

# **SAFETY & HEALTH PROGRAM**



**CLEVELAND  
INTEGRITY SERVICES**

Master Safety Plan

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Applicable OSHA Standards: 29 CFR 1910.1020

## 1. Purpose

- 1.1. Cleveland Integrity Services has established this program to provide employees and their designated representatives with access to relevant exposure and medical records, and to provide representatives of the Assistant Secretary access to these records in order to fulfill responsibilities under the Occupational Safety and Health Act.
- 1.2. Access by employees, their representatives, and the Assistant Secretary is necessary to yield both direct and indirect improvements in the detection, treatment, and prevention of occupational disease.
- 1.3. As part of compliance with this program, the Company will coordinate with and, as necessary and appropriate, instruct designated physicians or other health care personnel in charge of employee medical records as required for compliance.
- 1.4. This program is not intended to compromise or violate legal and ethical obligations concerning the maintenance and confidentiality of employee medical information; the duty to disclose information to a patient/employee; or any other aspect of the medical provider and patient relationship.

## 2. Scope and application

- 2.1. This program applies to Company workplace operations that require acquisition and receipt of employee exposure or medical records, or analyses thereof, pertaining to employees exposed to toxic substances or harmful physical agents.
- 2.2. This program applies to all employee exposure and medical records, and analyses thereof, whether or not the records are required by specific occupational safety and health standards.
- 2.3. This program applies to all employee exposure and medical records, and analyses thereof, made or maintained in any manner, including on an in-house or contractual (e.g., fee-for-service) basis.
- 2.4. The Company will assure that the preservation and access requirements established by this program are complied with regardless of the manner in which records are made or maintained.

## 3. Responsibilities

- 3.1. The Company Safety Coordinator will be responsible for implementation, maintenance and updating of this program as required.
- 3.2. Company management will support, enforce and execute provisions of this program as required in accordance with local, state and federal laws, as well as Company human resources and personnel procedures.

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#### 4. Definitions

- 4.1. "Access" means the right and opportunity to examine and copy.
- 4.2. "Analysis using exposure or medical records" means any compilation of data or any statistical study based at least in part on information collected from individual employee exposure or medical records or information collected from health insurance claims records, provided that either the analysis has been reported to the Company or no further work is currently being done by the person responsible for preparing the analysis.
- 4.3. "Designated representative" means any individual or organization to whom an employee gives written authorization to exercise a right of access. For the purposes of access to employee exposure records and analyses using exposure or medical records, a recognized or certified collective bargaining agent will be treated automatically as a designated representative without regard to written employee authorization.
- 4.4. "Employee" means a current employee, a former employee, or an employee being assigned or transferred to work where there will be exposure to toxic substances or harmful physical agents. In the case of a deceased or legally incapacitated employee, the employee's legal representative may directly exercise all the employee's rights under this program.
- 4.5. "Employee exposure record" means a record containing any of the following kinds of information:
  - 4.5.1. Environmental (workplace) monitoring or measuring of a toxic substance or harmful physical agent, including personal, area, grab, wipe, or other form of sampling, as well as related collection and analytical methodologies, calculations, and other background data relevant to interpretation of the results obtained;
  - 4.5.2. Biological monitoring results which directly assess the absorption of a toxic substance or harmful physical agent by body systems (e.g., the level of a chemical in the blood, urine, breath, hair, fingernails, etc.) but not including results which assess the biological effect of a substance or agent or which assess an employee's use of alcohol or drugs;
  - 4.5.3. Safety data sheets (SDS) indicating that the material may pose a hazard to human health; or
  - 4.5.4. In the absence of the above, 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.

