the face piece, head straps, valves, gaskets, connecting tubes, cartridges, canisters and filters. Also, check all elastic parts for deterioration and pliability. Inspection of self-contained breathing apparatus shall be done only by trained technicians competent with that specific brand, make and model of respiratory equipment. The technician conducting the inspection shall certify the inspection by attaching a signed and dated tag or label to the equipment.

Repairs

Equipment that is defective, broken or otherwise in need of repair shall be identified immediately by attaching a red tag and stating the reason it is out of service. Repairs to respirator equipment shall be made by competent employees and only with the manufacturers' recommended replacement parts. Absolutely no substitution of parts is allowed that is not authorized by the NIOSH approval.

Medical Surveillance

Employees should be aware of medical conditions that would prevent or limit their use of respiratory equipment. Supervisors shall be informed when employees experience medical difficulties that may affect or be a result of respirator use. Substance specific hazards may require a specific medical monitoring procedure that requires biological testing. Employees will be required to complete a medical questionnaire initially, and then further evaluation at the frequency determined by the medical evaluator.

Program Evaluation

The supervisor will monitor the work site for acceptance of and compliance with the written respiratory program. The supervisor will address issues where employees have had deficient respiratory issues, i.e. cartridge breakthrough and the respirator effectiveness. Employees will be asked questions about the effectiveness of the program and encouraged to offer suggestions for improvement including how the fit test protocol was performed, the maintenance procedures for care and storage of respirators and overall program. Periodic audits will be documented and reviewed by the program administrator. The program administrator will report, at lease annually, to the management on the effectiveness of the total program.

Attachment 12-1 - Assigned Protection Factors

Table 1 – Assigned Protection Factors

Type of respirator	Respiratory inlet covering	
	Half Mask [1]	Full Facepiece
Air purifying	10	100
Atmosphere supplying		
SCBA (demand) [2]	10	100
Airline (demand)	10	100

Type of respirator	Respiratory inlet covering			
	Half mask	Full Face	Helmet/ hood	Loose-fitting facepiece
Powered air purifier	50	1000 [3]	1000 [3]	25
Atmosphere supplying airline				
Pressure demand	50	1000	-	-
Continuous flow	50	1000	1000	25
Self-contained breathing apparatus				
Pressure demand Open/closed circuit	-	[4]	-	-

1) Includes ¼ mask, disposable half masks, and half masks with elastomeric facepieces.
2) Demand SCBA shall not be used for emergency situations such as firefighting.
3) Protection factors listed are for high-efficiency filters and sorbents (cartridges and canisters). With dust filters, an assigned protection factor of 100 is to be used due to the limitations of the filter.
4) Although positive-pressure respirators are currently regarded as providing the highest level of respiratory protection a limited number of recent simulated workplace studies concluded that all users may not achieve protection factors of 10,000. Based on this limited data, a definitive assigned protection factor could not be listed for positive-pressure SCBA's. For emergency planning purposes where hazardous concentrations can be estimated, an assigned protection factor of no higher that 10,000 should be used.

   NOTE: Assigned protection factors are not applicable for escape respirators. For combination respirators, e.g., airline respirators equipped with an air-purifying filter, the mode of operation in use will dictate the assigned protection factor to be applied.

Attachment 12-2 - Respirator Selection

Logic Guide: Reference ANSI 288.2 – 1992 7.2.2.

Respirator selection involves reviewing each operation to (a) determine what hazards may be present (hazard determination) and (b) select which type or class of respirators can offer adequate protection.

Hazard Determination Steps

The nature of the hazard shall be determined as follows:

- Determine what contaminant(s) may be present in the workplace.
- Determine whether there is a published Threshold Limit Value, Permissible Exposure Limit, or any other available exposure limit or estimate of toxicity for the contaminant(s). Determine if the IDLH concentration for the contaminant is available.
- Determine if there is a comprehensive health standard (e.g., lead, asbestos) for the contaminant(s). If so, there may be specific respirators required that influence the selection process.
- If the potential for an oxygen-deficient environment exists, measure the oxygen content.
- Measure or estimate the concentration of the contaminant(s).
- Determine the physical state of the contaminant. If an aerosol, determine or estimate the particle size.
- Determine if vapor pressure of the aerosol is significant at the maximum expected temperature of the work environment.
- Determine whether the contaminant(s) present can be absorbed through the skin, produce skin sensitization, or be irritating or corrosive to the eyes or skin.
- Determine for a gas or vapor contaminant(s) if a known odor, taste, or irritation concentration exists.

Selection Steps

The proper respirator shall be selected as follows:

- If unable to determine what potentially hazardous contaminant may be present, the atmosphere shall be considered IDLH.
- If no exposure limit or guideline is available and estimates of the toxicity cannot be made, the atmosphere shall be considered IDLH.
- If a specific standard exists for the contaminant, follow those guidelines/requirements.
- If there is an oxygen-deficient atmosphere, the type of respirator selected depends on the partial pressure and concentration of oxygen and the concentration of the other contaminant(s) that may be present.
- If the measured or estimated concentration of the contaminant(s) is considered IDLH, reference “Respirators for use under IDLH conditions” at the end of this guide.
- Divide the measured or estimated concentration of each contaminant by the exposure limit or guideline to obtain a hazard ratio. When two or more substances are present, consideration needs to be given if there is a synergistic or combined effect of exposure rather than considering each substance

individually. Select a respirator with an assigned protection factor greater than the value of the hazard ratio, as listed in Attachment 12-1, Table 1.

- If the contaminant(s) is a gas or vapor only, select a device with an assigned protection factor that is greater than the hazard ratio. The concentration shall also be less than the maximum use concentration of the cartridge/canister.
- If the contaminant is a paint, lacquer, or enamel, select a respirator approved specifically for paint mists or an atmosphere-supplying respirator. (Approval label or regulatory provision may preclude use for some paints.)
- If the contaminant is a pesticide, select a respirator and filtration system specifically approved for pesticides or an atmosphere-supplying respirator. (Approval label may preclude use for some pesticides.)
- If the contaminant is an aerosol with an unknown particle size, or less than 2 um (MMAD), a high-efficiency filter shall be used.
- If the contaminant is a fume, use a filter approved for fumes or a high-efficiency filter.
- If the contaminant is an aerosol with a particle size greater than 2 um (MMAD), any filter type (dust, fumes, mist, or high efficiency) may be used.
- If the contaminant is a gas or vapor and has poor warning properties, the use of an atmosphere-supplying respirator is generally recommended.

When atmosphere-supplying respirators cannot be used because of the lack of a feasible air supply, or the need for worker mobility, air-purifying devices should be used only if:

- The air-purifying respirator has a reliable end-of-service-life indicator that will warn the user prior to contaminant breakthrough or,
- A cartridge change schedule is implemented based on cartridge service data including desorption studies (unless cartridges are changed daily), expected concentration, pattern of use, duration of exposure, and the chemical does not have a ceiling limit.

Respirators for use under IDLH atmospheres:

- The required respiratory protection for IDLH conditions caused by the presence of toxic materials, or a reduced percentage of oxygen, is a combination full face piece pressure demand supplied air respirator (SAR) with auxiliary self-contained air supply. For rescue applications, a full-face piece pressure demand SCBA certified by NIOSH for a minimum service life of thirty minutes is acceptable.
- When respirators are worn under IDLH conditions, at least one standby person shall be present in a safe area. The standby person shall have the proper equipment available to assist the respirator wearer in case of difficulty. Communications (visual, voice, signal line, intercom, radio or other suitable means) shall be maintained between the standby person and the wearer. While working in the IDLH atmosphere, the wearer shall be equipped with a safety harness and lifeline to permit removal to a safe area, if necessary. Provisions for rescue other than harness and lifeline may be used, if equivalent.

Special considerations for confined space entry into IDLH conditions are not addressed in this policy.

Use and duration of cartridges

Contaminant (1)	Maximum Concentration	Maximum Use Time (2) (Hours)
1,3 Butadiene	50	1
Ammonia	100	4
Benzene	10	8
Benzene	50	4
Chemicals not specified (3)	NA	1
Naphtha	100	4
Naphtha	500	2
Particulates (including dusts, mists, welding fumes)	NA	8
Sulfur Dioxide	50	8
Total Hydrocarbons (as n-hexane)	100	4
Total Hydrocarbons (as n-hexane)	500	1

- If more than on contaminant is present, use the lowest maximum use time.
- Cartridges should be changed out if the contaminant can be detected inside the respirator mask, regardless of the maximum use time.
- Cartridges for chemicals not listed should be used for only 1 hour. This will err on the side of safety. If specific information is needed on a particular chemical, consult with the SDS or your supervisor.

Attachment 12-3 - Fit Testing

If the test subject is not familiar with using a particular respirator, the test subject shall be directed to don the face piece several times and to adjust the straps to become adept at setting the proper tension on the straps.

Assessment of comfort shall include a review of the following points with the test subject and allowing the test subject adequate time to determine the comfort of the respirator:

- Position of the mask on the nose
- Room for eye protection
- Room to talk
- Position of mask on face and cheeks

The following criteria shall be used to help determine the adequacy of the respirator fit:

- Chin properly placed
- Adequate strap tension, not overly tightened
- Fit across nose bridge
- Respirator of proper size to span distance from nose to chin
- Tendency of respirator to slip
- Self-observation in mirror to evaluate fit and respirator position

The test subject shall conduct a user seal check, utilizing the negative and positive pressure seal check methods. Before conducting the negative and positive pressure checks, the subject shall be told to seat the mask on the face by moving the head from side-to side and up and down slowly while taking in a few slow deep breaths. Another face piece shall be selected and retested if the test subject fails the user seal check tests.

The test shall not be conducted if there is any hair growth between the skin and the face piece sealing surface, such as stubble beard growth, beard, mustache or sideburns which cross the respirator sealing surface. Any type of apparel, which interferes with a satisfactory fit, shall be altered or removed.

If the employee finds the fit of the respirator unacceptable, the test subject shall be given the opportunity to select a different respirator and to be retested.

Exercise regimen

Prior to the commencement of the fit test, the test subject shall be given a description of the fit test and the test subject's responsibilities during the test procedure. The description of the process shall include a description of the test exercise that the subject will be performing. The respirator to be tested shall be worn for at least 5 minutes before the start of the fit test

The fit test shall be performed while the test subject is wearing any applicable safety equipment that may be worn during actual respirator use, which could interfere with respirator fit.

Test exercises

The following test exercises are to be performed for all fit testing methods. The test subject shall perform exercises, in the test environment, in the following manner:

- Normal breathing: In a normal standing position, without talking, the subject shall breathe normally.
- Deep breathing: In a normal standing position, the subject shall breathe slowly and deeply, taking caution so as not to hyperventilate.
- Turning head side to side: Standing in place, the subject shall slowly turn his/her head from side to side between the extreme positions on each side. The head shall be held at each extreme momentarily so the subject can inhale at each side.
- Moving head up and down: Standing in place, the subject shall slowly move his/her head up and down. The subject shall be instructed to inhale in the up position (i.e., when looking toward the ceiling).
- Talking: The subject shall talk out loud slowly and loud enough so as to be heard clearly by the test conductor. The subject can read from a prepared text such as the Rainbow Passage, count backward from 100, or recite a memorized poem or song.

Rainbow Passage

When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a person looks for something beyond reach, his friends say he is looking for the pot of gold at the end of the rainbow.

- Bending over: The test subject shall bend at the waist as if he/she were to touch his/her toes. Jogging in place shall be substituted for this exercise in those test environments that do not permit bending over at the waist.
- Normal breathing: In a normal standing position, without talking, the subject shall breathe normally.

Each test exercise shall be performed for one minute. The test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator shall be tried. The respirator shall not be adjusted once the fit test exercises begin. Any adjustment voids the test, and the fit test must be repeated.

Irritant Smoke Protocol

This qualitative fit test uses a person's response to the irritating chemicals released in the "smoke" produced by a stannic chloride ventilation smoke tube to detect leakage into the respirator.

General Requirements and Precautions

- The respirator to be tested shall be equipped with high efficiency particulate air (HEPA) or P100 series filter(s).
- Only stannic chloride smoke tubes shall be used for this protocol.
- No form of test enclosure or hood for the test subject shall be used.
- The smoke can be irritating to the eyes, lungs, and nasal passages. The test conductor shall take precautions to minimize the test subject's exposure to irritant smoke. Sensitivity varies, and certain individuals may respond to a greater degree to irritant smoke. Care shall be taken when performing the sensitivity screening checks that determine whether the test subject can detect irritant smoke to use only the minimum amount of smoke necessary to elicit a response from the test subject.
- The fit test shall be performed in an area with adequate ventilation to prevent exposure of the person conducting the fit test, or the build-up of irritant smoke in the general atmosphere.

Sensitivity Screening Check

- The test operator shall break both ends of a ventilation smoke tube containing stannic chloride and attach one end of the smoke tube to a low flow air pump set to deliver 200 milliliters per minute, or an aspirator squeeze bulb. The test operator shall cover the other end of the smoke tube with a short piece of tubing to prevent potential injury from the jagged end of the smoke tube.
- The test operator shall advise the test subject that the smoke can be irritating to the eyes, lungs, and nasal passages and instruct the subject to keep his/her eyes closed while the test is performed.
- The test subject shall be allowed to smell a weak concentration of the irritant smoke before the respirator is donned to become familiar with its irritating properties, and to determine if he/she can detect the irritating properties of the smoke. The test operator shall carefully direct a small amount of the irritant smoke in the test subject's direction to determine that he/she can detect it.

Irritant Smoke Fit Test Procedure

- The person being fit tested shall don the respirator without assistance and perform the required user seal check(s).
- The test subject shall be instructed to keep his/her eyes closed.
- The test operator shall direct the stream of irritant smoke from the smoke tube toward the face seal area of the test subject, using the low flow pump or the squeeze bulb. The test operator shall begin at least 12 inches from the face piece and move the smoke stream around the whole perimeter of the mask. The operator shall gradually make two more passes around the perimeter of the mask, moving to within six inches of the respirator.
- If the person being tested has not had an involuntary response and/or detected the irritant smoke, proceed with the test exercises.
- The exercises identified in section H of this attachment shall be performed by the test subject while the respirator seal is being continually challenged by the smoke, directed around the perimeter of the respirator at a distance of six inches.
- If the person being fit tested reports detecting the irritant smoke at any time, the test is failed. The person being retested must repeat the entire sensitivity check and fit test procedure.

- Each test subject passing the irritant smoke test without evidence of a response (involuntary cough, irritation) shall be given a second sensitivity screening check with the smoke from the same smoke tube used during the fit test, once the respirator has been removed, to determine whether he/she still reacts to the smoke. Failure to evoke a response shall void the fit test.
- If a response is produced during this second sensitivity check, then the fit test is passed.

Attachment 12-4 - Respirator Cleaning Procedures

These procedures are provided as a guideline when cleaning respirators. They are general in nature, and the administrator as an alternative may use the cleaning recommendations provided by the manufacturer of the respirators used by their employees, provided such procedures are as effective as those listed here. Equivalent effectiveness simply means that the procedures used must accomplish the objectives set forth (i.e., must ensure that the respirator is properly cleaned and disinfected in a manner that prevents damage to the respirator and does not cause harm to the user).

- Remove filters, cartridges, or canisters. Disassemble face pieces by removing speaking diaphragms, demand and pressure-demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts.
- Wash components in warm water (110° F maximum), with mild detergent or cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.
- Rinse components thoroughly in clean, warm (110° F maximum), preferably running water. Drain.
- When the cleaner used does not contain a disinfecting agent, respirator components should be immersed for two minutes in one of the following:
  - Hypochlorite solution (50 ppm of chlorine) made by adding approximately one milliliter of laundry bleach to one liter of water at 110° F, or,
  - Aqueous solution of iodine (50 ppm iodine) made by adding approximately 0.8 milliliters of tincture of iodine (6-8 grams ammonium and/or potassium iodide/100cc of 45% alcohol) to one liter of water at 110°F, or,
  - Other commercially available cleansers of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer.
- Rinse components thoroughly in clean, warm (110° F maximum), preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on face pieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.
- Components should be hand-dried with a clean lint-free cloth or air-dried.
- Reassemble face piece, replacing filters, cartridges, and canisters where necessary.
- Test the respirator to ensure that all components work properly.

Attachment 12-5 - Acceptable Fit-Testing Methods

Table 2

	QLFT	***QNFT***
Half-Face, Negative Pressure, APR (<100 fit factor)	Yes	Yes
Full-Face, Negative Pressure, APR (<10 fit factor) Used in atmospheres up to 10 times the PEL	Yes	Yes
Full-Face, Negative Pressure, APR (>100 fit factor)	No	Yes
PAPR	Yes	Yes
Supplied-Air Respirators (SAR), or SCBA used in Negative Pressure (Demand Mode) (>100 fit factor)	No	Yes
Supplied-Air Respirators (SAR), or SCBA used in Positive Pressure (Pressure Demand Mode)	Yes	Yes

Attachment 12-6 - Site Specific Respiratory Protection Plan

Purpose

Because site facilities, equipment and procedures are not standard, OSHA requires that each worksite develop and maintain a Site Specific Respiratory Protection Plan. The Site Respiratory Protection Program Administrator will utilize the Respiratory Protection Program and this attachment to develop site specific procedures governing the administration, selection, use, and care of respirators.

Scope and Application

This procedure applies to all sites or projects where employees are required to wear respirators during normal work operations and during certain non-routine or emergency operations.

Site Respirator Program Administrator

The Site Respirator Program Administrator (Administrator) is responsible for overseeing the respiratory protection program at _____ (worksite). The Administrator will report, at least annually, on the effectiveness of the program to management, and be authorized to make appropriate changes to the Site Program. The person designated as the Administrator for this worksite is _____.

Administrators are responsible for ensuring that the respiratory protection program is implemented at their site. In addition, all site supervisors shall be knowledgeable about the program requirements for their own protection, supervisors must ensure that the program is understood and followed by the employees under they supervise.

Duties include:

Administrator/Supervisor

- Ensuring that employees under their supervision (including new hires) have received appropriate and current training, fit testing, and medical evaluation.
- Ensuring the availability of appropriate respirators and accessories.
- Being aware of tasks requiring the use of respiratory protection.
- Enforcing the proper use of respiratory protection when necessary.
- Ensuring that respirators are properly cleaned, maintained, and stored according to the site respiratory protection plan.
- Ensuring that respirators fit well and do not cause discomfort.
- Identifying work areas, processes or tasks that require workers to wear respirators, and evaluating hazards.
- Monitoring respirator use to ensure that respirators are used in accordance with their certifications.
- Ensuring proper storage and maintenance of site respiratory protection equipment.
- Conducting qualitative/quantitative fit testing.
- Updating the Site Program as necessary to reflect workplace changes that affect respirator use.

- Coordinating with management on how to address respiratory hazards or other concerns regarding the Site Program.

Employees

Each employee has the responsibility to wear his or her respirator when and where required and in the manner in which they were trained. Employees must also:

- Care for and maintain their respirators as instructed and store them in a clean and sanitary location.
- Inform their supervisor if the respirator no longer fits well and request a new one that fits properly.
- Inform their supervisor or the Program Administrator of any respiratory hazards that they feel are not adequately addressed in the workplace and of any other concerns that they have regarding the program.
- Notify their supervisor or the Program Administrator of any other problems associated with using their respirator.