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- 4.6. "Employee medical record" means a record concerning the health status of an employee which is made or maintained by a physician, nurse, or other health care personnel, or technician, including:
- 4.6.1. Medical and employment questionnaires or histories (including job description and occupational exposures),
  - 4.6.2. The results of medical examinations (pre-employment, pre-assignment, periodic, or episodic) and laboratory tests (including chest and other X-ray examinations taken for the purpose of establishing a base-line or detecting occupational illnesses and all biological monitoring not defined as an "employee exposure record"),
  - 4.6.3. Medical opinions, diagnoses, progress notes, and recommendations,
  - 4.6.4. First aid records,
  - 4.6.5. Descriptions of treatments and prescriptions, and
  - 4.6.6. Employee medical complaints.
- 4.7. "Employee medical record" does not include medical information in the form of:
- 4.7.1. Physical specimens (e.g., blood or urine samples) which are routinely discarded as a part of normal medical practice, or
  - 4.7.2. Records concerning health insurance claims if maintained separately from the Company's medical program and its records, and not accessible to the Company by employee name or other direct personal identifier (e.g., social security number, payroll number, etc.), or
  - 4.7.3. Records created solely in preparation for litigation which are privileged from discovery under the applicable rules of procedure or evidence; or
  - 4.7.4. Records concerning voluntary employee assistance programs (alcohol, drug abuse, or personal counseling programs) if maintained separately from the Company's medical program and its records.
- 4.8. "Company" means Cleveland Integrity Services.
- 4.9. "Exposure" or "exposed" means that an employee is subjected to a toxic substance or harmful physical agent in the course of employment through any route of entry (inhalation, ingestion, skin contact or absorption, etc.), and includes past exposure and potential (e.g., accidental or possible) exposure, but does not include situations where the Company can demonstrate that the toxic substance or harmful physical agent is not used, handled, stored, generated, or present in the workplace in any manner different from typical non-occupational situations.

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- 4.10. "Health Professional" means a physician, occupational health nurse, industrial hygienist, toxicologist, or epidemiologist, providing medical or other occupational health services to exposed employees.
- 4.10.1. "Record" means any item, collection, or grouping of information regardless of the form or process by which it is maintained (e.g., paper document, microfiche, microfilm, X-ray film, or automated data processing).
- 4.10.2. "Specific chemical identity" means a chemical name, Chemical Abstracts Service (CAS) Registry Number, or any other information that reveals the precise chemical designation of the substance.
- 4.10.3. "Specific written consent" means a written authorization containing the following:
- 4.10.3.1. The name and signature of the employee authorizing the release of medical information,
- 4.10.3.2. The date of the written authorization,
- 4.10.3.3. The name of the individual or organization that is authorized to release the medical information,
- 4.10.3.4. The name of the designated representative (individual or organization) that is authorized to receive the released information,
- 4.10.3.5. A general description of the medical information that is authorized to be released,
- 4.10.3.6. A general description of the purpose for the release of the medical information, and
- 4.10.3.7. A date or condition upon which the written authorization will expire (if less than one year).
- 4.10.4. A written authorization does not operate to authorize the release of medical information not in existence on the date of written authorization, unless the release of future information is expressly authorized, and does not operate for more than one year from the date of written authorization.
- 4.10.5. A written authorization may be revoked in writing prospectively at any time.
- 4.11. "Toxic substance or harmful physical agent" means any chemical substance, biological agent (bacteria, virus, fungus, etc.), or physical stress (noise, heat, cold, vibration, repetitive motion, ionizing and non-ionizing radiation, hypo - or hyperbaric pressure, etc.) which:

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- 4.11.1. Is listed in the latest printed edition of the National Institute for Occupational Safety and Health (NIOSH) Registry of Toxic Effects of Chemical Substances (RTECS) which is incorporated by reference as specified in Sec. 1910.6; or
  - 4.11.2. Has yielded positive evidence of an acute or chronic health hazard in testing conducted by, or known to, the Company; or
  - 4.11.3. Is the subject of a SDS kept by or known to the Company indicating that the material may pose a hazard to human health.
- 4.12. "Trade secret" means any confidential formula, pattern, process, device, or information or compilation of information that is used in the Company's business and that gives the Company an opportunity to obtain an advantage over competitors who do not know or use it.

## 5. Preservation of records

- 5.1. Unless a specific occupational safety and health standard provides a different period of time, the Company will assure the preservation and retention of records as follows:
  - 5.1.1. "Employee medical records." The medical record for each employee will be preserved and maintained for at least the duration of employment plus thirty (30) years, except that the following types of records need not be retained for any specified period:
    - 5.1.1.1. Health insurance claims records maintained separately from the Company's medical program and its records,
    - 5.1.1.2. First aid records (not including medical histories) of one-time treatment and subsequent observation of minor scratches, cuts, burns, splinters, and the like which do not involve medical treatment, loss of consciousness, restriction of work or motion, or transfer to another job, if made on-site by a non-physician and if maintained separately from the Company's medical program and its records, and
    - 5.1.1.3. The medical records of employees who have worked for less than (1) year for the Company need not be retained beyond the term of employment if they are provided to the employee upon the termination of employment.
  - 5.1.2. "Employee exposure records." Each employee exposure record will be preserved and maintained for at least thirty (30) years, except that:
    - 5.1.2.1. Background data to environmental (workplace) monitoring or measuring, such as laboratory reports and worksheets, need only