Hazard Determination/Respirator Selection

The Administrator shall utilize Attachment 12-2 – Respirator Selection to ensure that the respirator selected will be adequate to effectively reduce exposure to the respirator user under all conditions of use including reasonably foreseeable emergency situations.

- When necessary, exposure monitoring will be conducted to measure potential hazardous exposures. Monitoring will be conducted by _____.

The results of the hazard evaluation are summarized in Table 1.

TABLE 1: HAZARD EVALUATION SUMMARY

Work Activity	Contaminants	Exposure Monitoring	Permissible Exposures	Controls
Asbestos Insulation Work	Asbestos	Sample prior to start of work	0.1 f/cc TWA	Not in excess of 1 f/cc - ½ mask APR w/ high efficiency filters Not in excess of 5 f/cc – FF APR w/high efficiency filters Not in excess of 10 f/cc – PAPR w/high efficiency filters
Opening equipment containing Benzene	Benzene	Prior to opening	1 ppm	< 1 ppm – No respirator. Less than or 10 ppm ½ mask APR w/ organic vapor cartridge Less than or 50 ppm FF APR w/organic vapor cartridge Less than or 100 ppm FF PAPR w/ organic vapor cartridge Less than or 1000 ppm supplied air FF respirator > 1000 ppm SCBA
Opening equipment containing Butadiene	Butadiene	Prior to opening	1ppm (TWA)	Same a Benzene

Lead paint work Activities covered: • Dry abrasive blasting • Burning, flame-torch cutting & welding • Grinding, sanding or buffing with power tools	Lead	Sample prior to start of work	50 Ug/M3 (TWA)	Airborne concentration of Lead Not in excess of 0.5 mg/M3 – ½ APR w/high efficiency filters Not in excess of 2.5 mg/M3 – FF APR w/high efficiency filters Not in excess of 50 mg/M3 PAPR w/high efficiency filters
Opening equipment containing H2S	H2S	Sample prior to start of work	10 ppm	< 10 ppm No respirator

Site Hazard Evaluation Update

The Administrator is responsible to revise and update the hazard evaluation as needed (i.e., any time work process changes may potentially affect employee exposure). If an employee feels that respiratory protection is needed during a particular activity, she/he is to notify their immediate supervisor.

Medical Evaluation

The Administrator will ensure that the Medical Evaluation of this policy is followed.

Fit Testing

Refers to Respirator Fit Test section of the Respiratory Protection Program.

Procedures for Immediately Dangerous to Life and Health (IDLH) Situations

All employees are prohibited from entering and working in known IDLH areas, unless they are specifically trained and certified for such work i.e. inert entry. Whenever workers are assigned to work in potentially IDLH areas, task specific procedures including training requirements shall be developed and strictly adhered to.

The Administrator has identified the following areas or job duties as presenting the potential for IDLH conditions: _____
_____

(List areas/job duties/non-routine activities)

Cleaning and Disinfecting

Respirators will be cleaned and disinfected by _____, the Administrator ensure the procedures in Attachment 12-4: Respirator Cleaning Procedures are strictly adhered to.

Storage

Respirators will be stored so that they are protected against damage, contamination, dust, sunlight, temperature extremes, excessive moisture, and damaging chemicals. When respirators are packed or stored, the facepiece and exhalation valve will be stored in a manner that prevents deformation. Each respirator should be positioned so that it retains its natural configuration.

Respirators will be readily available for use will be stored at _____.

The Administrator will ensure that an adequate number and type of respirators are provided each work area where they are needed.

Inspection

Respirators used in routine situations will be inspected during cleaning, prior to issue and prior to use.

Inspection information for respirators will be maintained in _____ until it is replaced following subsequent certification.

Repair

Repairs or adjustments to respirators will be done by _____. Only NIOSH-approved manufacturer's replacement parts designed for that respirator will be used. Repairs will be made in accordance with the manufacturer's recommendations and specifications regarding the type and extent of repairs to be performed.

Because components such as reducing and admission valves, regulators, and alarms are complex and essential to the safe functioning of SCBAs, they are required to be adjusted and repaired only by the manufacturer or a technician trained by the manufacturer. Maintenance on SCBAs will be done by _____.

SCBA's air and oxygen cylinders will be maintained in a fully charged state and recharged when the pressure falls to 90% of the manufacturer's recommended pressure level. Cylinders will be recharged by sending them out to _____ or recharged on site by _____.

SCBA air and oxygen cylinders will be hydrostatically tested according the manufacturers recommended frequency. Hydrostatic testing will be conducted by _____

Composite-wrapped aluminum cylinders will be taken out of service after 15 years regardless of the last hydrostatic test date.

Breathing Air Quality

The Administrator will ensure that breathing air for atmosphere-supplying respirators will be of high purity, meets quality levels for content, and does not exceed OSHA contaminant levels and moisture requirements.

For supplied-air respirators (SARs), only Grade D breathing air shall be used in cylinders. The Program Administrator or designee will coordinate deliveries of compressed air with _____and require certification that the air in the cylinders meet the specifications of Grade D breathing air. All breathing gas containers must be marked in accordance with the NIOSH respirator certification standard, 42 CFR part 84.

Compressors

Compressors used for supplying breathing air must be constructed and situated so contaminated air cannot enter the air-supply system. Compressors must meet the requirements of this policy.

Only non-oil-lubricated compressors will be used at _____. The Administrator shall ensure that the compressor intake will not allow the introduction of carbon monoxide greater than 10 parts per million (ppm) into the system. ***Note:*** *This could be from sources other than the compressor such as forklifts/vehicles or other gas-powered equipment.* Where this is not possible or feasible, it may be necessary to combine the use of a carbon monoxide alarm with a carbon monoxide sorbent bed when conditions are such that a reliable carbon monoxide-free area for air intake cannot be found.

Training and Information

_____will provide training to respirator users, supervisors, and any person issuing respirators on the contents of the Respiratory Protection Program the proper care and use of site specific equipment and their responsibilities. All training records will include the manufacturer, type and model of respiratory protection equipment.

Recordkeeping

The Administrator shall retain copies of all respiratory protection program documents, including fit test and training records.

Attachment 12-7 - SUPPLIED AIR PRE-JOB CHECKLIST

Date: **Location:**

Unit: **Equipment:**

Supervisor: **Crew:**

Bottle watch: **Safety standby:**

Supplied Air Equipment Checklist (Are the following in good working condition?)

Cylinders & Associated Equipment	Yes	No	Hoses and Fittings	Yes	No
Pressure: All bottles, i.e. 6 paks must be changed at 500 psi (SCBAs will be full for rescue or standby work 2000 psi)			Serviceable condition		
			Connected properly		
			No leaks		
Gauges					
Valve and check valve			**Facepiece and Regulator**	***Yes***	***No***
Cylinder Valve Cover(s)			Lens is clean		
Alarm			Tearoff Lens Present		
Regulator-coupling secured			Face seal (fit check)		
SCBA Frame and Harness Assembly	**Yes**	**No**	Head straps		
			Purge valve		
Waist belt			Exhalation valve & diaphragm		
Shoulder straps			Adequate air flow		
Snaps, buckles, clips					

Task Related Checklist	
Proper permits at location and displayed	
Hazard analysis completed and displayed	
Safe work and emergency plans understood by all crew members	
Personnel certified to perform supplied air work	
Standby attendant trained and procedures reviewed	
Bottle watch trained and procedures reviewed	
Area barricaded with red tape and tagged “supplied air being used”	

Emergency bypass off	
Damaged equipment tagged and removed from service	
Backup cylinder determined	

Note:

- Cylinders which show evidence of exposure to high heat or impact damage shall be removed from service and retested prior to recharging.
- Do not use tools to open or close the purge valve (finger-tight only).
- Route hose lines in a manner that does not restrict access/egress.
- Make sure your work does not endanger others in your immediate area or downwind.
- Do not remove the facepiece if product exposure obstructs your vision. Use tearoff lens or wipe it off and move safely out of the hazardous environment.

Attachment 12-8 - Individual Respiratory Fit Test Record

Location:		Date:	
Instructor(s):		Test Type:	Qualitative / Quantitative
Respirator Information:		Test Method:	
Make: Model: Style: Size:			
Print Employee's Name		Social Security Number	
Employee's Signature		Date Entered	

Ladder Safety Policy

The Ladder Safety Policy is intended to provide employees with safe guidelines for the use of portable ladders, while complying with applicable OSHA and other Regulatory Compliance Standards. This policy is designed to meet or exceed ANSI requirements.

Policy

Except where either permanent or temporary stairways or suitable ramps or runways are provided, employees are to only use manufactured portable ladders that are labeled as being designed and manufactured in accordance with the provisions of the American National Standards Institute. Under no circumstances are portable ladders to be used unless conditions are considered safe, secure and in compliance with OSHA and company procedures and safe work practices.

Procedures

- The use of ladders with broken or missing rungs or steps, broken or split side rails, or other faulty or defective construction is prohibited. All rungs, cleats, and steps will be parallel, level and uniformly spaced when the ladder is being used. All ladders will be inspected prior to use by a competent person. When ladders with such defects are discovered they must be immediately removed from service and tagged as such.
- Employees will face the ladder and will not carry material or tools in their hands while ascending or descending.
- Ladders will not be loaded beyond the maximum intended load for which they were built or beyond the manufacturer's rated capacity.
- All ladders shall be placed on secure footing, and the area around the top and bottom will be kept clear of work materials, tools and debris.
- Planks will not be used on the top step of stepladders.
- Portable ladders will be placed and used at a pitch that places the horizontal distance, from the top support to the foot of the ladder, at about one-quarter of the working length of the ladder. Ladders will not be used in a horizontal position as a platform, runway or scaffold.
- Ladders shall not be placed in front of doors, unless door is blocked open, and/or a barricade or guard is provided.
- Ladders shall not be placed on scaffold, boxes, boards, barrels, or other unstable bases.
- Ladders shall not be spliced together.
- Employees will not stand on the topcap or the step below the topcap of a stepladder.
- Any ladder splashed with caustic or acid shall not be used until thoroughly cleaned and inspected for possible corrosive damage.
- There shall be ample clearance and clear access at the top and bottom of portable ladders.
- Portable rung ladders shall only be used with the metal supports on the under side.
- No ladder shall be used to gain access to a roof unless it extends at least 3 feet above the point of highest support with the building. Side rails must extend not less than 36" above any landing. When this is not practical, grab rails will be provided to facilitate employee movement to and from the point of access.
- Portable metal ladders will not be used for electrical work or where they may contact electrical conductors.

- All ladders shall be equipped with non-slip bases when a hazard of slipping exists.
- All ladders will be tied off on top, blocked or otherwise secured to prevent movement before work is performed from them.
- All ladders must have a minimum width of 12 inches. All ladders must have a distance of 12" between rungs.
- The company prefers not to use or issue chain ladders, however if a client provides or mandates chain ladder usage, a thorough pre-use inspection of the ladder(s) must be performed. When there is a need for this type of ladder, wire rope ladders are preferred.
- Stepladders shall not exceed 20 feet in length.
- Extension ladders shall be equipped with positive stops.
- Ladders shall be maintained in good condition.
- Only one employee is to work on or climb a ladder at the same time.
- All work done from a ladder shall be within an individual’s normal reach and with no overextending allowed.
- All work done from a ladder that exposes a worker to a fall potential of 6 feet or more requires the worker to wear a harness and be tied off per the Fall Protection Policy. Employees are not permitted to stand or work off of the top three rungs or cleats of a ladder unless there are members of the structure that provide a firm handhold, or the employee is protected by personal fall protection

Fall Protection Policy

Work activities where employees may be subject to falls and/or falling objects shall be conducted safely with associated hazards eliminated and/or controlled.

This policy covers minimum performance standards applicable to all MPIC employees and locations. Local practices requiring more detailed or stringent rules, or local, state or other federal requirements regarding this subject can and should be added as an addendum to this procedure as applicable.

Purpose

To ensure that employees are protected from the hazards associated falls and falling objects.

Scope

Applies to all MPIC work sites, i.e., MPIC offices, client job sites, etc., where field construction related activities involve exposure to heights greater than or equal to six (6) feet and/or falling objects exist. In general industry (e.g. offices, shops, warehouses, etc.) exposure to heights greater than or equal to four (4) feet shall be in place of all references to the construction six (6) foot reference.

Definitions

Anchorage means a secure point of attachment for lifelines, lanyards, or deceleration devices that is capable of supporting 5,000 lbs. per employee or two times the intended impact load, whichever is greater, or for a positioning system, 3,000 lbs. without failure.

Approved means, for the purpose of this section, authorized by the Safety Officer, tested and certified by the manufacturer or any recognized national testing laboratory to possess the strength requirements specified in this section.

Catenary Line – see **Horizontal Lifeline**.

Competent Person means an individual knowledgeable (through experience and/or training) of fall protection equipment, including the manufacturer's recommendations and instructions for the proper use, inspection, and maintenance; who is capable of identifying existing and potential fall hazards; who has the authority to take prompt corrective action to eliminate those hazards; and who is knowledgeable of the rules contained in this section regarding the erection, use, inspection, and maintenance of fall protection equipment and systems.

Controlled Access Zone means an area in which certain work may take place without the use of guardrail systems, personal fall arrest systems, or safety net systems and access to the zone is controlled.

Deceleration Device means a device manufactured (fall) shock-absorbing device whereby the forces of the fall are rapidly reduced to meet acceptable levels.

Drop Line means a vertical lifeline secured to an upper anchorage for the purpose of attaching a lanyard or device.

Employee means every laborer regardless of title or contractual relationship.

Fall Arrest System (Personal) means the use of multiple, approved safety equipment components such as body harnesses, shock absorbing lanyards, deceleration devices, droplines, horizontal and/or vertical lifelines and anchorages, interconnected and rigged to ones body as to arrest a free fall.

Fall Protection Work Plan means a written planning document in which the employer identifies areas in the work area where a fall hazard of 6 feet or greater exists, whereby conventional Fall Restraint and Fall Arrest Systems cannot be utilized.

Fall Restraint System means an approved device and any necessary components that function together to restrain an employee in such a manner as to prevent that employee from falling to a lower level.

Fall Distance means the actual distance from the employee's work platform (area) to the level where a fall would stop (ground level or otherwise).

Full Body Harness means a configuration of connection straps to distribute a fall arresting force over at least the thighs, shoulders and pelvis, with provisions for attaching a lanyard, lifeline, positioning rings, or deceleration devices.

Full Body Harness System means a Class III full body harness and shock absorbing lanyard attached to an anchorage or attached to a horizontal or vertical lifeline which is properly secured to an anchorage(s) capable of withstanding the forces specified in the applicable sections.

Hardware means snap hooks, D-rings, buckles, carabiniers, and adjusters used to attach the components of a fall protection system together.

Holes (floor, roof or walking surface) means any opening in the floor greater than two inches whereby falling objects or an employee fall equal to, or greater than six foot is possible.

Holes (wall) – see **Wall Opening**.

Horizontal Lifeline means an approved rail, rope, or synthetic cable installed in a horizontal plane between two anchorages and used for attachment of a employee's lanyard or lifeline device while moving horizontally.

Lanyard means a flexible line of webbing, rope or cable (usually in two, four or six foot lengths) used to secure a harness to a lifeline or an anchorage point.

Leading Edge means the advancing edge of a floor or roof, where a fall of more than six foot is possible to the ground or to another level.

Lifeline (vertical or horizontal) means an approved vertical line from a fixed overhead anchorage or horizontal line between two horizontal anchorages, independent of walking or working surfaces, to which a lanyard or device is secured.

Restraint Line means a line from a fixed anchorage or between two anchorages to which an employee is secured in such a way as to restrict the employee from reaching a point where falling to a lower level is possible.

Safety Line – see **Lifeline**.

Shock Absorbing Lanyard means a flexible line of webbing or rope used to secure a harness to a lifeline or anchorage point that has an integral shock absorber of either a rip-stitch or retractable configuration.

Snaphook – means a 'locking' hook at the end of a lanyard or restraining/positioning line that has a double-action locking mechanism intended to eliminate unintentional unhooking from the D-ring of a body harness. Non-locking snaphooks are prohibited.

Standard Guardrail means a toprail at 42 inches high (plus or minus three inches), a midrail installed midway the top edge of the guardrail system and the surface.

Static Line – see **Lifeline**.

Toeboard means a barrier at the base of the guardrail system to prevent material and objects from falling off the surface. They are at least four (4) inches of nominal height with no less than one (1) inch clearance from the surface.

Unprotected Sides and Edges means any side or edge (except at entrances to points of access) of a floor, roof, ramp, or runway where there is no wall or guardrail system.

Walking/Working Surface means for the purpose of this section, any area whose dimensions are 45 inches or greater in all directions through which employees pass or conduct work, and can include scaffolding and aerial lifts regardless of surface dimensions.

Wall Opening means a gap in a wall where the outside bottom edge is 6 feet or more above lower levels, and the inside bottom edge (e.g. parapit wall) is less than 39 inches above the walking/working surface.

Work Area means that portion of a walking/working surface where work activities are being performed.

Requirements

Training

Fall Protection training requirements shall include:

- New employees with work responsibilities requiring the use of fall protection will be oriented to MPIC Fall Protection Program (and any local addendums) as part of the 'new employee orientation program'.
- At new worksites, i.e., office, client job sites, etc., during the pre-job meeting to describe specific fall protection requirements of the job.
- Thereafter, every foreseeably exposed employee will be trained at least annually, and include the following:

  - The nature of fall hazards in the typical work area
  - The correct procedures for erecting, maintaining, disassembling, and inspecting fall protection systems
  - The use and operation of conventional and non-conventional fall protection systems
  - The role of each employee in the safety monitoring system when such a system is in use
  - The limitations on the use of mechanical equipment during the performance of roof work on low-slope roofs
  - The correct procedures for equipment and materials handling and storage, and the erection of overhead protection
  - The correct fit, maintenance and use of (personal) fall arrest system components, as determined by the manufacturer(s)
  - Rescue procedures in the event an individual falls
  - All other details in this section (and local addendums)

Toolbox talks for related issues of this manual section shall be covered periodically. Retraining shall also occur whenever deficiencies in the training program are identified, standard requirements change or are modified or new fall protection systems are introduced. Any employee who has not received orientation or

annual training (as previously outlined) shall not be allowed to work at heights identified by this section. Training provided shall be documented and maintained in a training file at the Branch Office. Training will include dates of training, instructor's name, toAvetta / material covered and attendee names.