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be retained for one (1) year so long as the sampling results, the collection methodology (sampling plan), a description of the analytical and mathematical methods used, and a summary of other background data relevant to interpretation of the results obtained, are retained for at least thirty (30) years; and\

5.1.2.2. SDS records concerning the identity of a substance or agent need not be retained for any specified period as long as some record of the identity (chemical name if known) of the substance or agent, where it was used, and when it was used is retained for at least thirty (30) years(1); and

5.1.2.3. Biological monitoring results designated as exposure records by specific occupational safety and health standards will be preserved and maintained as required by the specific standard.

5.1.3. "Analyses using exposure or medical records." Each analysis using exposure or medical records will be preserved and maintained for at least thirty (30) years.

5.2. The Company will determine the form, manner or process by which a record will be preserved, ensuring that information contained in the record is preserved and retrievable, except for chest X-ray films which will be preserved in their original state.

## **6. Access to records**

6.1. Whenever an employee or designated representative requests access to a record, the Company will assure that access is provided in a reasonable time, place, and manner. If the Company cannot reasonably provide access to the record within fifteen (15) working days, the Company will 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.

6.2. The Company may require of the requester only such information as should be readily known to the requester and which may be necessary to locate or identify the records being requested (e.g. dates and locations where the employee worked during the time period in question).

6.3. Whenever an employee or designated representative requests a copy of a record, the Company will assure that either:

6.3.1. A copy of the record is provided without cost to the employee or representative,

6.3.2. The necessary mechanical copying facilities (e.g., photocopying) are made available without cost to the employee or representative for copying the record, or

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- 6.3.3. The record is loaned to the employee or representative for a reasonable time to enable a copy to be made.
- 6.4. In the case of an original X-ray, the Company may restrict access to on-site examination or make other suitable arrangements for the temporary loan of the X-ray.
- 6.5. 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, except that:
  - 6.5.1. The Company will not charge for an initial request for a copy of new information that has been added to a record which was previously provided; and
  - 6.5.2. The Company will not 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.
- 6.6. Nothing in this program is intended to preclude employees and collective bargaining agents from collectively bargaining to obtain access to information in addition to that available under this program.

## **7. Employee and designated representative access**

- 7.1. Except as limited by this program, the Company will, upon request, assure the access to each employee and designated representative to employee exposure records relevant to the employee. For the purpose of this program, an exposure record relevant to the employee consists of:
  - 7.1.1. A record which measures or monitors the amount of a toxic substance or harmful physical agent to which the employee is or has been exposed;
  - 7.1.2. In the absence of such directly relevant records, such records of other employees with past or present job duties or working conditions related to or similar to those of the employee to the extent necessary to reasonably indicate the amount and nature of the toxic substances or harmful physical agents to which the employee is or has been subjected, and
  - 7.1.3. Exposure records to the extent necessary to reasonably indicate the amount and nature of the toxic substances or harmful physical agents at workplaces or under working conditions to which the employee is being assigned or transferred.
- 7.2. Requests by designated representatives for “unconsented” access to employee exposure records will be in writing and will specify with reasonable particularity:

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7.2.1. The record requested to be disclosed; and

7.2.2. The occupational health need for gaining access to these records.

## **8. Employee medical records**

8.1. The Company will, upon request, assure the access of each employee to employee medical records of which the employee is the subject, except as provided for within this program.

8.2. The Company will, upon request, assure the access of each designated representative to the employee medical records of any employee who has given the designated representative specific written consent.

8.3. Whenever access to employee medical records is requested, a physician representing the Company may recommend that the employee or designated representative:

8.3.1. Consult with the physician for the purposes of reviewing and discussing the records requested,

8.3.2. Accept a summary of material facts and opinions in lieu of the records requested, or

8.3.3. Accept release of the requested records only to a physician or other designated representative.

8.4. Whenever an employee requests access to his or her employee medical records, and a physician representing the Company believes that direct employee access to information contained in the records regarding a specific diagnosis of a terminal illness or a psychiatric condition could be detrimental to the employee's health, the Company may inform the employee that access will only be provided to a designated representative of the employee having specific written consent, and deny the employee's request for direct access to this information only.

8.5. Where a designated representative with specific written consent requests access to information so withheld, the Company will assure the access of the designated representative to this information, even when it is known that the designated representative will give the information to the employee.

8.6. A physician, nurse, or other responsible health care personnel maintaining employee medical records may delete from requested medical records the identity of a family member, personal friend, or fellow employee who has provided confidential information concerning an employee's health status.

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## 9. Analyses using exposure or medical records

- 9.1. The Company will, upon request, assure the access of each employee and designated representative to each analysis using exposure or medical records concerning the employee's working conditions or workplace.
- 9.2. Whenever access is requested to an analysis which reports the contents of employee medical records by either direct identifier (name, address, social security number, payroll number, etc.) or by information which could reasonably be used under the circumstances indirectly to identify specific employees (exact age, height, weight, race, sex, date of initial employment, job title, etc.), the Company will assure that personal identifiers are removed before access is provided. If the Company can demonstrate that removal of personal identifiers from an analysis is not feasible, access to the personally identifiable portions of the analysis need not be provided.

## 10. OSHA Access to Records

- 10.1. The Company will, upon request, and without derogation of any rights under the Constitution or the Occupational Safety and Health Act of 1970, 29 U.S.C. 651 "et seq.," that the Company chooses to exercise, assure the prompt access of representatives of the Assistant Secretary of Labor for Occupational Safety and Health to employee exposure and medical records and to analyses using exposure or medical records. Rules of agency practice and procedure governing OSHA access to employee medical records are contained in 29 CFR 1913.10.
- 10.2. Whenever OSHA seeks access to personally identifiable employee medical information by presenting to the Company a written access order pursuant to 29 CFR 1913.10(d), the Company will prominently post a copy of the written access order and its accompanying cover letter for at least fifteen (15) working days.

## 11. Trade secrets

- 11.1. Except as provided for in this program, nothing precludes the Company from deleting from records requested by a health professional, employee, or designated representative any trade secret data which discloses manufacturing processes or discloses the percentage of a chemical substance in mixture, as long as the health professional, employee, or designated representative is notified that information has been deleted.
- 11.2. Whenever deletion of trade secret information substantially impairs evaluation of the place where or the time when exposure to a toxic substance or harmful physical agent occurred, the Company will provide alternative information which is sufficient to permit the requesting party to identify where and when exposure occurred.
- 11.3. The Company may withhold the specific chemical identity, including the chemical name and other specific identification of a toxic substance from a disclosable record provided that:

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- 11.3.1. The claim that the information withheld is a trade secret can be supported;
  - 11.3.2. All other available information on the properties and effects of the toxic substance is disclosed;
  - 11.3.3. The Company informs the requesting party that the specific chemical identity is being withheld as a trade secret; and
  - 11.3.4. The specific chemical identity is made available to health professionals, employees and designated representatives in accordance with this program.
- 11.4. Where a treating physician or nurse determines that a medical emergency exists and the specific chemical identity of a toxic substance is necessary for emergency or first-aid treatment, the Company will immediately disclose the specific chemical identity of a trade secret chemical to the treating physician or nurse, regardless of the existence of a written statement of need or a confidentiality agreement.
- 11.5. The Company may require a written statement of need and confidentiality agreement, in accordance with this program as soon as circumstances permit.
- 11.6. In non-emergency situations, the Company will, upon request, disclose a specific chemical identity, otherwise permitted to be withheld under this program, to a health professional, employee, or designated representative if:
- 11.6.1. The request is in writing;
  - 11.6.2. The request describes with reasonable detail one or more of the following occupational health needs for the information:
    - 11.6.2.1. To assess the hazards of the chemicals to which employees will be exposed;
    - 11.6.2.2. To conduct or assess sampling of the workplace atmosphere to determine employee exposure levels;
    - 11.6.2.3. To conduct pre-assignment or periodic medical surveillance of exposed employees;
    - 11.6.2.4. To provide medical treatment to exposed employees;
    - 11.6.2.5. To select or assess appropriate personal protective equipment for exposed employees;
    - 11.6.2.6. To design or assess engineering controls or other protective measures for exposed employees; and
    - 11.6.2.7. To conduct studies to determine the health effects of exposure.