Conventional Fall Arrest and Fall Restraints Systems

Conventional Fall Arrest and Fall Restraint Systems shall be utilized where the exposure to falls greater than 6 foot and from falling objects as is reasonably foreseen. The following systems shall be utilized:

Guardrail System (fall restraint and potentially from falling objects)

- Toprails and midrails of guardrail systems constructed of wood shall be at least ¼ inch diameter or thickness to prevent cuts and lacerations.
- If wire rope is used for toprails, it shall be flagged at not more 6 feet intervals with high-visibility material. Steel and plastic banding are prohibited for use as toprails or midrails.
- The top edge height of toprails, or (equivalent) guardrails shall be 42 inches, plus or minus 3 inches, above the walking/working level.
- When employees are using ladders in distance proximity equivilent to the maximum use-length of the ladder, the top edge height of the top rail, or equivalent member, shall be increased an amount equal to the maximum use-length height of the ladder, **or** see **Special Control Procedures** portion (for ladders) of this manual section for other options.
- Screens, midrails, mesh, intermediate vertical members, or equivalent intermediate structural members shall be installed between the top edge of the guardrail system and the walking/working surface when there are no walls or parapet walls at least 21 inches high. When midrails are used, they shall be installed at a height midway between the top edge of the guardrail system and the walking/working level. When screens and mesh are used, they shall extend from the top rail to the walking/working level. Intermediate members, such as balusters, when used between posts, will not be more than 19 inches apart.
- The guardrail system shall be capable of withstanding a force of at least 200 pounds of force applied within 2 inches of the top edge in any outward or downward direction. When the 200 pounds is applied in a down-ward direction, the top edge of the guardrail shall not deflect to a height less than 39 inches above the walking/working level.
- Midrails, screens, mesh, intermediate vertical members, solid panels, and equivalent structural members will be capable of withstanding a force of at least 150 pounds of force applied in any downward or outward direction at any point along the midrail or other member.
- Guardrail systems shall be free of sharp edges and burrs to protect against punctures or lacerations and to prevent clothing from snagging.
- The ends of top rails and midrails shall not overhang terminal posts, except where such an overhang does not constitute a projection hazard.

- When guardrail systems are used at hoisting areas, a chain, gate or removable guardrail section shall be placed across the access opening between guardrail sections when hoisting operations are not taking place.
- At uncovered holes, guardrail systems shall be set up on unprotected sides or edges. When holes are used for the passage of materials, the hole shall have not more than two sides with removable guardrail sections. When the hole is not in use, it shall be covered or provided with guardrails along unprotected sides/edges.
- If guardrail systems are used around uncovered holes that are used as access points (such as ladderways), gates shall be used or the guardrail shall be offset at a 45 degree angle to prevent accidental walking into the hole. Toeboards shall be utilized around the edges not utilized as the actual access point.
- If guardrails are used at unprotected sides or edges of ramps and runways, they shall be erected on each unprotected side/edge.
- When guardrail systems, in combination with netting, is used to prevent materials from falling from one level to another, openings shall be small enough to prevent passage of potential falling objects.

<u>Covers for Holes (fall restraint and from falling objects)</u>

- Covers (or a guardrail system with toe boards…see Guardrail Systems within this section) shall be installed over holes equal to or greater then 2” in floors, roofs and walkways that are more than 6 feet above lower levels.
- Hole covering material shall support at least two times the potential weight that will cross over it. If plywood is chosen as the cover material, it shall be of at least ¾ inch in thickness.
- Hole covers shall be secured in place in such a manner as to not easily be displaced. Examples of securing methods include, but are not limited to: nailing, attached cleats, wire, etc.
- Such covers shall have the word ‘HOLE’ or ‘COVER’ predominately marked on the top surface. Where covers are too small for such marking, they shall be painted or significantly marked in the color orange.

<u>Restraining/Positioning System (fall restraint)</u>

- Only full body harness systems with positioning rings are to be utilized with any restraining/ positioning system.
- Restraint line (rope) length shall not exceed the distance to fall exposure, and shall be secured to an anchorage capable of supporting at least twice the potential impact load of an employee’s fall or 3,000 pounds, whichever is greater.
- Requirements for body harness systems, snaphooks, D-rings, and other connectors used with positioning device systems shall meet the same criteria as those for fall arrest systems of this section.

- No makeshift fall protection equipment may be utilized.

Body belts are prohibited.

<u>(Personal) Fall Arrest System (fall arrest)</u>

(Personal) Fall Arrest Systems shall do all of the following:

- Limit maximum arresting force on an employee to 1,800 pounds. Note: total body weight including tools cannot exceed 310 lbs. to stay under arresting force limit
- Be rigged so that an employee can neither free fall more than 6 feet nor contact any lower level
- Bring an employee to a complete stop and limit maximum deceleration distance an employee travels to 3.5 feet
- Have sufficient strength to withstand 5000 lbs. (excluding horizontal lifelines which require a safety factor of at least two times the potential impact energy)
- All components of the (personal) fall arrest system (lanyards, body harness and attached hardware, and shock-absorbing devices) shall meet the design specifications of OSHA 1926.502 Subpart M

The following items/actions are prohibited for use with (personal) fall arrest systems:

- body belts
- non-locking snaphooks
- lanyards without shock absorbers
- tying back to the lanyard (once around another object) for a means of an anchorage point, unless the lanyard was designed for this purpose by the manufacturer, the object tied around can support the anticipated fall force and the object does not have sharp edges or burrs

(Personal) fall arrest systems shall be utilized in the following manner:

Pre-Use Inspection

All components shall be inspected prior to each use for wear damage, and other deterioration in accordance with manufacturer's requirements (see equipment inspection and maintenance procedures of this section).

General Proper Body Harness Fit Guidelines

- Two employees are usually required to completely fit each other
- The body harness type and size shall meet the physical needs of its user (male/female or small, medium, large, etc.).
- Follow the manufacturer's guidelines on proper fit.
- Shoulder, thigh, button and chest straps shall be fit snugly whereas it is slightly difficult to slide the hand underneath.
- Loose straps ends shall be folded back under.
- D-ring placement should be between the shoulder-blades.
- Chest straps should be positioned across the mid-chest area.

Sufficient Anchorage Points Utilized

Anchorages shall be used under the supervision of a competent person, as part of a complete (personal) fall arrest system that maintains a safety factor of at least two (i.e., capable of supporting at least twice the weight expected to be imposed upon it).

Anchorages used to attach (personal) fall arrest systems will be independent of any anchorage being used to support or suspend platforms and shall be capable of supporting at least 5,000 pounds of force per person attached.

Anchorage points can include:

- Lifelines (horizontal and vertical)
- Designed anchorage points on aerial lifts
- Eye-bolts listed for use by the manufacturer
- Specially designed anchorage tools specifically designed to meet fall force requirements, including:
- Wrap-around lanyards as approved by the manufacturer
- I-beam clamps designed specifically as an anchorage point

Prohibited anchorage points include, but are not limited to:

- Standard guardrails and railing
- Ladders/rungs
- Scaffolding, unless approved by the manufacturer for/with anchorage points
- Light fixtures, ductwork, conduit, pipe vents, wiring/duct/piping harnesses, other roof stacks, vents or fans

- C-clamps
- Piping (unless capable of meeting the criteria of an anchorage point)
- To a lanyard (around a solid object), unless the lanyard and hardware is manufactured for that purpose

Lifeline/Lanyard Applications

Lanyards shall only be attached to anchorage points sufficient to meet the fall force requirements. Shock-absorbing lanyards are required to limit the fall force to less than 1800 pounds.

Self-retracting lanyards (retractables) capable of withstanding the tensile load of 3,000 lbs. that limit the free fall distance to two (2) feet or less are always recommended and **are required when the fall distance is less than ninteen and one-half (19.5) feet**.

Lanyards that do not limit free fall distance to 2 feet or less, such as ripstitch lanyards and tearing/deforming lanyards will be capable of sustaining a minimum tensile load of 5,000 pounds applied to the device with the lifeline or lanyard in the fully extended position.

Horizontal lifelines will be designed, installed, and used under the supervision of a Competent Person, as part of a complete (personal) fall arrest system. Lifelines shall be protected against being cut or abraded. Horizontal lifelines cannot exceed sixty feet in length.

Vertical lifelines shall be utilized with leading edge work, shall reach the ground, and the method of anchorage attachment shall be of proper design (i.e. no knots).

Safety Net System (fall arrest and potentially from falling objects)

When utilized, safety nets shall be installed as close as practicable under the walking/working surface on which employees are working and never more than 30 feet below such levels.

Safety nets will be inspected at least once a week for wear, damage, and other deterioration. The maximum size of each safety net mesh opening will not exceed 36 square inches nor be longer than 6 inches on any side, and the openings, measured center-to-center, of mesh ropes or webbing, will not exceed 6 inches.
Defective/unfit nets are not to be used and are to be taken from service and immediately destroyed by cutting into unuseful sizes and properly disposed.

Mesh crossings will be secured to prevent enlargement of the mesh opening. Each safety net or section will have a border rope for webbing with a minimum breaking strength of 5,000 pounds. Connections

between safety net panels will be as strong as integral net components and be spaced no more than 6 inches apart.

Safety nets shall extend outward from the outermost projection of the work surface as follows:

Vertical distance from working level to horizontal plane of net surface	Minimum required horizontal distance of outer edge of net from edge of working surface
Up to 5 feet	8 feet
More than 5 feet up to 10 feet	10 feet
More than 10 feet	13 feet

Safety nets shall be tested at the beginning of each workday and shall be capable of absorbing an impact force of a drop test consisting of a 400-pound bag of sand 30 inches in diameter dropped from the highest walking/working surface at which workers are exposed, but not from less than 42 inches above that level. Employees shall not be allowed in work areas controlled with safety nets until this test is complete.

If safety nets are utilized for the dual purpose of employee fall protection and the protection of other workers from fall objects, the net webbing opening shall be small enough to prevent passage of potential falling objects.

Items that have fallen into safety nets, such as materials, scrap, equipment, and tools, shall be removed as soon as possible and at least before the next work shift.

Non-conventional Methods

Where conventional fall restraint and fall arrest methods cannot be utilized (or utilized safely), the following non-conventional methods can be utilized:

- A written work plan shall be developed when a project or task possesses a fall exposure whereby these systems are utilized. A sample written plan format can be found in 29 CFR 1926 Subpart M Appendix E.
- A Competent Person will develop and implement a written Fall Protection Work Plan including each area of the work place where the employees are assigned and where fall hazards of 6 feet or more will exist. The Risk Assessment for this project/task should be reviewed for this document.

The written Fall Protection Work Plan shall include:

- Identification of fall hazards in the work area

- Describe the non-conventional method (or in combination with conventional method) of fall protection to be provided
- Describe the correct procedures for the assembly, maintenance, inspection, and disassembly of any fall protection system to be used
- Describe the correct procedures for the handling, storage, and securing of tools and materials
- Describe the method of providing overhead protection for workers who may be in or pass through the area below the work site
- Describe the method for prompt, safe removal of injured workers
- Describe the method for destruction of personal fall arrest system equipment subjected to the forces of any fall
- Be available at all times on the jobsite

Controlled Access Zone System

Controlled access zone systems shall be set up as follows:

- Zone shall be established no closer than six (6) feet or further than twenty-five (25) feet from any leading edge
- Control line shall extend parallel along the entire length of the unprotected or leading edge
- Only trained employees are allowed in the Zone
- The Zone shall have signage marking it as a 'Controlled Access Zone'

Warning Line System (pitches of <4:12 and flat surfaces only)

Warning line systems consist of ropes, wires, or chains, and supporting stanchions and are set up as follows:

- Flagged at not more than 6-foot intervals with high-visibility material
- Rigged and supported so that the lowest point including sag is no less than 34 inches from the walking/working surface and its highest point is no more than 39 inches from the walking/working surface
- Stanchions, after being rigged with warning lines, will be capable of resisting, without tipping over, a force of at least 16 pounds applied horizontally against the stanchion, 30 inches above the walking/ working surface, perpendicular to the warning line and in the direction of the floor, roof, or platform edge
- The rope, wire, or chain will have a minimum tensile strength of 500 pounds, and after being attached to the stanchions, shall support without breaking the load applied to the stanchions as prescribed above

- Line will be attached to each stanchion in such a way that pulling on one section of the line between stanchions will not result in slack being taken up in the adjacent section before the stanchion tips over
- Warning lines will be erected around all sides of roof work areas. When mechanical equipment is being used, the warning line will be erected not less than 6 feet from the roof edge parallel to the direction of mechanical equipment operation, and not less than 10 feet from the roof edge perpendicular to the direction of mechanical equipment operation

When mechanical equipment is not being used, the warning line shall be erected not less than 6 feet from the roof edge.

The warning line system shall be used in conjuction with one of the following:

- safety monitoring system (most common); or
- (personal) fall arrest system; or
- safety net system; or
- guardrails

Safety Monitoring System

A competent person will appoint the 'safety monitor' and will ensure that the safety monitor:

- Is competent in the recognition of fall hazards
- Is capable of warning workers of fall hazard dangers and in detecting unsafe work practices
- Is operating on the same walking/working surfaces of the employees and can see them
- Is close enough to work operations to communicate orally with the employees and has no other duties but the monitoring function
- Has the authority to stop work

Only employees engaged in roof/surface work and the safety monitor shall be allowed in an area where an employee is being protected by a safety monitoring system.

Specific Fall Hazard Procedures

Aerial Personnel Lifts

Employees utilizing aerial personnel lifts (e.g. scissor lifts, genie lifts, cherry-pickers, boom-lifts, etc.) shall use a restraint/positioning system or (personal) fall arrest system, even though a guardrail system is in place.

Attachment points for these systems shall be capable of withstanding 5,000 pounds and shall be maintained in the floor of the lift or where designed by the manufacturer.

Rails of such lifts shall not to be used as attachment points unless designed for that purpose by the manufacturer.

Excavations

Employees who work at the edge of an excavation 6 feet or more deep will be protected from falling into the excavation by guardrail systems or covers.

Where walk-ways are provided to permit employees to cross over excavations, guardrails are required on the walkway if the fall would be 6 feet or more to the lower level.

Hoist Areas

Each employee in a hoist area will be protected from falling 6 feet or more by guardrail, restraint/ positioning or (personal) fall arrest systems.

If guardrail systems (or chain gate or guardrail), or portions thereof, must be removed to facilitate hoisting operations, as during the landing of materials, and a worker shall lean through the access opening or out over the edge of the access opening to receive or guide equipment and materials, that employee shall be protected by a (personal) fall arrest system.

Falling Objects (additional protection from)

Except for scaffolding and aerial lifts, no materials or equipment shall be stored within 6 feet of working edges.
When **canopies** are used as protection from falling objects, canopies shall be strong enough to prevent collapse and to prevent penetration by any objects that may fall onto them.

When **toeboards** are used as protection from falling objects, they shall be erected along the edges of the overhead walking or working surface for a distance sufficient to protect persons working below. Toeboards will be capable of withstanding a force of at least 50 pounds of force applied in any downward or outward direction at any point along the toeboard. Toeboards will be a minimum of four (4) inches tall from their top edge to the level of the walking/working surface, have no more than one (1) inch clearance between its bottom and the surface.

Ladders

(where work height (due to leaning out) exposure is equal to, or exceeds six foot and/or the maximum ladder height is within the distance to a leading edge)

If work is performed outside the rails of a ladder equal to, or exceeding 6' ; or if three-point contact on the ladder cannot be maintained, a (Personal) Fall Arrest Systems shall be utilized if anchorage points are available.

If anchorage points are not available or other traditional fall control systems are not feasible, a non-conventional system can be utilized.

Leading Edge Work

Employees working near a leading edge 6 feet or more above lower levels shall be protected by guardrail, safety net, restraint/positioning, or (personal) fall arrest systems.

Roadway/Vehicular Passage Covers

Covers located in roadways and vehicular aisles shall be able to support at least twice the maximum axle load of the largest vehicle to which the cover might be subjected, and secured/marked.

Roofs (work from or on)

Low-sloped (<4:12 pitch)

Employees engaged in roof activities on low-slope roofs with unprotected sides and edges 6 feet or more above lower levels will be protected from falling by guardrail systems, safety net systems, (personal) fall arrest systems or a combination of a warning line system and guard-rail system, warning line system and safety net system, warning line system and (personal) fall arrest system, or warning line system and safety monitoring system.

Steep Roofs (>4:12 pitch)

Employees on a steep roof with unprotected sides and edges 6 feet or more above lower levels will be protected by either guardrail systems with toeboards, a safety net system, or a (personal) fall arrest systems.

Wall Openings

Employee working on, at, above, or near wall openings (including those with chutes attached) shall be protected from falling by the use of either a guardrail system, a safety net system, or a (personal) fall arrest system.

Equipment Inspection and Maintenance Procedures

Inspection, Replacement and Destruction

All equipment hereafter noted shall be visually inspected before each use, replaced immediately if any of the defective conditions are found, tagged 'out of service' and sent back to the Branch for destruction.

Body Harness Inspection

Beginning at one end, holding the body side of the harness toward you, grasp one area of the harness with your hands six to eight inches apart. Bend the strap in an inverted "U". Follow this procedure the entire length of the belt or harness. Watch for frayed edges, broken fibers, pulled stitches, cuts, burn marks or chemical damage. Special attention should be given to the attachment of buckles and D-rings to strap webbing. Inspect for frayed or broken strands. Broken webbing strands generally appear as tufts on the webbing surface.

Rivets should be tight and unmovable with fingers. Body-side rivet base and outside rivet burr should be flat against the material. Bent rivets will fail under stress. Especially note condition of D-ring rivets and D-ring metal wear pads (if applicable). Discolored, pitted, or cracked rivets indicate chemical corrosion.

The tongue or billet of bolts receives heavy wear from repeated buckling and unbuckling. Inspect for loose, distorted, or broken grommets. Harnesses using punched holes without grommets should be checked for torn or elongated holes causing slippage of the tongue buckle.

Hardware (Buckles, D-Rings, Snaps and Thimbles)

Buckle tongues should be free of distortion in shape and motion. They should overlap the buckle frame and move freely back and forth in their socket. Roller should turn freely on frame. Check for distortion or sharp edges.

Inspect the friction buckle for distortion. The outer bars and center bars must be straight. Pay special attention to corners and attachment points of the center bar.

Inspect the sliding bar buckle frame and sliding bar for cracks, distortion, or sharp edges. The sliding bar should move freely. Knurled edge will slip if worn smooth. Pay special attention to corners and ends of sliding bar.

Inspect the forged steel D-ring for cracks or other defects. Inspect the assembly of the D-ring to the body pad or D-saddle. If the D-ring can be moved vertically independent of the body pad or D-saddle, the harness should be replaced. Check D-Rings and D-Ring metal wear pad (if any) for distortion, cracks, breaks, and rough or sharp edges. The D-Ring bar should be at a 90 degree angle with the long axis of the belt and should pivot freely.

Inspect closely for hook and eye distortions, cracks, corrosion, or pitted surfaces. The keeper (latch) should seal into the nose without binding and should not be distorted or obstructed. The keeper spring should exert sufficient force to firmly close the keeper.

The thimble must be unmovable in the eyes of the splice, and the splice should have no loose or cut strands. The edges must be free of sharp edges, distortion, or cracks.

Lanyard (shock-absorbing)

Begin at one end and work to the opposite end. Slowly rotate the lanyard so the entire circumference is checked. Factory spliced ends require particular attention.

Lanyard (Webbing) Retractable

Bend the webbing over a non-lacerating edge, observe each side of the webbed lanyard. This will reveal any cuts or breaks. Swelling, discoloration, cracks, and charring are obvious signs of chemical or heat damage. Closely observe for any breaks in the stitching.

Rope

Rotation of the rope lanyard while inspecting from end to end will bring to light any fuzzy, worn, broken, or cut fibers. Areas weakened by extreme loads will appear as noticeable change in original diameter. The rope diameter should be uniform throughout, following a short break-in period. Strands should be separated and inspected since the rope may wear on the inside if grit or moisture becomes embedded.