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- 11.6.3. The request explains in detail why the disclosure of the specific chemical identity is essential and that, in lieu thereof, the disclosure of the following information would not enable the health professional, employee or designated representative to provide the occupational health services described in this program;
- 11.6.4. The properties and effects of the chemical;
- 11.6.5. Measures for controlling employees' exposure to the chemical;
- 11.6.6. Methods of monitoring and analyzing worker exposure to the chemical; and
- 11.6.7. Methods of diagnosing and treating harmful exposures to the chemical;
- 11.6.8. The request includes a description of the procedures to be used to maintain the confidentiality of the disclosed information; and
- 11.6.9. The health professional, employee, or designated representative and the Company or contractor of the services of the health professional or designated representative agree in a written confidentiality agreement that the health professional, employee or designated representative will not use the trade secret information for any purpose other than the health need(s) asserted and agree not to release the information under any circumstances other than to OSHA, as provided for in this program, except as authorized by the terms of the agreement or by the Company.
- 11.7. The confidentiality agreement authorized by this program:
  - 11.7.1. May restrict the use of the information to the health purposes indicated in the written statement of need;
  - 11.7.2. May provide for appropriate legal remedies in the event of a breach of the agreement, including stipulation of a reasonable pre-estimate of likely damages; and
  - 11.7.3. May not include requirements for the posting of a penalty bond.
- 11.8. Nothing in this program is intended to preclude the parties from pursuing non-contractual remedies to the extent permitted by law.
- 11.9. If the health professional, employee or designated representative receiving the trade secret information decides that there is a need to disclose it to OSHA, the Company will be informed by the health professional prior to, or at the same time as, such disclosure.
- 11.10. If the Company denies a written request for disclosure of a specific chemical identity, the denial must:

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- 11.10.1. Be provided to the health professional, employee or designated representative within thirty (30) days of the request;
  - 11.10.2. Be in writing;
  - 11.10.3. Include evidence to support the claim that the specific chemical identity is a trade secret;
  - 11.10.4. State the specific reasons why the request is being denied; and
  - 11.10.5. Explain in detail how alternative information may satisfy the specific medical or occupational health need without revealing the specific chemical identity.
- 11.11. The health professional, employee, or designated representative whose request for information is denied in accordance with this program may refer the request and the written denial of the request to OSHA for consideration.
- 11.12. When a health professional, employee, or designated representative refers a denial to OSHA, OSHA will consider the evidence to determine if:
- 11.12.1. The Company has supported the claim that the specific chemical identity is a trade secret;
  - 11.12.2. The health professional employee, or designated representative has supported the claim that there is a medical or occupational health need for the information; and
  - 11.12.3. The health professional, employee or designated representative has demonstrated adequate means to protect the confidentiality.
- 11.13. Nothing in this program will be construed as requiring the disclosure under any circumstances of process or percentage of mixture information which is a trade secret.

## 12. Employee information

- 12.1. Upon an employee's first entering into employment, and at least annually thereafter, the Company will inform current employees covered by this program of the following:
  - 12.1.1. The existence, location, and availability of any records covered by this program;
  - 12.1.2. The person responsible for maintaining and providing access to records; and
  - 12.1.3. Each employee's rights of access to these records.

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- 12.2. Company will keep a copy of 29 CFR 1910.1020 and its appendices, and make copies readily available, upon request, to employees.
- 12.3. The Company will also distribute to current employees any informational materials concerning this program which are made available to the Company by the Assistant Secretary of Labor for Occupational Safety and Health.

### **13. Transfer of records**

- 13.1. Should the Company cease doing business, it will transfer all records subject to this program to the successor of the Company. The successor will receive and maintain these records.
- 13.2. Should the Company cease doing business and there is no successor to receive and maintain the records, the Company will notify affected current employees of their rights of access to records at least three (3) months prior to ceasing business.
- 13.3. Should the Company either cease doing business and there is no successor to receive and maintain the records, or intend to dispose of any records required to be preserved for at least thirty (30) years, the Company will:
  - 13.3.1. Transfer the records to the Director of the National Institute for Occupational Safety and Health (NIOSH) if so required by a specific occupational safety and health standard; or
  - 13.3.2. Notify the Director of NIOSH in writing of the impending disposal of records at least three (3) months prior to the disposal of the records.