Storage/Cleaning

Storage areas shall be maintained as clean, dry and free of exposure to fumes or corrosive elements.
Cleaning methods established by the manufacturer shall be followed for all components. Generally, the following applies for body harnesses:

- Wipe off surface dirt with a sponge dampened in plain water. Squeeze the sponge dry. Dip the sponge in a mild solution of water and commercial soap or detergent. Work up a thick lather with a vigorous back and forth motion
- Wipe the belt dry with a clean cloth. Hang freely to dry but away from excessive heat
- Bolts and other equipment should dry thoroughly without close exposure to heat, steam, or long periods of sunlight
- Mildly dirty cotton may be cleaned normally. For heavy dirt or grease, soak belts in a solution of one tablespoon of grease cutter to one gallon of water. DO NOT USE A STRONGER SOLUTION. After soaking, rinse again, then hang to dry
- Fall protection, which is not in the original package, shall be stored in a clean, dry area

Post-Fall or Near-Miss Incidents

Fall incidents and near-misses shall be thoroughly investigated to determine root causes and facilitate corrective measures to prevent reoccurences.

Employees involved in a fall equal to, or greater then 6’ shall be required to receive an immediate medical evaluation.

All components of a (personal) fall arrest system involved in any fall with a fall distance of over six feet shall be immediately and completely replaced. Such equipment shall be tagged ‘out of service’ and sent back to the Branch for destruction.

References

OSHA 29 CFR 1926 Subpart M
OSHA 29 CFR 1910 Subpart D

Electrical Policy - General

This procedure establishes requirements to minimize potential hazards encountered when work activities involving general electrical hazards.

Scope

This procedure applies to all employees and contractors working at **MPIC .**

Definitions

Approved means acceptable to the authorities.

Authorized Person means a person approved or assigned by BP to perform a specific duty or duties or to be at a specific location or locations at the jobsite.

Cabinet means an enclosure designed either for surface or flush mounting.

Competent Person means one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate them.

Conductor (bare) means a conductor having no covering or electrical insulation whatsoever.

Conductor (insulated) means a conductor encased within material of composition and thickness that is recognized as electrical insulation.

Defect means any characteristic or condition that tends to weaken or reduce the strength of the tool, object, or structure of which it is a part.

Disconnect means a device, or group of devices or other means by which the conductors of a circuit can be disconnected from their source of supply.

Enclosed means surrounded by a case, housing, fence or walls which shall prevent persons from accidentally contacting energized parts.

Enclosure means the case or housing of apparatus, or the fence or walls surrounding an installation to prevent personnel from accidentally contacting energized parts, or to protect the equipment from physical damage.

Exposed (as applied to live parts) means capable of being inadvertently touched or approached nearer than a safe distance by a person. It is applied to parts not suitably guarded, isolated, or insulated.

Guarded means covered, shielded, fenced, enclosed, or otherwise protected by means of suitable covers, casings, barriers, rails, screens, mats, or platforms to remove the likelihood of approach to a point of danger or contact by persons or objects.

Isolated means not readily accessible to persons unless special means for access are used.

Labeled means equipment or materials to which has been attached a label, symbol or other identifying mark of a qualified testing laboratory which indicates compliance with appropriate standards or performance in a specified manner.

NEC stands for National Electric Code.

Qualified means persons who are capable of working safely on equipment and are familiar with electrical properties, the proper use of special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools.

Receptacle means a contact device installed at the outlet for the connection of a single attachment plug. A single receptacle is a single contact device with no other contact device on the same yoke. A multiple receptacle is a single device containing two or more receptacles.

Requirements

General

Feasible engineering and administrative controls shall be applied to mitigate or minimize the risk of injury and illness from exposure to electrical hazards. Where such hazards still exist after application of these controls, local 'hot work' procedures (see local addendum to this section) shall apply and personal protective equipment shall be utilized. Such addenda shall comply with NFPA 70E.

Where feasible, employees shall not perform live electrical work. Branches that engage in live work are required to provide applicable safe work procedures, PPE, and equipment in Addendum to this manual section.

In existing installations, no changes in circuit protection shall be made to increase the load in excess of the load rating of the circuit wiring.

Worn or frayed electric cords or cables shall be removed from work areas for repair or disposal. Plugs equipped with a grounding prong must have the prong in place. Damaged plugs must be repaired. Repairing cords shall be limited to shortening only by an authorized person, as determined by the Branch Safety Officer.

Working spaces, walkways, and similar locations must be kept clear of cords to eliminate hazards.

Extension cords shall not be fastened with staples, hung from nails, or suspended by wire.

Control equipment, utilization equipment, and busways approved for use in dry locations only shall be protected against damage from the weather during building construction.

Metal raceways, cable armor, boxes, cable sheathing, cabinets, elbows, couplings, fittings, supports, and support hardware shall be of materials appropriate for the environment in which they are to be installed.

Electrical switches shall be labeled to indicate the system, equipment, service, or tool they control. This includes switch boxes, cabinets, motor control cabinets, stationary equipment, control panels, and other such switches or disconnects.

Persons who perform electrical work shall wear hard hats that are proof tested to 20,000 volts and shall not wear clothing with or without PPE that could increase injury (100% cotton is better than blended materials).
In work areas where the exact location of underground electric power lines is unknown, employees using jackhammers, bars, or other hand tools that may contact a line shall be provided with insulated protective gloves. Gloves must be rated to (or exceed) the voltage for which they may be exposed. The gloves shall be inspected before use and replaced as per the manufacturer's specifications.

Wiring components and equipment in hazardous environments shall be maintained in a condition consistent with NEC requirements (i.e. no loose or missing screws, gaskets, threaded connections, seals, or other impairments to a tight condition).

Hazardous locations are those locations where flammable vapors, liquids or gases, or combustible dusts or fibers may be present. There are six "classifications" for these types of locations, as follows:

- **Class I Division 1 and Division 2**
- **Class II Division 1 and Division 2**
- **Class III Division 1 and Division 2**

Equipment, wiring methods, and installations of electrical equipment in hazardous (classified) locations must be designated as "intrinsically safe" or be approved for the classification location.

Energized Electrical Parts and Systems

This section does not apply to power distribution or transmission lines. Refer to CFR Subpart "R" 1910.269 (servicing) and/or CFR Subpart "V" 1926.950 (construction) for overhead power transmission and distribution line requirements.

Safety-related work practices shall be employed to prevent electric shock or other injuries resulting from either direct or indirect electrical contacts, when work is performed near or on equipment or circuits which

are or may be energized. The specific safety-related work practices shall be consistent with the nature and extent of the associated electrical hazards.

Live parts to which an employee may be exposed shall be deenergized before the employee works on or near them, unless it can be demonstrated that deenergizing introduces additional or increased hazards or is infeasible due to equipment design or operational limitations. Live parts that operate at less than 50 volts to ground need not be deenergized if there will be no increased exposure to electrical burns or to explosion due to electric arcs.

If the exposed live parts are not deenergized (i.e., for reasons of increased or additional hazards or infeasibility), other safety-related work practices shall be used to protect employees who may be exposed to the electrical hazards involved. Such work practices shall protect employees against contact with energized circuit parts directly with any part of their body or indirectly through some other conductive object. The work practices that are used shall be suitable for the conditions under which the work is to be performed and for the voltage level of the exposed electric conductors or circuit parts.

Working on or near exposed deenergized parts

This section applies to work on exposed deenergized parts near enough to expose employee/s to an electrical hazard.

While an employee is exposed to contact with fixed electrical equipment or circuits which have been deenergized, the circuits energizing the parts shall be locked out in accordance with the Energy Control (lockout).

The circuits and equipment to be worked on shall be disconnected from electrical energy sources (and locked out). Control circuit devices, such as push buttons, selector switches, and interlocks, shall not be used as the sole means for deenergizing circuits or equipment.

Procedures for the release of stored electric energy shall be covered in the Addendum to this policy section (as hot work).

When capacitors or associated equipment are handled, they shall be treated as energized.
Stored non-electrical energy in devices that could reenergize electrical parts shall be blocked or relieved to the extent that the parts could not be accidentally energized by the device.

Working on or near exposed energized parts

Every effort shall be made to preclude work on energized electrical parts. When this is not possible, the requirements of this section shall apply. Potential contact with live energized parts includes work performed on exposed live parts (involving either direct contact or contact by means of tools or materials) or near enough to them for employees to be exposed to any hazard they present.

Only qualified persons shall work on electrical equipment that has not been deenergized.

If work is to be performed near overhead lines, the lines shall be deenergized and grounded, or other protective measures shall be provided before work is started.

If the lines are to be deenergized, arrangements shall be made with the person or organization that operates or controls the electric circuits involved to deenergize and ground them. If protective measures, such as guarding, isolating, or insulating are provided, these precautions shall prevent employees from contacting such lines directly with any part of their body or indirectly through conductive materials, tools, or equipment.

Overhead electrical lines

While conducting site activities near overhead lines, field personnel need to be aware of the location of the lines so as not to use conductive equipment (e.g., metal equipment to include: drill rigs; hand auger extensions; geoprobe units; excavators, etc.) in close proximity to power lines.

OSHA 29 CFR 1926.550 requires that any vehicle or mechanical equipment (i.e., drill rigs) capable of having parts of its structure elevated near energized overhead lines shall be operated so that a clearance distance of at least 10 feet is maintained.

When calculating the clearance distances for a drill rig consider both the length of the derrick and the length of the rods. Position the rig such that if rods are ever fully extended from the top of the derrick, the rods will still be at least 10 feet away from the power lines. Note that rods can lean or sway when elevated so it may be necessary to maintain more than a 10-foot distance on the ground to ensure that there is a 10-foot horizontal distance between the rods and the power line.

Higher voltages require greater clearance distances. Contact the electrical utility company to verify line voltage. If the voltage is higher than 50kV, the clearance shall be increased 4 in. for every 10kV over that voltage.

Table 15-1

Voltage	Required Clearance
0-50 kV	10 feet

50-200 kV	15 feet
200-350 kV	20 feet
350-500 kV	25 feet
500-750 kV	35 feet
750-1000 kV	45 feet

Under any of the following conditions, OSHA allows the required clearance to be reduced:

- If a vehicle is in transit with its structure lowered, the clearance shall be reduced to 4 ft. If the voltage is higher than 50kV, the clearance shall be increased 4 in. for every 10kV over that voltage
- If insulating barriers (boots) are installed to prevent contact with the lines, and if the barriers are rated for the voltage of the line being guarded and are not a part of or an attachment to the vehicle or its raised structure, OSHA allows the clearance to be reduced to a distance within the designed working dimensions of the insulating barrier. However, while this is permissible according to OSHA, some utility companies are recommending that safe distances, as described previously, be maintained in addition to the insulating barrier.
- If the equipment is an aerial lift insulated for the voltage involved, and if the work is performed by a qualified person, the clearance (between the uninsulated portion of the aerial lift and the power line) may be reduced to the distance given in Table 15-2.

When an unqualified person is working in an elevated position near overhead lines, or working on the ground in the vicinity of overhead lines, the location shall be such that the person and the longest conductive object he or she may contact cannot come closer to any unguarded, energized overhead line than the clearance distances indicated in Table 15-1.

For voltages normally encountered with overhead power lines, objects which do not have an insulating rating for the voltage involved shall be considered to be conductive.

When a qualified person is working in the vicinity of overhead lines, whether in an elevated position or on the ground, the person shall not approach or take any conductive object without an approved insulating handle closer to exposed energized parts than the clearance distances indicated in Table 15-2, unless:

- The person is insulated from the energized part (gloves, with sleeves if necessary, rated for the voltage involved are considered to be insulation of the person from the energized part on which work is performed), or
- The energized part is insulated both from other conductive objects at a different potential and from the person, or

- The person is insulated from conductive objects at a potential different from that of the energized part

Table 15-2

Approach Distances for Qualified Employees - Alternating Current	
Voltage range (phase to phase)	**Minimum approach distance**
300V and less	Avoid contact
Over 300V, not over 750V	1 ft. 0 in.
Over 750V, not over 2kV	l ft. 6 in.
Over 2kV, not over 15kV	2 ft. 0 in.
Over 15kV, not over 37kV	3 ft. 0 in.
Over 37kV, not over 87.5kV	3 ft. 6 in.
Over 87.5kV, not over 121kV	4 ft. 0 in.
Over 121kV, not over 140kV	4 ft. 6 in.

If the equipment is an aerial lift insulated for the voltage involved, and if the work is performed by a qualified person the clearance (between the uninsulated portion of the aerial lift and the power line) may be reduced to the distance indicated in Table 15-2. However, employees standing on the ground shall not contact the vehicle or mechanical equipment or any of its attachments, unless:

- The employee is using protective equipment rated for the voltage or the equipment is located so that no uninsulated part of its structure (that portion of the structure that provides a conductive path to employees on the ground) can come closer to the line than permitted in this section
- If any vehicle or mechanical equipment capable of having parts of its structure elevated near energized overhead lines is intentionally grounded, employees working on the ground near the point of grounding shall not stand at the grounding location whenever there is a possibility of overhead line contact. Additional precautions, such as the use of barricades or insulation, shall be taken to protect employees from hazardous ground potentials, depending on earth resistivity and fault currents, which can develop within the first few feet or more outward from the grounding point

<u>Illumination</u>

Employees shall not enter spaces containing exposed energized parts, unless illumination is provided that enables the employees to perform the work safely. Where lack of illumination or an obstruction

precludes observation of the work to be performed, employees shall not perform tasks near exposed energized parts. Employees shall not reach blindly into areas which may contain energized parts.

Confined Space or enclosed space work

When an employee works in a confined or enclosed space (such as a manhole or vault) that contains exposed energized parts, protective shields, protective barriers, or insulating materials shall be used as necessary to avoid inadvertent contact with these parts. Doors, hinged panels, and the like shall be secured to prevent swinging into an employee and causing the employee to contact exposed energized parts (reference the Confined Spaces section of this manual).

Conductive materials and equipment

Conductive materials and equipment that are in contact with any part of an employee's body shall be handled in a manner that will prevent them from contacting exposed energized conductors or circuit parts.

For instance, an employee should measure the length of a sledge hammer and the expected radius of his swing prior to using the hammer near an energized circuit. If such a circuit is present, a sign must be posted to warn the employees. The job supervisor must inform the employees of the location of the lines, the hazards involved, and the protective measures to be taken.

Portable ladders

Portable ladders shall have nonconductive siderails if they are used where the employee or the ladder could contact exposed energized parts (reference Ladder section of this manual).

Conductive apparel

Conductive articles of jewelry and clothing (such as watch bands, bracelets, rings, key chains, necklaces, metalized aprons, cloth with conductive thread, or metal headgear) shall not be worn if they might contact exposed energized parts. However, such articles may be worn if they are rendered nonconductive by covering, wrapping, or other insulating means.

Housekeeping duties

Where live parts present an electrical contact hazard, employees shall not perform housekeeping duties at such close distances to the parts that there is a possibility of contact, unless adequate safeguards (such as insulating equipment or barriers) are provided.

Electrically conductive cleaning materials (including conductive solids such as steel wool, metalized cloth, and silicon carbide, as well as conductive liquid solutions) shall not be used in proximity to energized parts unless procedures are followed which will prevent electrical contact.

Interlocks

Only a qualified person following the requirements of this section may defeat an electrical safety interlock, and then only temporarily while working on the equipment. The interlock system shall be returned to its operable condition when this work is completed.

Grounding, GFCIs and Assured Grounding Procedures

Equipment, tools and cord sets shall be provided and utilized so as to protect employees from electrical shock and to prevent fire.

Equipment and tools

Note: Portable equipment which is "double insulated" and endorsed by a nationally recognized testing facility need not have a grounding conductor, but is subject to the inspection requirements of this section.

Tools and equipment subject to inspection and testing include:

- Portable Electrical Tools such as grinders, drills and stapling guns
- Stationary tools such as table saws, drill presses, and jig saws
- Portable electrical extension cords
- Portable and Temporary lighting systems and cords

Receptacles shall be of the grounding type and their contacts shall be grounded by connection to the equipment grounding conductor of the circuit supplying that receptacle in accordance with the NEC.

Visual inspections

Visual inspection of tools and equipment are required prior to each use and shall include:

- General condition
- Plugs and caps, and presence of ground prong
- Electrical cord sets
- External defects, and missing parts

Defective tools shall be tagged, taken out of service and placed in a secured location until they are repaired or destroyed.

Testing

The following tests shall be performed on all applicable equipment:

- Equipment grounding conductors shall be tested for continuity and shall be electrically continuous
- Receptacle and attachment cap or plug shall be tested for correct attachment of the equipment-grounding conductor. The equipment-grounding conductor shall be connected to its terminal

Required tests should be performed as indicated below:

- Before first use
- Before being returned to service following any repairs
- Before being used, after any incident that can be reasonably suspected to have caused damage (for example, when a cord set is run over)
- At intervals not to exceed 3 months

Test equipment must be evaluated for proper operation immediately before and after tests are conducted.

Removal from service

Any equipment failing any test shall be taken out of service, shall be tagged with a “Danger, Do Not Use” tag, secured and repaired or destroyed.

Ground Fault Circuit Interrupters (GFCI’s)

Ground Fault Circuit Interrupters (GFCI’s) shall be used on receptacles ≥15 amps up to and including 30 amps for tool and equipment used in construction applications and potentially wet environments (either indoors or outdoors). Receptacles of temporary wiring systems and portable generators shall be protected with a GFCI.

The minimum requirements relative to the use of Ground Fault Circuit Interruptors are:

- Prior to use, and periodically thereafter, verify that the GFCI is in good working order. (e.g., Plug the GFCI in to an outlet, plug a power tool or light in to the GFCI, hit the "test" button and verify that it interrupts current flow). Periodically re-test the GFCI to ensure continued effectiveness.
- Remove from service any GFCI that has insufficient load capacity, is damaged or is ineffective for any reason. Affix a "Danger, Do Not Use" tag and store the GFCI in a secure location until it can be replaced or repaired. Destroy and discard any GFCI that cannot be repaired or re-used.
- Train employees in the provisions of this section as related to safe us of GFCIs. This training should include:
  - Double insulated tools
  - Defective cords and plugs
  - Heavy moisture, and wet conditions
  - Operation, selection, and use of GFCI's

Assured Grounding Program

When this is not possible (feasible) to use GFCI's, the Assured Grounding procedures in this section shall apply and the Branch Office shall include as the Addendum to this policy section an Assured Grounding Program. It is best to avoid situations where an Assured Grounding Program is required because it is very labor intensive to comply. If unavoidable, the elements of this program shall include as a minimum:

- Written description of program
- Program coordinator
- Inspections
- Documented Testing
- Availability of Equipment
- Integrity of testing equipment (repairs/testing of test equipment)
- Handling of defective tools and equipment
- Who will perform tests, and repairs
- Recordkeeping
- How receptacles will be provided with GFCI's

Only qualified persons shall perform inspection and "color code" labeling of tools and equipment.

The color code scheme for labeling tools and equipment, as indicated in the following table, shall be used in the Addendum color scheme. This color code scheme is consistent with guidance from the Association of General Contractors. Tools and equipment shall be color coded on a quarterly basis when inspected and marked according to the Quarterly Code. If inspections are conducted monthly, the Monthly Code should be used. For example, "Red & Blue" means the inspection was conducted in the first quarter during February.

Tape Color Coding System

Month	Monthly Color Code	Quarterly Code
January	Red	Red
February	Red & Blue	
March	Red & White	
April	Blue	Blue
May	Blue & White	
June	Blue & Green	
July	White	White
August	White & Green	
September	White & Red	
October	Green	Green
November	Green & Red	
December	Green & Blue	

Temporary Wiring

This section applies to temporary electrical power and lighting wiring methods that may be of a class less than would be required for a permanent installation.

Temporary wiring shall be removed immediately upon completion of work and when the purpose for which the wiring was installed no longer applies.

General requirements for temporary wiring

Feeders shall originate in a distribution center. The conductors shall be run as multi-conductor cord or cable assemblies or within raceways.

Branch circuits shall originate in a power outlet or panel board. Conductors shall be run as multi-conductor cord or cable assemblies or open conductors, or shall be run in raceways. Conductors shall be protected by over current devices at their ampacity.

Receptacles shall be of the grounding type. Unless installed in a complete metallic raceway, each branch circuit shall contain a separate equipment-grounding conductor, and receptacles shall be connected to the grounding system. Receptacles shall not be connected to the same ungrounded conductor of multi-wire circuits that supply temporary lighting.

Disconnecting switches or plug connectors shall be installed to permit the disconnection of ungrounded conductors of each temporary circuit.

Lamps for general illumination shall be protected from accidental contact or breakage. Metal-case sockets shall be grounded.

The electric cords shall not be used to suspend temporary lights unless cords and lights are designed for this means of suspension. Temporary lighting shall be properly supported.

Portable electric lighting used in wet and/or other conductive locations, as for example, drums, tanks, and vessels, shall be operated at 12 volts or less. However, 120-volt lights may be used if protected by a ground-fault circuit interrupter.

A mounted box (with a cover) shall be used wherever a change is made to a raceway system or a cable system that is metal clad or metal sheathed. Non-metallic wiring system joints below seven foot (7') shall have mounted boxes and be covered. Exposed temporary joints shall have the wire nuts or other mechanical devices taped with black (electrical) tape to prevent them from falling off. Temporary joints including the ground wire shall have a mechanical connection.

Flexible cords and cables shall be protected from damage. Sharp corners and projections shall be avoided. Flexible cords and cables may pass through doorways or other pinch points, if protection is provided to avoid damage. Cords and temporary wiring passing through walls shall be properly protected (e.g. sleeved).

Extension cord sets used with portable electric tools and appliances shall be of three-wire type and shall be designed for hard or extra-hard usage. Flexible cords used with temporary and portable lights shall be designed for hard or extra-hard usage. See the NEC, ANSI/NFPA 70, in Article 400, Table 400-4 that lists various types of flexible cords, some of which are noted as being designed for hard or extra-hard usage. Note: SEU, SER or other similar cables cannot be laid on the floor despite their rating.

For temporary wiring over 600 volts, nominal, fencing, barriers, or other effective means shall be provided to prevent access of other than authorized and qualified personnel.

Batteries

General

Batteries of the unsealed type shall be located in enclosures with outside vents or in well ventilated rooms and shall be arranged so as to prevent the escape of fumes, gases, or electrolyte spray into other areas.

Ventilation shall be provided to ensure diffusion of the gases from the battery and to prevent the accumulation of an explosive mixture.

Appropriate face shields, aprons, goggles and rubber gloves shall be provided for workers handling acids or batteries. Contact lenses are prohibited while working with batteries, unless using a type of goggle that will not allow the transference of gases.

Facilities for quick drenching of the eyes and body shall be provided within 25 feet of battery handling areas. Facilities shall be provided for flushing and neutralizing spilled electrolyte and for fire protection in the areas of battery use.

Battery charging installations shall be located in areas designated for that purpose. When batteries are being charged, the vent caps shall be kept in place to avoid electrolyte spray. Vent caps shall be maintained in a functioning condition.

Battery manufacturer guideline specifics of this policy section shall be met.

Smoking, eating or drinking in areas where batteries are being stored, charged or worked with is prohibited.

Handling and transporation

Packaging, markings and transportation of batteries shall be in accordance with Federal, State and local laws, regulations and standards.

After the packaging is removed, batteries shall be inspected for defect, including, but not limited to:

- Bulging
- Cracking
- Leaking

Batteries shall not be forced into equipment/locations.

Where feasible, old and new batteries shall not be intermixed.

Storage

- Batteries shall be kept in their original packaging until they are ready to be used.
- New and used batteries shall be kept separate for distinguishment.
- Batteries should be stored separate from combustibles and flammables and protected from being crushed, punctured or exposed to incompatible environmental conditions.
- Used batteries, not intended for re-use, shall be properly disposed.

Disposal

Batteries being disposed of shall be done so in accordance with Federal, State and local laws, regulations and standards. When possible, batteries should be recycled.

Clearances in the Work Place

Employees shall not be permitted to work in such proximity to any part of an electric power circuit that the employee could contact the electric power circuit in the course of work, unless the employee is protected against electric shock by deenergizing the circuit and grounding it (if appropriate) or by guarding it effectively by insulation or other means.

Supervisors and/or Competent Person(s) shall ascertain by inquiry, direct observation, or by instruments, whether any part of an energized electric power circuit, exposed or concealed, is so located that the performance of the work may bring any person, tool, or machine into physical or electrical contact with the electric power circuit. The supervisor/Competent Person shall post and maintain proper warning signs where such a circuit exists. The supervisor/Competent Person shall advise employees of the location of such lines, the hazards involved, and the protective measures to be taken.

Barriers or other means of guarding shall be provided to ensure that workspace for electrical equipment will not be used as a passageway during periods when energized parts of electrical equipment are exposed.

Fuses

Installing or removing fuses shall be considered as work with live electrical energy and shall be covered in the Addendum to this policy section for operations conducting such activities.

Persons who perform work on high voltage fuses (over 600 volts) shall wear appropriate head, face, body flash suits, protective footwear and insulated gloves.

Insulating electrical gloves, sleeves, aprons, and other protective electrical clothing shall be tested for leaks and integrity prior to initial use and periodically. These tests shall meet the requirements of OSHA Standard 29 CFR 1910.137.

Protector gloves shall be worn over insulating gloves, except as defined in the above referenced standard.
Only manufacturer-qualified personnel shall inspect and make repairs to electrical insulating protective clothing.

Work Space Clearances - 600 Volts, nominal, or less

Working space about electric equipment

Sufficient access and working space shall be provided and maintained about electric equipment to permit ready and safe operation and maintenance of such equipment.

Working clearances

Except as required or permitted elsewhere in this section, the dimension of the working space in the direction of access to live parts operating at 600 volts or less and likely to require examination, adjustment, servicing or maintenance while live shall not be less than indicated in the table below.

In addition to the dimensions shown in the following table, workspace shall not be less than 30 inches wide in front of the electric equipment. Distances shall be measured from the live parts if they are exposed or from the enclosure front or opening if the live parts are enclosed. Walls constructed of concrete, brick, or tiles are considered to be grounded.

Working space is not required in back of assemblies such as dead-front switchboards or motor control centers where there are no renewable or adjustable parts such as fuses or switches on the back and where connections are accessible from locations other than the back.

Minimum Depth of Clear Working Space in Front of Electric Equipment (feet)			
Nominal voltage to ground conditions*	**(a)***	**(b)***	**(c)***
0-150	3	3	3
151-600	3	3 1/2	4
*Conditions (a), (b), and (c) are as follows: (a) Exposed live parts on one side and no live or grounded parts on the other side of the working space, or exposed live parts on both sides effectively guarded by insulating material. Insulated wire or insulated bus bars operating at not over 300 volts are not considered live parts. (b) Exposed live parts on one side and grounded parts on the other side. (c) Exposed live parts on both sides of the workspace [not guarded as provided in Condition (a)] with the operator between.			
Note: For International System of Units (SI): one foot=0.3048m.			

Working space required by this in this section shall not be used for storage. When normally enclosed live parts are exposed for inspection or servicing, the working space, if in a passageway or general open space shall be guarded.

At least one entrance shall be provided to give access to the working space about electric equipment.

Where there are live parts normally exposed on the front of switchboards or motor control centers, the working space in front of such equipment shall not be less than 3 feet.

The minimum headroom of working spaces about service equipment, switchboards, panel boards, or motor control centers shall be 6 feet 3 inches.

Guarding of live parts

Except as required or permitted live parts of electrical equipment operating at 50 volts or more shall be guarded against accidental contact by cabinets or other forms of enclosures, or by any of the following means:

- By location in a room, vault, or similar enclosure that is accessible only to qualified persons
- By partitions or screens so arranged that only qualified persons will have access to the space within reach of the live parts. Any openings in such partitions or screens shall be so sized and located that persons are not likely to come into accidental contact with the live parts or to bring conducting objects into contact with them
- By location on a balcony, gallery, or platform so elevated and arranged as to exclude unqualified persons

In locations where electric equipment could be exposed to physical damage, enclosures or guards shall be so arranged and of such strength to prevent damage.

Entrances to rooms and other guarded locations containing exposed live parts shall be marked with conspicuous warning signs forbidding unqualified persons to enter.

Work Space Clearances - over 600 volts, nominal

Conductors and equipment used on circuits exceeding 600 volts, nominal, shall comply with all applicable provisions of this section and with the following provisions that supplement or modify those requirements.

Enclosure for electrical installations

Electrical installations in a vault, room, closet or in an area surrounded by a wall, screen, or fence, access to which is controlled by lock and key or other equivalent means, are considered to be accessible to qualified persons only.

A wall, screen, or fence less than 8 feet in height is not considered adequate to prevent access unless it has other features that provide a degree of isolation equivalent to an 8-foot fence. The entrances to buildings, rooms or enclosures containing exposed live parts or exposed conductors operating at over 600 volts, nominal, shall be kept locked or shall be under the observation of a qualified person at all times.

Installations accessible to qualified persons only

Electrical installations having exposed live parts shall be accessible to qualified persons only and shall comply with requirements of this standard and applicable regulatory standards.

Installations accessible to unqualified person(s)

Electrical installations that are open to unqualified persons shall be made with metal-enclosed equipment or shall be enclosed in a vault or in an area, access to which is controlled by a lock. Metal-enclosed switchgear, unit substations, transformers, pull boxes, connection boxes, and other similar associated equipment shall be marked with appropriate caution signs. If equipment is exposed to physical damage from vehicular traffic, guards shall be provided to prevent such damage. Ventilating or similar openings in metal-enclosed equipment shall be designed so that foreign objects inserted through these openings will be deflected from energized parts.

Workspace about equipment

Sufficient space shall be provided and maintained about electric equipment to permit ready and safe operation and maintenance of such equipment. Where energized parts are exposed, the minimum clear workspace shall not be less than 6 feet 6 inches high (measured vertically from the floor or platform), or less than 3 feet wide (measured parallel to the equipment). The depth shall be as required in the table below. The workspace shall be adequate to permit at least a 90-degree opening of doors or hinged panels.

The minimum clear working space in front of electric equipment such as switchboards, control panels, switches, circuit breakers, motor controllers, relays, and similar equipment shall not be less than specified in the following table, unless otherwise specified. Distances shall be measured from the live parts if they are exposed or from the enclosure front or opening if the live parts are enclosed.

However, working space is not required in back of equipment such as dead front switchboards or control assemblies where there are no renewable or adjustable parts (such as fuses or switches) on the back and where connections are accessible from locations other than the back. Where rear access is required to work on de-energized parts on the back of enclosed equipment, a minimum working space of thirty (30) inches horizontally shall be provided.

Minimum Depth of Clear Working Space in Front of Electric Equipment (feet)			
Nominal voltage to ground conditions*	**(a)***	**(b)***	**(c)***
601 to 2,500	3	4	5
2,501 to 9,000	4	5	6
9,001 to 25,000	5	6	9
25,001 to 75 kV	6	8	10
Above 75kV	8	10	12

*Conditions (a), (b), and (c) are as follows: (a) Exposed live parts on one side and no live or grounded parts on the other side of the working space, or exposed live parts on both sides effectively guarded by insulating materials. Insulated wire or insulated bus bars operating at not over 300 volts are not considered live parts. (b) Exposed live parts on one side and grounded parts on the other side. Walls constructed of concrete, brick, or tiles are considered to be grounded surfaces. (c) Exposed live parts on both sides of the workspace [not guarded as provided in Condition (a)] with the operator between.
Note: For International System of Units (SI): one foot=0.3048m.

Lighting outlets and points of control

The lighting outlets shall be so arranged that persons changing lamps or making repairs on the lighting system will not be endangered by live parts or other equipment. The points of control shall be so located that persons are not likely to come in contact with any live part or moving part of the equipment while turning on the lights.

Elevation of unguarded live parts

Unguarded live parts above working spaces shall be maintained at elevations not less than specified in the following table.

Elevation of Unguarded Energized Parts Above Working Space	
Nominal voltage between phases	**Minimum elevation**
601-7,500	8 feet 6 inches
7,501-35,000	9 feet.
Over 35kV	9 feet+0.37 inches per kV above 35kV
Note: For SI units: one inch=25.4 mm; one foot=0.3048 m.	

Entrance and access to workspace

At least one entrance not less than 24 inches wide and 6 feet 6 inches high shall be provided to give access to the working space about electric equipment. On switchboard and control panels exceeding 48 inches in width, there shall be one entrance at each end of such board where practicable. Where bare energized parts at any voltage or insulated energized parts above 600 volts are located adjacent to such entrance, they shall be guarded.

References

OSHA 29 CFR 1910 Subpart R
OSHA 29 CFR 1910 Subpart S
OSHA 29 CFR 1926 Subpart K
OSHA 29 CFR 1926 Subpart V
National Electric Code

Energy Control (Lockout/Tagout)

Work activities associated with energized equipment or processes shall be controlled prior to initiating by verifying a zero-energy state.

This policy covers minimum performance standards applicable to all **MPIC .** (**MPIC .**) employees. Local practices requiring more detailed or stringent rules, or local, state or other federal requirements regarding this subject can and should be added as an addendum to this procedure as applicable.

Purpose

To establish safe practices associated with equipment or processes that involve hazardous energy sources.

Scope

Applies to all MPIC work sites, i.e., offices, client job sites, etc., that perform activities such as, but not limited to, erecting, installing, constructing, repairing, adjusting, inspecting, cleaning, operating or maintaining equipment/machines/processes whereby hazardous energy sources are involved such as accessing tanks, air handlers, etc.

Note special exception to policy: equipment/machines that have an electrical plug as the sole hazardous energy source and can reach a zero energy state by simply being unplugged are exempt from this policy, as long as control of the plug can be maintained at all times.

Definitions

Affected Employee means any **MPIC** employee who is not an Authorized Employee but is required to work in the area of equipment/machine/processes where Lockout procedures are being implemented.

Authorized Employee means any **MPIC** employee who utilizes Lockout procedures on equipment/machines/processes.

Control Mechanism means any lock or combination of locks, multi-lock hasps and/or other types of special mechanisms (chains, valve covers, breaker covers, etc.) applied to an energy-isolating device to ensure that it cannot be moved/operated.

Energy Isolating Device means a mechanical device that physically prevents the transmission or release of hazardous energy, including, but not limited to the following: a manually operated electrical circuit breaker; a disconnect switch; line valve; slide gate; similar device used to block or isolate energy.

Hazardous Energy Source means any type of energy that could injure anyone working on or near the equipment/machine/process if released as a result of work activities. Examples of hazardous energy sources include, but are not limited to the following: electrical; hydraulic (fluid/liquids); pneumatic (air); chemical;

radiation; thermal; mechanical (from stored energy, like in flywheels and springs); and mechanical (from gravity).

Lockout means the placement of a control mechanism on an energy-isolating device that ensures that the equipment/machine/process being worked on cannot be operated/initiated until the control mechanism is removed.

Other Personnel means non-MPIC personnel or visitors to any work area where MPIC. authorized employees are utilizing processes outlined in this Policy.

Operation Device means any switch, button, leaver, valve, etc. that is expressly intended for the starting or initiation of the equipment/machine/process.

Zero Energy State means the equipment/machine/process has been purged of and blocked from hazardous energy sources, that is no hazardous energy is present.

Requirements

Identifying Applicable Equipment/Machines/Processes

The following shall be documented:

- Owned and common/typical equipment/machine/processes where this Policy applies
- Owned and known/common/typical energy isolating devices for applicable procedures related to the identified equipment/machine/processes
- Applicable lockout mechanisms necessary for applicable energy control procedures related to the identified equipment/machine/processes
- Applicable energy control procedures related to the identified equipment/machine/processes.

This information shall be developed by the Safety Officer, posted on/near machine and kept on file, utilized within the training required for Authorized employees, and updated as equipment/machines/processes and lockout mechanisms are introduced. A sample format is found in Attachment 16-1 (Energy Control Procedure Form).

Training

Initial Training

Each affected employee shall receive training during orientation on the procedures of this Policy Section for the expressed purpose of ensuring awareness of the prohibition of removing control mechanisms and/or operation/initiation of applicable equipment/machines/processes.

Each authorized employee shall receive special training in the recognition of hazardous energy sources, the specific and/or common equipment/machines/ processes within respective work areas, types of necessary control mechanisms, and the procedures of this Policy Section.

Annual Refresher Training

Both affected and authorized employees shall receive annual re-training.

Other Re-training

Any affected or authorized employee shall be immediately re-trained if their actions during related work activities violated any portion of this Policy.

Lockout Procedures (in order of action)

Preparation

Authorized employees shall verbally notify affected employees (MPIC)-employed or anyone considered as Other Personnel) of the procedures to be used BEFORE commencing other work activities.

Lockout Application

Perform the actions BEFORE commencing other work activities, in the following order:

- Identify known operation devices for the equipment/machine/process, and commit all of them to the 'off' or 'neutral' position
- Identify known energy controlling devices for the equipment/machine/process, commit all of them to the 'off' or 'neutral' position following established machine shutdown procedures, and utilize a lockout device to secure them in the 'off' or 'neutral' position

  Note 1: tag the lockout mechanism if multiple authorized employees are present or if the work will not be completed within the normal work shift. In such cases, mark the tag with your name and contact information.

  Note 2: If the proper lockout procedures or a hazardous energy source is unknown, authorized employees shall not conduct further work activities and shall immediately contact their supervisor for assistance/instructions on proceeding.

- Identify and neutralize all potential stored energy sources such as gravity, springs, electrical capacitors, hydraulic pressure and compressed gases.
- Visually inspect the equipment/machine/process and/or use electronic or mechanical means to verify that a zero energy state has been reached

- Ensure that affected and authorized employees are clear from the equipment/machine/process, then try to activate the equipment/machine/process by initiating identified operation devices to ensure that a zero energy state has been reached. Apply additional lockouts to any energy controlling devices having unprotected energy sources and repeat this procedure point until a zero energy state is obtained. Proceed with the required work activities for the equipment/machine/ process when the zero energy state is obtained
- If a zero energy state cannot be reached, contact your supervisor for instructions

Release from Lockout

Authorized employees shall visually inspect the equipment/machine/ process to ensure that personnel and tools have been cleared and/or removed.

Then, only the authorized employee who placed the lockout mechanism into use can remove it. See Emergency Lock Removal Procedures.

Testing/Diagnosis/Re-positioning Procedures During Lockout

Perform the actions, in the following order:

- Clear the equipment/machine/process of tools, materials and personnel
- remove the applicable lockout mechanisms from the energy isolating device
- Energize the applicable portion of the equipment/machine/process
- Proceed with the test/diagnosis/re-positioning
- De-energize the equipment/machine/process
- Re-apply the applicable lockout mechanisms to the energy isolating device
- Re-test operation devices to ensure a zero energy state is in place
- Continue work and repeat this procedure as necessary

Emergency Lock Removal Procedures

Attachment 16-2 Lock Removal Procedures shall be utilized for documentation.

Every effort shall be made to personally contact authorized employees prior to their lock being removed.

The direct supervisor of an authorized employee is the first person allowed to remove their lock. If the applicable supervisor is not physically capable, only another authorized employee can be provided with the authority, directly by the applicable supervisor only.

In either event, the direct supervisor of the authorized employee who originally placed the lockout mechanism(s) to be removed shall inform that employee of the removal BEFORE that employee returns to that work area. This communication shall be documented on Attachment 16-2. Messages (oral, written, or forwarded) are prohibited.

Lockout Control Mechanisms

Locks

Each authorized employee shall be issued a lock (for locks) individually keyed and manufactured of a standard size, shape and/or color. Each Branch shall identify this as an Addendum to this manual section.

Each Branch shall require a list of employees and corresponding lock numbers maintained at the work site. Such lists shall be maintained by the Safety Officer or designee.

Multi-lock Hasps

The following steps shall be followed to accommodate multiple authorized employees on a single project:

- A multi-lock hasp shall be utilized when more than one authorized employee is performing work on the equipment/machine/process.
- The senior MPIC authorized employee working on the specific project shall be responsible for assuring that other authorized employees working on the project attach their personal lockout device prior to work being performed.
- The senior MPIC authorized employee working on the specific project shall also be responsible for assuring the continuity of the lockout device during shift changes and/or personnel changes unless formally relieved of that responsibility by the Project Manager. At which time, the Project Manager will obtain the responsibility for the integrity of the lockout device.
- When a traditional multi-lock hasp will not provide enough attachment points for authorized employees, another method shall be established (e.g. adding another multi-lock hasp, lockout box, lockout cabinet, etc.) as per the direction of the senior MPIC employee working on the specific project.

Other Specialized Equipment

Tags (when necessary) shall be durable, standardized in type and have areas to indicate the employee's name and contact information.

Multi-Contractor Site/Subcontractor

Authorized employees shall inform the supervision of other employers in a multi-employer work site of all aspects covered by this manual section.

Subcontractors for MPIC are required to meet or exceed all aspects covered by this manual section.

Policy Review and Certification

Annually, this manual section (and applicable addendums and related training programs) shall be reviewed and documented (certified) by the Safety Officer for updating and verifying the use of these procedures. Inspections verifying that these procedures are being followed shall be a component of this review.

References

OSHA 29 CFR 1910.147
OSHA 29 CFR 1926.417

Attachment 16-1 - Energy Control Procedure Form

Department: _____ Date: _____

Equipment Identification: _____

Person Completing This Form: _____

Location and Type of Energy Sources

Electrical:	
Mechanical:	
Pneumatic:	
Hydraulic:	
Other:	

Specific Steps To Follow to Complete Lockout

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

Special Hazards

Attachment 16-2 - Lock Removal Procedure Form

Equipment/Machine/Process: _____

Lock Number: _____

Authorized Employee Name: _____

Location: _____

Consistent with MPIC Policy Section 16 – Energy Control – Lockout, only the direct Supervisor of an Authorized Employee shall remove a Energy Control Device (Lock) after all efforts have been made to assure the area in question is clear, the Authorized Employee is not available to remove the lock themselves and this Procedure has been completed.

Check each item that applies and sign prior to Energy Control Device Removal
□ It is absolutely necessary that the equipment/machine/process be re-engaged before the authorized employee can return to personally remove the lock.
□ Every attempt has been made to locate the Authorized Employee so they can remove their Energy Control Device (Lock).
□ The direct supervisor of the Authorized Employee or a direct designee has personally reviewed the equipment/machine/process to assure the area is clear of people, tools or obstructions.
□ The Energy Control Device (Lock) will be removed by the Authorized Employee's direct supervisor or a direct designee only.

_____ _____
Direct Supervisor or (direct) Designee Date of Removal

□ The Authorized Employee acknowledges the lock removal.

_____ _____
Authorized Employee (whose lock was removed) Date

_____ _____
Direct Supervisor or (direct) Designee Date

Hazard Communication Program

It is the policy of MPIC that all employees are entitled to be informed of the known health hazards of any hazardous chemical used in the work place.

This policy covers minimum performance standards applicable to all MPIC employees and locations. Local practices requiring more detailed or stringent rules or local, state or other federal requirements regarding this subject can and should be added as an addendum to this procedure as applicable.

Purpose

The following information represents the written Hazard Communication Program for MPIC as required by the Occupational Safety and Health Administration Standards 29 CFR 1910.1200 and 29 CFR 1926.59. The purpose of this written program is to establish MPIC 's policy, procedures, and responsibilities for dissemination of information to employees regarding the safe use and handling of hazardous chemicals to which they are exposed or potentially exposed.

Scope

This Hazard Communication Program shall apply to all MPIC employees who are exposed or potentially exposed to hazardous chemicals. This includes employees who may be exposed under normal conditions of use or in a foreseeable emergency.

This manual section and its Addendum shall serve as the MPIC written Hazard Communication program.

Note: The following items are excluded from this program and the requirement to inventory:

- Any hazardous waste defined by the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976
- Tobacco or tobacco products
- Wood or wood products
- Articles, defined as:
  - A manufactured item which is formed to a specific shape or design during manufacturing, and
  - Which has end use function(s) dependent in whole or in part upon its shape or design during end use, and
  - Which does not release, or otherwise result in exposure to a hazardous chemical during normal use.
- Food, drugs, cosmetics, or alcoholic beverage in a retail establishment which are packaged for sale to consumers and food, drugs, cosmetics intended for personal consumption by employees in the workplace.
- Any consumer product or hazardous substance, as those defined in the consumer Product Safety Act and Federal Hazardous Substances Act where the product is used in the work place in the same manner as normal consumer use, and which is not a greater exposure than experienced by consumers.

Definitions

Acute health hazard means a hazard that usually occurs rapidly following a brief exposure, such as a skin rash or eye irritation.

Article means a manufactured item which:

- is formed to a specific shape and design during manufacture
- has end use functions dependent upon its shape or design during end use, and
- under normal use conditions, does not release more than trace amounts of a hazardous chemical and does not pose a physical hazard or health risk to employees

Chemical means any element, chemical compound or mixture of elements and/or compounds.

Chemical manufacturer means an employer with a workplace where chemicals are produced for use or distribution.

Chemical name means a name that will clearly identify the chemical for the purpose of hazard evaluation.

Chronic health hazard means a hazard that is continuous and follows repeated long-term exposure - such as lung cancer or kidney disease.

Common name means a brand name used to identify a chemical by other than its chemical name.

Container means a bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical.

Employee means a worker who may be exposed to hazardous chemicals under normal operating conditions or in foreseeable emergencies.

Employer means a person engaged in a business where chemicals are used, distributed, or produced for use or distribution, including a contractor or subcontractor.

Foreseeable emergency means any potential occurrence that could result in an uncontrollable release of a hazardous chemical in the workplace.

Hazardous chemical means any chemical that is a physical hazard or a health hazard.

Hazard warning means any words, pictures, symbols or combination or words, pictures, or symbols appearing on a label or other appropriate form of warning which convey the specific physical or health hazards.

Health hazard means a chemical for which there is statistically significant evidence based on a least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur to exposed employees.

Label means any written, printed, or graphic material displayed on or affixed to containers of hazardous chemicals.

Safety Data Sheet (SDS) means written or printed material concerning a hazardous chemical.

Physical Hazards means a chemical that acts outside the body to produce a dangerous situation. Flammable or explosive chemicals pose physical hazards.

Responsible party means someone who can provide additional information on the hazardous chemical and appropriate emergency procedures, if necessary.

Use means to package, handle, react, emit, extract, generate a byproduct, or transfer.

Requirements

Responsibilities

The Safety Officer is responsible for implementing the Hazard Communication Program. Specifically, the Safety Officer will:

- Assemble and maintain the master inventory of chemicals.
- Develop and conduct appropriate training and information programs to promote methods for the safe use and handling of hazardous chemicals for current and new employees.
- Provide technical guidance to supervisors and personnel at all levels of responsibility on matters pertaining to health and safety.
- Inspect laboratories, garages, and other work areas semi-annually to assess compliance with policies for the safe conduct of work involving hazardous chemicals.
- Investigate reported accidents which result in the exposure of personnel or the environment to hazardous chemicals and recommend corrective action to reduce the potential for reoccurrence.
- Supervise decontamination operations where accidents have resulted in significant contamination of laboratory and general work areas.
- Verify that each Branch and Division Manager is meeting labeling and Safety Data Sheet requirements as specified in this program.
- Investigate and report to the Regional Safety Coordinator any problems pertaining to the operation and implementation of safe work practices and this Hazard Communication Program.
- Maintain appropriate documentation for the Hazard Communication Program.

Operations Manager is responsible for ensuring compliance with requirements of the Hazard Communication Program as it relates to their areas of operational responsibility. Specifically, he or she is responsible for:

- Acquiring the knowledge and information needed to recognize and control chemical hazards in the work place.
- Ensuring that inventory, training, labeling, and SDS requirements of the program are met.

- Selecting and employing work practices and engineering controls that reduce the potential for exposure to hazardous chemicals to the lowest practical level.
- Ensuring that employees, for whom the supervisor is responsible, receive training as described in this section. This shall include instructing employees in the use of site- or task-specific work practices, engineering controls, and procedures for prevention of, and response to, accidents and exposures involving hazardous chemicals.
- Supervising the safety performance of his or her staff to ensure that the required work practices and engineering controls are employed.
- Arranging for appropriate medical attention and reporting to the Safety Officer any incident which results in potential overexposure or injury from a hazardous chemical.
- Investigating and reporting to the Safety Officer any problems pertaining to the operation and implementation of safe work practices and this Hazard Communication Program.

Chemicals - Handling, Storage, Transport & Disposal

Because of the toxicity, flammability, reactivity, and corrosivity hazards of some of the chemicals that MPIC personnel utilize, it is important that usage guidelines be followed. Not only must chemicals be carefully handled for safety reasons but also very strict regulatory and legal protocols dictate that MPIC store, transport, and dispose of such chemicals in a very specific manner.

The following section applies to all employees who utilize chemical substances, collect chemically contaminated samples, and generate chemical wastes.

Handling

General

- When handling any chemical, contaminated sample, or waste material, MPIC employees **must** utilize appropriate protective equipment. The type and amount of equipment will vary depending upon the substance. Specific recommendations can be obtained by consulting Safety Data Sheets, reference books, or by contacting the Safety Department. More details regarding protective equipment policy can be found in section 2 of this manual.
- When working with or around any chemical substance, become familiar with the chemical and the hazards associated with it. This information can be obtained from Safety Data Sheets.
- When using any chemical, ensure that its container is properly labeled per this policy.
- Large bottles of liquid chemicals (e.g. 4-liter bottle of acetone) should be placed in a non-breakable protective caddy when in use.
- When using chemicals in the laboratory, etc., only keep the amount of chemicals at hand that are necessary to complete the task.
- Volatile and/or toxic chemicals should be handled only in a well-ventilated area. Preferably this should be a chemical fume hood exhausted outside the building.
- Emergency equipment such as first aid kits, fire extinguishers, eyewash, and emergency shower must be readily available within close proximity.

Chemical Storage

Chemicals should be stored by their reactive class with incompatibles physically separated from one another. The following sections cover some of the major chemical classifications and specific requirements.

Storage Areas

Hazardous chemical substances must be stored in specifically designated storage areas or cabinets which meet the following safety criteria:

- Storage areas/cabinets must be marked or identified as such.
- Storage areas/cabinets should be secured whenever not in use and must be available only to authorized personnel.
- Storage areas must be well illuminated and well ventilated with exhaust air leaving the building.
- Open flames, smoking, and localized heating units are not permitted in storage areas.
- Cleanliness and order must be maintained in the storage areas. Packing material and empty cartons should be removed promptly from the stockroom.
- A class A, B, C-rated fire extinguisher must be mounted within 50 feet of the chemical storage area. If there are chemicals for which an A, B, C fire extinguisher is not effective, an additional fire extinguisher of the appropriate rating must also be mounted within 50 feet.
- No chemical storage is permitted on the floor or above eye level.
- Chemical containers must not be crowded onto storeroom shelves. Containers must not protrude over the shelf edges.
- All shelving must be level and stable.
- Laboratory fume hoods must not be used for chemical storage.

Storage Containers

- All chemical containers must be labeled as specified under the labeling section of this policy.
- Storage containers must be inspected periodically for rust, corrosion, or leakage.
- Damaged containers must be removed or repaired immediately.
- Chemicals must be kept in airtight containers. Beakers or open vessels are not acceptable for storage.

Corrosives

- Acids and caustics must be physically separated in storage.
- Oxidizing acids (e.g. nitric, perchloric, sulfuric) must be segregated from organic acids (e.g. acetic, butyric, citric, oleic, oxalic, stearic), flammable, and combustible materials.
- Acids must be separated from active metals such as sodium, magnesium, and potassium.
- Segregate acids from chemicals which can generate toxic gases on contact (e.g. sodium cyanide, iron sulfide, etc.).

- Corrosives should be stored in glass or polyethylene containers rather than metal, wood, or other potentially reactive containers.
- Bottle carriers should be used when carrying corrosives from the storage area.

Flammables

- OSHA/NFPA-specified safety cabinets with FM or UL approval should be used for the storage of flammable liquids. This includes cans of gasoline, mineral spirits, etc.
- Only approved refrigerators should be used for storing highly volatile flammable liquids.
- In areas with highly volatile flammable atmospheres, all electrical service equipment must be explosion proof for the appropriate class and group of flammable.
- Flammable and combustible liquids shall be stored in approved containers [refer to 29 CFR 1910.106(d)(2) for details]. Containers shall be kept in closed when not in use.
- Flammable liquids in large quantities (over 4 liters) should be kept in UL or FM approved safety cans with flash arresters. **This includes portable gasoline containers.**
- Extreme care must be exercised when transferring flammable liquids from one container to another. To prevent a static electricity discharge, bulk containers **MUST** be grounded. Transfer containers must then be bonded, via a bonding cable or metal pouring spout, to the bulk container.

Oxidizers

Many oxidizers can be extremely reactive when mixed with incompatible substances. Some oxidizers may decompose and react on their own if exposed to heat, light, shock, or friction. Special storage precautions and care must be exercised when using such materials.

Examples of oxidizers include many acids (e.g. nitric, perchloric, sulfuric), hydrogen peroxide, chlorine, fluorine, nitrous oxide, and compressed oxygen. Refer to labels and SDS to find out if a chemical is an oxidizer.

- Store oxidizers away from flammables, combustibles, and reducing agents (e.g. zinc, alkaline metals, etc.).
- Peroxide forming chemicals (e.g. hydrogen peroxide, ethyl ether, etc.) must be stored in airtight containers in a dark, cool, and dry place.
- Peroxide-forming chemicals must be periodically inspected and disposed of before the date of expected peroxide formation.
- **No container should be handled if there is suspicion of peroxide contamination. Immediately contact the Safety Officer in such circumstances.**

Compressed Gases

Not only do compressed gas cylinders frequently contain hazardous substances, but the additional high pressure hazard warrants the need to exercise extreme caution.

- Bas cylinders (including small calibration cylinders) must be appropriately labeled.
- Gas cylinders must be securely chained to a stationary structure in an upright position. Small calibration gas cylinders must be stored in lockable cabinets.
- Gas cylinders must be stored away from direct heat, open flames, sparks, highly flammable substances, and corrosives.

SPECIAL NOTE:

Compressed oxygen cylinders that are <u>in storage</u> must be stored at least 20 feet from compressed fuel gas cylinders and flammables (especially oil and grease) or must be physically separated by a 5' non-combustible barrier.

- Empty gas cylinders should be marked as such and stored separately from full cylinders.
- When gas cylinders are not in use, the valve cap must be securely in place to protect the valve stem and valve.
- Use a hand truck to transport gas cylinders to and from the storage area.

Waste Chemical Storage

Chemical wastes are not produced on a routine basis at MPIC. The waste materials that are produced must be stored in a safe and secure manner until appropriate disposal can be arranged. Hazardous waste from project sites (e.g. drums of contaminated soil, water, gasoline, etc.) must not be taken to MPIC**.** Appropriate disposal arrangements should be made for pick up from the project site.

Waste Chemical Containers

Waste chemicals must be stored in a manner consistent with the criteria outlined in the Chemical Storage section of this procedure.

- It is extremely important that waste containers (drums, cans, etc.) are <u>clearly</u> labeled as to their contents.
- The containers themselves must be compatible and sturdy. **For large volumes, glass bottles or jars are inappropriate waste containers because of the potential for breakage.**
- Safety cans should be utilized for the collection of waste flammables.

Hazardous Waste Storage Areas

The following guidelines should be utilized to safely store hazardous wastes at MPIC.

- Only personnel specifically trained on the hazards of the waste material shall be allowed to handle it.
- Personnel must be properly protected with appropriate clothing and gloves and, if necessary, respirator when handling or transferring hazardous waste.

- The waste storage area must be non-cluttered and spacious enough to allow safe handling and placement of containers.
- The storage area must be well ventilated to prevent a build up of toxic or flammable vapors. Natural ventilation may be used (outside storage) or an explosion-proof exhaust system may be used.
- In order to avoid container leakage, pressure build up, hazardous polymerization, etc., wastes should be stored out of the rain, snow, high heat, or extreme cold.
- For large quantities of hazardous waste, a secondary containment berm or tray in the storage area is necessary to provide containment in the event of leakage or spills. The containment should be capable of holding 10-15% of the waste's volume.
- All electrical service, including lighting, in a waste storage area which contains highly flammable materials must be explosion proof.
- All hazardous waste storage areas must be secured to prevent unauthorized entry.

Disposal

- All waste chemicals and unneeded or outdated chemicals must be disposed of in an appropriate manner by a qualified disposal company.
- **Chemical waste or contaminated samples must not be disposed of in solid waste dumpsters or via the sanitary sewer unless specific approval has been received from all governing state and local regulatory agencies.**
- No chemical waste must be allowed to accumulate at MPIC for longer than 90 days.
- Manifests from all chemicals being disposed of must be retained indefinitely at MPIC

Transport

Because of safety and liability concerns, no MPIC employee shall transport hazardous wastes over the road. Appropriate arrangements must be made prior to job start up regarding the ultimate disposal of any wastes generated on site.

Quantities of chemical products needed to conduct routine operations such as gasoline, acetone, methanol, etc. may be transported as long as the following conditions are met.

General Requirements

- Containers must be properly labeled as per the requirements of the labeling section of this policy.
- Gasoline must be transported in UL or FM approved safety cans with flash arresters.
- Chemical containers must be air-tight and placed in non-breakable protective enclosures.
- Large tanks (e.g. over 1001 lbs. or roughly 100 gallons) for gasoline, diesel fuel or other flammables / combustibles in support vehicles must be securely mounted and placarded with the appropriate DOT placard information and number.
- Safety Data Sheets for the chemicals must be transported in the vehicle

Written Hazard Communications (Hazcom) Program

An evaluation of the effectiveness of the Hazard Communication Program shall be conducted annually by the Safety Officer.

Hazard Communication (HAZCOM) Coordinator

A HAZCOM Coordinator shall be the Safety Officer or a designated person or the senior person at any work site. The HAZCOM Coordinator shall be knowledgeable of requirements of the OSHA Hazard Communications Standard.

Hazard Determination and Chemical Inventories

MPIC and fixed jobsites must maintain an inventory of the chemicals known to be present in the work place. Each inventory shall list the hazardous chemicals/products by an identity that is referenced on the appropriate Safety Data Sheet and indicate the location of the chemicals/products. Each Project Manager is responsible for coMPICling the inventory for his or her own hazardous chemicals. Inventories are assembled by the Safety Officer into a master inventory.

The Project Manager is responsible for notifying the Safety Officer and employees, within his or her department, within 30 days of the receipt of a new chemical. The Safety Officer must update the master inventory as departmental chemical inventories are updated.

The hazardous chemical inventories are to be audited annually by the Safety Officer to verify that the Division Managers have appropriately accounted for and reported their hazardous chemicals.

Labels and other forms of warnings shall contain:

- The identity of the hazardous chemical(s)
- Appropriate hazard warnings
- Name and address of the chemical manufacturer, importer, or other responsible party

Chemicals received by each department will be labeled by the Project Manager unless an appropriate label exists from the manufacturer. Employees should not deface or remove existing labels.

Transfer containers (including safety cans, etc.) must also be labeled. The only exception is for portable containers into which hazardous chemicals are transferred from labeled containers and are intended for the immediate (within the same work shift) use by the employee who performed the transfer.

A label audit shall be performed annually by the Safety Officer to ensure that containers of hazardous materials have been properly labeled.

Safety Data Sheets (SDS)

The most current SDS available shall be utilized.

A master set of SDSs shall be maintained at MPIC office.
SDSs for a specific work area shall be established, maintained and made available to employees in designated locations within these areas. Such coMPIClations can be unique to the work area, e.g. sets for Service Technicians on vehicles, tool rooms, shop areas, long-term service site, etc.

MPIC maintains copies of Safety Data Sheets for each hazardous chemical used. The SDS provides information for employee and employer review including:

- Identification
- Hazard(s) Identification
- Composition/information on ingredients
- First-aid measures
- Fire-fighting measures
- Accidental release measures
- Handling and storage
- Exposure controls/personal protection
- Physical and chemical properties
- Stability and reactivity
- Toxicological information
- Ecological information
- Disposal considerations
- Transport information
- Regulatory information
- Other information

Chemical manufacturers or distributors are required by the Hazard Communication Standard to supply a complete SDS for each hazardous chemical sent to MPIC. It is the responsibility of the Project Manager to contact all manufacturers and distributors who do not send an SDS or who send an inadequate SDS.

A written request for SDS may be made to the manufacturer using the form letter found in Appendix 2-1. A copy of any incomplete or inadequate SDS should be attached to the request when sent to the manufacturer or distributor. Each Project Manager is responsible for informing the Safety Officer when SDS are added or deleted.

Employee Information and Training

MPIC shall provide employees with effective information and training on hazardous chemicals in their work area at the time of their initial assignment, and whenever a new physical or health hazard the employees have not been trained about is introduced into their work area. Information and training may be designed to cover categories of hazards (i.e., flammability, carcinogenicity, etc.) or specific chemicals.

Chemical-specific information must always be available through labels and Safety Data Sheets. Labels and SDSs shall be legible in English. However, for any non-English speaking employees, information and training shall be presented in their language as well. The information and training shall consist of at least the following:

Information

Employees shall be informed of:

- The requirements of 29 CFR 1910.1200;
- Any operations in their work area where hazardous chemicals are present; and
- The location and availability of the written hazard communication program, including the required list(s) of hazardous chemicals (inventory), and Safety Data Sheets required by 29 CFR 1910.1200.

Training

Employee training shall include at least:

- Employee's "Right to Know", and general requirements of 1910.1200;
- The physical and health hazards of the specific chemicals or classes of chemicals in the work area;
- The details of this Hazard Communication Program, including an explanation of the labeling system and the Safety Data Sheets, and how employees can obtain and use the appropriate hazard information;
- Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as air sampling, direct reading instruments, visual appearance or odors of hazardous chemicals when being released, etc.); and,
- The measures employees can take to protect themselves from the hazards, such as appropriate work practices, emergency procedures, engineering controls, and personal protective equipment.
- This information and training will be conducted by the Safety Officer with input and assistance from the employee's supervisor. Web-based or computer-based training programs are acceptable provided that completion of the course and any supplemental site-specific training will satisfy OSHA training requirements, and the course is approved by the Corporate Director of Health and Safety.

Training Documentation

Each MPIC employee trained in hazard communication must sign off on the training acknowledgment form. Copies of this document are to be issued to the employee and the original shall be retained in the employee's personnel file.

Owner, Contractor and Multi-Employer Worksites

Contractors/employers entering MPIC whose employees may be exposed to chemicals controlled/owned by MPIC will be informed by the Safety Officer or their designee of the MPIC. Hazard Communication Program. Where MPIC is working at a multi-employer workplace, the on-site individual in charge of MPIC 's operations

will inform any other contractor/employer whose employees may be exposed to chemicals controlled/owned by MPIC of the MPIC . Hazard Communication Program. This information will include:

- The location and contents of the written Hazard Communication Program;
- The location of and on-site access to Safety Data Sheets;
- The precautionary measures that need to be taken to protect employees during the workplace's normal operating conditions and in foreseeable emergencies; and,
- The labeling system used to label MPIC's chemicals.

A "Multi-Employer Workplace Hazard Communication Information Sheet" will be filled out by the Safety Officer or on-site representative and presented to the contractor/employer for their signature.

Any employer/contractor must also alert MPIC of the hazards of chemicals brought to the office/work site which MPIC employees may be exposed to. This may include paints, solvents, or even welding fumes. The contractor must make readily available SDSs for these chemicals.

Non-Routine Tasks

Hazard Communication plans for non-routine tasks shall include:

- the method used to identify the hazards of non-routine tasks
- the methods used to inform employees of these hazards
- a description of special procedures required for hazardous non-routine tasks

In the event of non-routine tasks (e.g. spill cleanup, unique sampling or analytical procedures, etc.), the Project Manager or Safety Officer must ensure that the affected employee(s) has been properly briefed regarding the chemical hazards associated with the operation. Safety Data Sheets for the chemicals must be made available.

Due to the varied workplaces MPIC employees may occupy, there is a potential of encountering unlabeled pipes which may contain hazardous chemicals. As a precaution, MPIC employees will consider all unlabeled pipes to contain hazardous chemicals. If any leaks or releases from unlabeled pipes are encountered, MPIC employees will immediately leave the work area and report the incident to the appropriate facility manager.

MPIC employees will only reenter these areas after the leak/release has been eliminated and an appropriate clean-up conducted or if the pipe contents are verified to be non-hazardous.

References

OSHA 29 CFR 1910.1200
OSHA 29 CFR 1926.59

Confined Space Policy

Systems shall be utilized to ensure the safety of employees who are required to enter confined spaces. Only those MPIC. Employees who have received specifically required training and certification on confined space entry shall be allowed to enter and/or attend a confined space. This program will be reviewed annually by the Safety Officer and revised as necessary.

This policy covers minimum performance standards applicable to all MPIC employees and locations. Local practices requiring more detailed or stringent rules, or local, state or other federal requirements regarding this subject can and should be added as an addendum to this procedure as applicable.

Purpose

To set forth procedures for the safe entry to confined spaces.

Scope

Applies to all work sites, i.e., MPIC office, client job sites, etc., involving confined space entry.

Definitions

Attendant means an individual stationed outside permitted confined spaces that monitors the authorized entrants and who performs all attendants' assigned duties.

Authorized Entrant means an individual who is authorized to enter a confined space.

Blanking or blinding means an absolute closure of a pipe, line, or duct by the fastening of a solid plate (such as a spectacle blind or a skillet blind) that completely covers the bore and that is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.

Confined space means a space that is large enough and so configured that an individual can enter and perform assigned work; has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry.); and is not designed for continuous occupancy. A permit required confined space has one or more of the following characteristics:

- Contains or has a potential to contain a hazardous atmosphere
- Contains a material that has the potential for engulfing an entrant
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross- section
- Contains any other recognized serious safety or health hazard

Confined Space Permit means a written or printed document that allows persons to enter into a permitted confined space.

Double block and bleed means the closure of a line, duct, or pipe by closing and locking or tagging two in-line valves and by opening and locking or tagging a drain or vent valve in the line between the two closed valves.

Emergency means any occurrence (including any failure of hazard control or monitoring equipment) or event internal or external to the permitted confined space that could endanger entrants.

Engulfment means the surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, or crushing.

Entry means the action by which a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.

Entry supervisor means the person responsible for determining if acceptable entry conditions are present at a permitted confined space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this section. An entry supervisor may also be acting as an attendant.

Hazardous atmosphere means an atmosphere that may expose persons to the risk of death, incapacitation, impairment of ability to self-rescue (that is, escape unaided from a permit space), injury, or acute illness.

Line breaking means the intentional opening of a pipe, line, or duct that is or has been carrying flammable, corrosive, or toxic material, an inert gas, or any fluid at a volume, pressure, or temperature capable of causing injury.

Permit-required confined space program (permit space program) means the employer's overall program for controlling, and, where appropriate, for protecting employees from, permit space hazards and for regulating employee entry into permit spaces.

Permit system means a written procedure for preparing and issuing permits for entry and for returning the permit space to service following termination of entry.

Prohibited condition means any condition in a permit space that is not allowed by the permit during the period when entry is authorized.

Oxygen deficient atmosphere means an atmosphere containing less than 19.5 percent oxygen by volume.

Oxygen enriched atmosphere means an atmosphere containing more than 23.5 percent oxygen by volume.

Rescue service means the personnel designated to rescue employees from permit spaces.

Retrieval system means the equipment (including a retrieval line, chest or full-body harness, wristlets, if appropriate, and a lifting device or anchor) used for non-entry rescue of persons from permit spaces.

Testing means the process by which the hazards that may confront entrants of a permit space are identified and evaluated. Testing includes specifying the tests that are to be performed in the permit space.

Requirements

General

Employees shall be informed of identified permit required confined spaces for the work site as they are identified.

Only authorized personnel may be permitted to enter a permit required confined space.

The Confined Space Pre-Job Assessment Form (Attachment 18-1) must be completed (in addition to the Site Safety Plan requirements) for each potential confined space identified where entry is planned. Refer to **Definitions** - Confined Space.

Danger signs or other equivalent means shall be used to warn of existing confined spaces that are accessible by employees and others. The wording shall be " DANGER-PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER" or other equivalent language.

Required safety equipment shall be at the confined space work area, in working order, and instruments calibrated.

Initial Evaluation of Confined Spaces

Confined spaces shall be considered as permit required confined spaces until a competent person conducts an initial evaluation of the work site to identify permit required confined spaces. This evaluation shall be recorded on the Confined Space Pre-Job Assessment Form (Attachment 18-1). Confined spaces shall be classified as follows:

- Non-Hazardous
- Hazardous due to work task
- Hazardous due to internal condition

If the work site contains permit required confined spaces, danger signs stating "DANGER CONFINED SPACE ENTER BY PERMIT ONLY" or equivalent shall be posted to inform employees of the existence and location of the spaces. Bilingual signs shall be posted as necessary.

Reclassification or Canceling of Permit Required Spaces

Permit required confined spaces shall be reclassified as nonpermit spaces under the following circumstances:

- The space has no actual or potential atmospheric hazards and if hazards within the space are eliminated without entry into the space
- If testing and inspection during entry demonstrates that the hazards within the space have been eliminated and remain eliminated
- If the permit required confined space is to be reclassified as a non-permit space, the basis for determining that hazards have been eliminated shall be documented on Attachment 18-2.

- If a hazard returns, personnel shall evacuate the space and the space shall be reevaluated
- If new hazards are identified that are not part of the original permit, personnel shall immediately evacuate the space and the confined space shall be re-evaluated
- Cancelled permits shall be kept on file for a period of at least 12 months and reviewed to determine problems encountered.

Confined Space Entry Form

The responsible supervisor shall ensure that a Confined Space Entry Form (reference Attachment 18-3) is completed prior to the entry of any permit required confined space. Completion of this form involves the following activities:

- Assessing hazards
- Atmospheric testing
- Identification of qualified entrants
- Identification of attendant(s).
- Identification of entry supervisor
- Establishment of Rescue method and Rescue Service
- De-energizing systems
- Cleaning of confined spaces
- Types of equipment required
- Hazards that may be generated through work activities
- Communication methods
- Entrants are qualified

Confined Space Permits are valid for the work period or work shift and become void and shall be reissued when:

- There is an unplanned interruption in the work process
- The surrounding conditions change that introduce a new hazard
- Personnel leave the space to perform other work
- The work space is left unattended
- The work period (normal time a person or crew is scheduled to work during that day) ends
- When new crew assumes the work assignments of the existing work crew

Permits are not void during any single work period when crewmembers are added to the existing crew or when crewmembers are replaced on a planned rotational basis and the provisions of the permit are met including training and instructions.

Permits become void when the scope of work exceeds the definition of work defined on the permit, and when work is required to be completed that is not covered by the permit.

Confined Space Permits shall be posted at the confined space work area until the work is completed. At the conclusion of work, the permit shall be returned to the issuer (i.e. Entry Supervisor, client, etc.).

Completed confined space permits shall be kept for a minimum of 12 months and until a review of the confined space permit program is completed.

Atmospheric Testing

Atmospheric conditions of a confined space shall be tested with calibrated equipment prior to entry of personnel and as identified by the Initial Evaluation of Confined Spaces. Atmospheric testing shall be completed as indicated below and recorded on the Entry Permit:

- Oxygen content shall be tested. The acceptable range is 19.5 to 23.5 percent
- Test for combustible gas and vapors. Acceptable range is 0 to 10 percent of the Lower Flammable Limit (or Lower Explosive Limit). Record readings on the Entry Permit
- Check for toxic gases and airborne combustibles (i.e. dusts) as identified by the initial determination of confined spaces (5.2 of this section). Safe operating levels can be determined from the Permissible Exposure Level (PEL) as listed in OSHA 29 CFR 1910.1000, applicable Safety Data Sheets (SDSs) or as provided by the client
- Entrants and/or attendants may request additional monitoring at any time

Pre Entry (occurring prior to entry)

Only those persons receiving specifically required training and certification on confined space entry shall be allowed to enter and/or attend a confined space. This training shall be documented at orientation and at the required pre-job meeting (see Confined Space Pre-Job Assessment Form – Attachment 18-1) defining the specific requirements of the confined space being entered. Annual refresher training shall be conducted for all applicable MPIC personnel to include emergency rescue drills.

Persons who enter confined space, Attendant(s), and Entry Supervisor shall receive the following minimum instructions concerning the confined space:

- How to recognize symptoms of the specific potential hazards of the confined space
- The consequences of exposure to potential hazards
- When to evacuate the confined space
- Adhering to instruction of the Attendant

- Evacuating when alarms sound
- How communications will be maintained
- What to do if an exposure occurs or there is a release of a substance
- Shutting off tools during an emergency

Sources of energy or contaminants shall be controlled, such as:

- Electrical energy
- Pressurized systems such as pipelines and vessels are isolated through double blocking, blinding, bleeding, and depressurization
- Extreme heat and extreme cold conditions

Pre-entry atmospheric testing shall be completed.

The method of ventilating the confined space shall be established.

The approved tools shall be identified and staged at or near the entry point of the confined space. Tools, electrical tools and lighting systems shall be approved for use in confined spaces as identified by the Initial Evaluation of confined spaces.

Depending upon the Pre-Job Assessment (see Attachment 18-1), lighting and electrical equipment may be either low voltage (50V or less), or conventional 120V portable lamps and tools if powered by approved groundfault circuit interrupter devices and the work is not an electrically hazardous location. Pneumatic equipment may be used instead of electrical equipment.

Required rescue procedures and rescue equipment that shall be staged at the confined space.

The safe methods to enter, exit, and escape for personnel (including rescue personnel during retrieval) working in a permit-required confined space shall be developed during the job planning phase, specified on, and included, as needed, on the entry permit.

Personnel have been issued required personal protective equipment (PPE).

Persons who enter confined spaces shall be logged using the Confined Space Pre-Job Assessment Form (Attachment 18-1).

Ventilation of Confined Spaces

Powered ventilation shall occur before entry into permit-required confined space and continue until after the employees have left the space. Layout of ventilation equipment will be made in such a manner that the air is being sent throughout the entire confined space. Forced air ventilation shall come from a clean source and may not increase hazards.

Air hoses with diffusers may not be used to provide forced ventilation.

Air sampling shall be conducted prior to personnel entry to assure the safety of the space and periodic air sampling shall be continued thereafter in the space when forced ventilation is used.

Forced ventilation may be used to:

- To remove contaminants created by work activities such as welding
- As a method of maintaining controlling the ambient temperature of a confined space when the rise in temperature is cause by atmospheric conditions.

Ventilation shall occur only by forcing air into a confined space. If it is necessary to exhaust hazardous gases, such as those produced when welding, the air being forced into the confined space shall be increased by at least the amount that is being exhausted out of the space.

Performance of Work

The confined space attendant shall remain at the entry point of the confined space while personnel are inside any permit required confined space.

The confined space attendant shall ensure that only authorized personnel enter the confined space.

Confined space attendants shall not perform any other work activities except that they may also serve as the attending supervisor.

Confined space attendants shall only monitor a single confined space, unless entry points to subsequent confined space(s) are immediately adjacent and are under the direct control of the attendant.

If an emergency or other unplanned event takes place during the course of work the Confined Space Work Permit is void.

The Attendant and Entry Supervisor have the authority to discontinue work activities at any time.

Compressed gas cylinders other than a self-contained breathing apparatus should not be taken into a confined space.

The hoses of gas cutting and welding tools shall be inspected for leaks prior to taking them into any confined space.

Persons who enter confined spaces shall comply with the provisions of this standard and the confined space permit. This includes:

- Supervisors

- Inspectors
- Surveyors
- Observers
- Scaffold Builders
- Engineers
- Vendors
- Contractors, subcontractors, and other employers

Sources of ignition (e.g., flame. arc, or spark) shall not be permitted in any confined space until tests have ensured that the percentage of combustible/flammable gas or vapor is not more than zero (0) % of the Lower Explosive Limit (LEL).

Emergencies

Emergency Notification

It is the responsibility of the Entry Supervisor and/or the Entry Attendant to immediately notify the senior MPIC employee on the worksite of a potential emergency by radio or cell phone. The senior MPIC employee will assess the situation and contact emergency response personnel if applicable.

Only those individuals trained and certified in confined space entry procedures on the worksite may assist in emergency rescue operations.

First Aid / Medical Services

Refer to the requirements in First Aid section for specific worksite requirements.

Rescue / Retrieval Systems

To facilitate emergency rescue, retrieval systems or methods shall be used whenever an authorized entrant enters a confined space, unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant.

The entry supervisor, prior to the initial entry of personnel into a confined space, shall ensure the rescue equipment and retrieval system is functioning properly.

Retrieval systems shall meet the following requirements to the greatest extent possible.

- Each authorized entrant shall use a full body harness with a retrieval lifeline attached at the center of the entrant's back near shoulder level, or above the entrant's head or safety coveralls with builtin harness, with a retrieval lifeline attached at the near shoulder level of the entrant's back, or above the entrant's head

- Wristlets may be used in lieu of the full body harness if the entry supervisor can demonstrate that the use of a full body harness is not feasible or creates a greater hazard and that the use of wristlets is the safest and most effective alternative
- The other end of the retrieval line shall be attached to a mechanical device or fixed point outside the confined space in such a manner that rescue can begin as soon as the rescuer becomes aware that rescue is necessary. A mechanical device shall be available to retrieve personnel from vertical type confined spaces more than 5 feet deep
- The safety harness shall be of the type that permits easy rescue of personnel from the confined space during emergency conditions and may be either the harness type that suspends a person in an upright position or the wrist type rescue harness. (A hoisting device or other effective means for lifting personnel from confined spaces is preferred)
- Lifelines shall have a minimum breaking strength of 5,400 pounds

Completion of Work

When the work is completed in a confined space the following, as a minimum shall be completed:

- Tools, equipment and materials shall be removed
- The space shall be inspected to ensure no personnel are inadvertently left in the confined space according to the Energy Control section 16 of this manual
- The area surrounding the confined space shall be clean of materials, equipment, scraps, and debris
- The supervisor responsible for the confined space work shall inspect the work location to ensure cleanup of materials, tools, and other items is complete
- (Lockout) locks are removed only when work is completed

References

OSHA 29 CFR 1910.146

Attachment 18-1 - Confined Space Pre-Job Assessment Form

Supervisor _____ Client Date:

Project Project No. Safety Contact

Scope and Description of Work:

Potential Hazards Identified – be specific Use Additional Paper if necessary	**Physical Control Methods** – Air Gap, Blinding, Double Blocks, Bleed & Flush, Lockout, Ventilation, Purging, Disconnect, etc	What are the **consequences** if people or the environment is exposed to hazard? – Attach SDS and other documents	Permissible Exposure Limits PEL	Type **PPE** Required – Clothing, SCBA, Respiratory, etc.

What method will be used to physically clean the confined space of hazardous liquids, gases, and other toxic substances?
What safety equipment is required?
What hazards will be generated by the work to be done? For example: painting, welding, grinding, material removal spills?
How will emergency rescue be performed and who will be responsible for rescue operations?
What type of rescue system will be used?
Who will perform the work? Are they Trained? Are they qualified to do the work?

Name	CS Trained?	Other Training needed	Assignment

Name of Client's "Authorizing Agent" who has knowledge of contents and hazards and will declare space safe for entry:	

General Comments:

Confined Space Classification (circle): Non-hazardous / Hazardous Due to Work Task / Hazardous Due To Internal Condition

Attachment 18-2 - Confined Space Entry Permit

MPIC	**FOR RESCUE AND EMERGENCY** _____ NAME _____ NUMBER _____ MEANS OF CONTACTING SERVICE

This permit must be properly completed prior to entering any confined space and is VALID ONLY FOR THE DATE AND TIME PERIOD STATED ON THIS FORM. Site entry and rescue procedures must be readily available during the time period that this permit is in effect.

JOB LOCATION INFORMATION

PLANT NAME AND ADDRESS:

SITE LOCATION/DESCRIPTION:

CONTACT:	PHONE:

JOB DESCRIPTION:

DATE VALID:	START TIME:	END TIME:	EXPIRES ON:

POTENTIAL HAZARDS

□ Toxic Material			□ Hot Work
□ Radiation	□ Fire Suppression Systems	□ Flammable Substances	□ O_2 Deficiency
□ Asbestos	□ Wet/Slippery Conditions	□ Reduced Visibility	□ Engulfment
□ Heat/Cold	□ Inwardly Converging Walls	□ Floor Slopes Downward	□ Mechanical Hazard

PRE-ENTRY REQUIREMENTS

□ Entrance/Egress free of debris and objects	□ Lines Purged/Broken/Blanked
□ Warning Barriers/signs in place	□ Electrical equipment rated for explosive atmosphere
□ Monitoring/Testing of Atmosphere done (see below)	□ No compressed gas cylinders in the confined space
□ Draining, Flushing of Confined Space Completed	□ Host employer and/or contractors notified
□ Forced air, or exhaust ventilation set up	□ Communications equipment tested
□ Electrical equipment grounded/rated	□ Entry and Emergency procedures have been reviewed
□ Ground fault circuit interrupters (GFCI) provided	□ All personnel have been informed of potential hazards
□ Non-sparking tools are to be used	□ Attendant properly instructed
□ Low voltage (less than 25 V) is being utilized	□ Rescue equipment inspected/available
□ Copy of SDS is posted/available at work site	□ LOTO performed (lock-out/tag-out)

Other Safety Precautions Taken:

_____

Communications to be Used During Entry/Egress: _____

PROTECTIVE EQUIPMENT

PERSONAL	□ Hard Hat	□ Tyvek Suits		RESCUE	□ Harness/Lifeline	MECHANICAL	□ Ladders
	□ Safety Glasses	□ Tyvek Shrouds			□ Retrieval Device		□ Barriers
	□ Work Gloves	□ Ear Plugs			□ Fire Extinguisher		□ Ventilating Equipment
	□ Steel Toed Boots	□ Respirators	□ Half-Face		□ Communication Devices		□ Double Insulated Tools
		□ SCBA	□ Full-Face		□ Wristlets		□ Spark-Proof Tools
					□ Tripod		□ GFCI

ATMOSPHERIC TESTING RESULTS

Time	Oxygen %	Combustibles, %LEL	Carbon Monoxide	Other

Has communication been established between authorized entrants and attendant? □ Yes □ No

If no or not required, please explain: _____

Has communication been established between attendant and the Fire Department? □ Yes □ No

If no or not required, please explain: _____

Has Safety and Health Plan been read and understood by all? □ Yes □ No

If no or not required, please explain: _____

Attachment 18-3 - Confined Space Attendant Log

The purpose of this form is to keep track of the employees who enter and leave the confined space. The Confined Space Attendant is responsible for maintaining this log. When work has been completed attached this log to the Confined Space Work Permit

Date of Work _____ **Time Started** _____ **Permit No.** _____

Location of Confined Space _____

Time Started			**Time Ended**
Name of Attendant			
Name of Relief Attendant			
Name of Relief Attendant			

Entrant Name	Time Entered	Time Exited	Entrant Name	Time Entered	Time Exited

Comments and notes

Tool Safety and Inspection

Purpose

There are various types of tools and equipment used in the workplace for many different purposes. Examples include, but are not limited to, portable hand tools, power tools, pneumatic tools, and powder-actuated tools. The purpose of this policy is to provide employees with appropriate knowledge relating to the care and use of tools and equipment and to protect employees from hazards associated with improper use of tools and equipment and defective and poorly maintained tools and equipment.

Policy

Only trained and/or experienced employees may use/operate tools or equipment. Tools and equipment shall not be modified and they are to be used only for their designed purpose. It shall be the responsibility of the employee to inspect tools and equipment prior to use and to use all tools and equipment in a safe manner. Employees observed abusing, altering, modifying or misusing tools or equipment shall be subject to disciplinary action. Employees shall wear all appropriate personal protective equipment while using tools and equipment. Additionally if a tool or piece of equipment is found to be defective, the tool/equipment shall be red-tagged, taken out of service until it can be replaced or repaired by a qualified person.

It shall be the responsibility Project Manager or Site Superintendent to designate a competent person who will be assigned to be responsible for testing/inspecting and repairing all tools and equipment. All periodic inspections, maintenance and repairs of tools or equipment shall be documented.

To promote safety and efficiency, the following procedures shall be followed:

Procedure

General Tool Safety

Many serious injuries have resulted from the improper use of tools and equipment. Many of these injuries could have been prevented if the following rules were followed:

Inspection and Maintenance

- All tools shall be identified and inventoried either individually or by group.
- All tools in the inventory shall have a documented inspection at least once every six months. In addition to these periodic documented inspections all tools shall be inspected prior to issue and upon return by the tool room attendants and prior to each use by the user.
- All tools will be kept in good working condition with no modifications.
- All periodic inspections and all maintenance & repairs shall be documented. Completed forms shall be kept in a binder in the tool room or tool trailer for one year. The binder shall contain a copy of the inspection checklist for the type for tools and/or equipment being inspected.

Selection

Use the right tool for the task instead of trying to make the wrong one fit.

Use

- Keep control of yourself, the tool, and the job. When applying force with a tool, remember that it may slip, break, or just suddenly do its job. Watch your hands and your balance (body mechanics) to avoid injury.
- Vibration Absorbing Gloves are to be made available to workers using pneumatic impact guns or other vibrating equipment. These gloves are required PPE for worker's operating heavy vibrating tools (i.e. jack hammers, 90 guns, impact guns etc.). The use of these gloves are designed to dampen vibration, dissipate impact and absorb shock, they can assist in the prevention of cumulative trauma injury often associated with operating this type of equipment. They only work if you use them.
- Select the right protective equipment for the task and use it properly.
- Do not use tools and equipment that you have not been trained to use.

Care

- Take proper care of your tools and equipment. Keep them stored where they will not get damaged and will not present a hazard.
- Check your tools and equipment prior to use for defects, wear, or damage. Immediately remove from service and tag any defective tools. Damaged tools shall be turned into the tool room for repair or replacement.

Supervision

Supervisors shall be responsible for ensuring that employees are trained before using a specific tool. Watch your employees at work. Ask them about their immediate assignment and take an interest in finding the safest way to do the job. Then follow up to insure that the tools and equipment in your area are being used safely.

Hand Tool Safety

- Hand tools shall only be used for the purpose for which they are intended.
- All appropriate PPE will be worn while using hand tools.
- Wrenches, including adjustable, pipe and socket shall not be used when jaws are sprung to the point of slippage.
- Pipe wrench parts (i.e., jaws) are not to be removed and used for anything other than the manufactured use.
- The use of snipes and cheater bars or double wrenching to gain leverage **is prohibited.**
- Always use tool holder while using hammer and knocker wrenches.
- Hand tools shall be tagged and removed from service if any of the following defects are present:

- Impact tools, such as hammers, flange wedges chisels, drift pins, pin bars and knocker wrenches with visible signs of mushrooming, cracking or bending.
- Wooden handle tools, such as hammers, picks, shovels, and brooms with visible sign of cracking, loosening or splintering of the handle.
- Wrenches, such as adjustable, combo and pipe with visible signs of bending, cracking, defective handles or other defects that impair their strength.

Electrical Power Tool Safety

- All appropriate PPE will be worn while using power tools.
- Be sure that the proper permit has been obtained prior to use of electrical power tools.
- GFCI's are to be used with all portable electric equipment. GFCI's are to be inspected and tested prior to each use.
- **Do not** connect electrical power unless the operating switch is turned off.
- Employee shall avoid loose fitting clothing when operating power tools.
- The power source on tools shall be physically disconnected prior to attempting any repairs or attachment replacement.
- Protective guards on power tools **shall not** be removed, altered or modified. All guarding will meet the requirements set forth by ANSI B15.1 1926.300 (c)
- Trigger/switch locks on power tools are prohibited.
- All electrical tools and power cords must be inspected per the Electrical Equipment Safety and Inspection Policy.
- Electrical tools and power cords must display the current inspection color code for the current inspection period to it being placed in service.
- Electrical tools **shall not** be hoisted or carried by their power cords.
- Cords are tripping hazards. Route them so as to minimize interference in walkways. Overhead is preferred.
- Electrical power tools shall be tagged and removed from service if any of the following defects are present:
  - Electrical power tool cord does not have current inspection color code.
  - Power cord is frayed, cut or damaged. The use of electrical tape to cover damage to cords **is prohibited**.
  - Defective or faulty on/off switches.
  - Loose or defective components

Air Power Tool Safety

- All hoses exceeding 1/2" inside diameter shall have a safety device at the source of supply or branch line to reduce pressure in case of hose failure.
- Chicago fittings shall be pinned.
- Attachments on air tools shall be secured by retainer pins and rings.
- **Do not** connect air unless the operating switch is turned off.
- **Do not** disconnect tool until air supply is shut off and air pressure is bled off.
- Air power tools **shall not** be hoisted or carried by their hoses.

- Hoses are tripping hazards. Route them so as to minimize interference in walkways. Overhead is preferred.
- Air power tools shall be tagged and removed from service if any of the following defects are present:
  - Air power tools, such as air power grinders, impact wrenches, German hacksaws with visible signs of deformities in the body of the tool, improperly functioning actuator, bent or deformed blades, or any signs of obvious damage to the air supply line fittings.
  - Hoses must be visually inspected for cracking, signs of aging, worn or damaged connecting fittings, or any other obvious deformities, such as blistering or bulge.

Fire Prevention Policy

Purpose

Fire Prevention/Protection Policy is intended to provide compliance with all related OSHA regulation and standard safe work practice. The purpose of the policy is to prevent fires and to provide guidelines for action in the event that a fire does occur.

Fire prevention program combines the following policies:

- HazCom Training Policy
- PPE Policy
- Electrical Safety Policy
- Emergency Action Plan

These policies encompass methods used for incidence avoidance, incident response and specialized training required in the event of a fire.

Issues addressed in the above policies include, but are not limited to:

- Evacuation Procedure
- Extinguisher Training
- Basic Process Safety Training (if applicable)
- Hot Work Safety Training (if applicable)
- Confined Space Entry Safety Training (if applicable)
- Emergency Life Support Training
- Respiratory Protective Devices Training (if applicable)
- Assured Grounding Programs

Policy

Employees shall be informed of the proper actions to take in the event of a fire and methods of utilizing fire extinguishers. This includes but is not limited to; notification and evacuation procedures. It is STRESSED that at no time does the task of fighting fire supersede an employee's primary duties of:

- Ensuring their own personal safety and the safety of others.
- Reporting the incident to the proper authority and ensuring personnel accountability for yourself and all subordinates at the jobsite, in accordance with company and client policy.

Procedure

- All employees are responsible for good housekeeping practices to enhance fire prevention methods. Supervisors will be held accountable for the housekeeping of their job sites.
- If applicable, welding machine mufflers will be equipped with an approved spark arresting muffler.
- Only approved containers will be used during fueling operations. These shall be of the self-closing type.

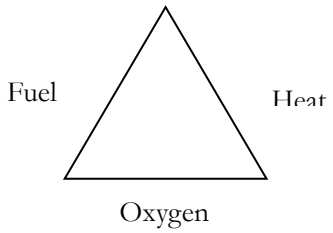
- Flammable material shall be kept under the control. It shall be stored in compliance with applicable OSHA and client regulations. The quantity of flammable/combustible material shall be kept to a minimum on the job site.
- Welding, cutting and grinding sparks shall be contained.
- Hot work areas shall be kept wetted down, and a fire extinguisher and hose maintained on each jobsite.
- Oily rags shall be immediately disposed of in designated hazardous waste containers.
- No hot work is to be performed without a Hot Work Permit.
- All vehicle entry into process areas requires a permit or permission from the operator.
- Use bonding straps to discharge and prevent static charges during transfer of flammable liquids from one container to another.
- Report all spills or suspicious odors immediately.
- Fire extinguishers are to be kept in areas easily accessible to employees. Only approved fire extinguishers are to be used. They must have an inspection tag attached. Extinguishers are to be maintained in a fully charged, ready to operate state. Extinguishers are to be inspected before each use and documented annually. Training is provided to all employees who use or may use fire extinguishers.
- **NEVER** put yourself or others a risk while attempting to extinguish an incipient fire.
- **DO NOT USE** any fire hoses larger than 1-3/4", unless fully trained as an industrial firefighter.
- **NEVER** attempt to extinguish a pressurized-fuel fed fire.
- **DO NOT** direct a fire nozzle with a straight stream at any type of LPG fire. This action could extinguish the fire, producing an LPG vapor cloud capable of detonation.
- **DO NOT USE** fire monitors as the force can damage small equipment and certain high chrome alloy equipment cannot have water applied as cracking could occur.
- **DO NOT APPLY** water to any acid or caustic release as it can cause a violent reaction. Additionally, low concentration acids or caustics become extremely corrosive, causing an increasing leak condition.

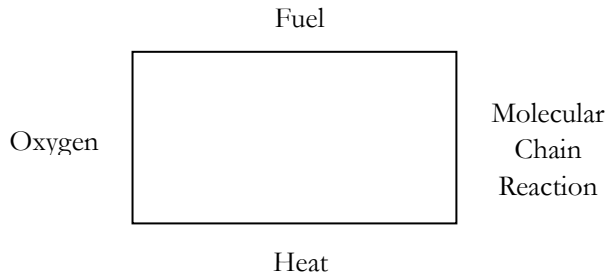
In the Event of a Fire:

- Remain calm
- Only extinguish a fire when it is clearly within your abilities and the equipment available
- Know the location of the nearest alarm and how to activate the emergency system
- Know the evacuation routes and collection points
- If the fire cannot be extinguished, leave the area immediately and report to your evacuation area
- Await further instructions from the Incident Commander, or designated responsible personnel

Basic Fire Science:

- The combination of fuel, heat, oxygen equals the well-know fire triangle. To understand fire better, a fourth factor is added, a molecular chain reaction. This is due to the fact that fire results from a series of reactions in which complicated molecules "crack" into easily oxidized fragments. Disruption of this chain, along with the removal of fuel, heat or oxygen, is recognized as a method of fire extinguishment through the use of dry chemical extinguishers.





- **Heat Energy** - Can be produced by building up molecules (composition) or breaking apart (decomposition) by heat or a solution when materials are dissolved in a liquid, or by combustion.
- **Heat Transfer** - A law of physics states that heat tends to flow up from a hot substance or place to a cold substance or place. This is through conduction (transfer of heat through a medium such as metals) or through convection (transfer of heat with a medium-usually circulatory).
- **Fuels** - Those substances that will burn when heat is applied. The most common fuels are not pure elements such as carbon, but compounds and mixtures such as paper and wood.
- **Oxygen** - Makes up a major portion of the oceans and earth's crust and one-fifth of our atmosphere. Atmospheric oxygen is the major source of oxygen that supports combustion. Oxygen itself does not burn, however, without it, combustion is impossible. Normal burning is the combination of fuels with oxygen under the influence of heat.
- **Combustion** - A rapid oxidation or chemical combination accompanied by heat.
- **Oxidation** - The ability of materials to produce oxygen during a chemical reaction.
- **Spontaneous Combustion** - When oxidation is allowed to occur, enough oxygen is available, heat is produced, molecules become more energetic and combine with oxygen at an increasing rate, temperatures rise and visible heat (flames) are produced.

Classes of Fires:

- Class A - **Ordinary combustibles (wood/paper/textiles)**
- Class B - **Flammable liquids (gasoline/oils/grease)**
- Class C - **Live electric (wiring/generators/motors)**
- Class D - **Combustible metals (finely divided form/chips, turnings)**

Types of Fire Extinguishers:

- **Water** - extinguisher for ordinary combustible fires
- **Dry Chemical or CO2** - extinguisher for electrical equipment fires and for flammable liquid fires
- **Multipurpose Dry Chemical** - extinguisher for ordinary combustible fires, liquid fires, and electrical equipment fires
- **Foam** - extinguishing agent for hydrocarbon fire