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Applicable standard: OHSAS 18001:2007; ISO 9001:2008

This Plan explains how the Company's Safety & Health Programs will be established, implemented, managed and maintained.

## **1. Statement of Company Safety Policy**

### **1.1. Our Policy**

1.1.2. Cleveland Integrity Services is committed to the continuous improvement of environmental, health and safety performance to help achieve the greatest benefit for all our Clients. It is our policy to meet or exceed applicable environmental, health and pipeline safety laws and regulations, and to facilitate full and open discussion to address responsible standards and practices where laws and regulations do not exist. Accordingly, this Environmental, Health and Safety Policy is a standard by which Company employees are continually measured.

### **1.2. Our goals under this policy:**

#### **1.2.1. Operations**

1.2.1.1. Integrate environmental, health and safety stewardship into our core business activities.

1.2.1.2. Make environmental, health and safety considerations a core component in existing operations and in the planning, design and construction of new and expanded facilities, including the integration of physical risk management into our business and decision processes.

1.2.1.3. Establish a system for total employee involvement in environmental, health and safety processes and a means to measure that participation.

#### **1.2.2. Communications**

1.2.2.1. Promote environmental, health and safety awareness among clients, customers, all visitors to the workplace and in the communities where we operate.

1.2.2.2. Provide environmental, health and safety training and promote awareness among all employees.

1.2.2.3. Cooperate and coordinate, in the spirit of partnership, with local, state and federal authorities on environmental, health and safety matters and incident response.

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### 1.2.3. Evaluation

- 1.2.3.1. Incorporate critical environmental, health and safety performance metrics into our existing management reporting systems.
  - 1.2.3.2. Include the achievement of high environmental, health and safety standards of excellence as a component of the performance review process for each employee.
  - 1.2.3.3. Perform environmental, health and safety process assessments and independent compliance audits at a frequency appropriate to the size and nature of the operations and facilities, and implement corrective action.
  - 1.2.3.4. Perform evaluations of incidents and near misses through formal investigation including the identification of basic and root causes and steps to prevent reoccurrence of a similar event.
  - 1.2.3.5. Assess environmental, health and safety risks of existing operations, new business ventures and acquisitions.
2. Each employee is responsible for compliance with this policy and for implementing the policy within his or her area of responsibility.
  3. The leadership of each business unit is responsible for implementing management systems with appropriate standards and procedures to carry out this policy.

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President of the Company

## 2. Authority & Accountability

- 2.1. The President of the Company will accept the responsibility for providing resources and guidance for the development and implementation of the Safety & Health Program; selecting and designating the Company Safety Coordinator; and establishing management policies and procedures toward effective implementation of the Safety & Health Program.
- 2.2. The Safety Coordinator will be responsible for the overall implementation of the working plan. The President will have the authority to delegate portions of the Program as he deems appropriate to subordinates. However, the President will be responsible for the implementation of the Plan.
- 2.3. Company Supervisors will have the duty and authority to approve and carry out all disciplinary actions for those who violate the policies, procedures and/or rules and regulations relating to this Safety & Health Program. Supervisor responsibilities and duties relating to this safety and health program are also explained in greater detail on the following pages.

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- 2.4. Each Employee will be responsible for abiding by the policies, procedures, rules, regulations and orders set forth by this Safety & Health Program. Each Employee must become actively involved in this program to assist the Company in maintaining a safe and healthful workplace environment for all involved. Individual Employee Responsibilities relating to safety and health are explained in greater detail on the following pages.
- 2.5. Contractors that perform work at a Company location are responsible for ensuring that their personnel perform this work in a manner that complies with Company safety standards, as well as federal occupational safety and health requirements and other pertinent safety and health regulations.
- 2.6. The Company Accident Prevention Plan and Safety & Health Program will be made available to all contractors for review. Likewise, each contractor will provide to the Safety Coordinator a copy of its written safety and health programs relating to work that will be performed on the Company premises.

### **3. Safety Coordinator Responsibilities**

- 3.1. The President will designate an individual to serve as Safety Coordinator for Cleveland Integrity Services.
- 3.2. The Safety Coordinator will be responsible for the overall implementation of the Company's Safety & Health Program. This will include taking steps to identify workplace hazards and conditions that are unsanitary, unhealthy or dangerous to Employees. When such hazards or conditions are identified, the Safety Coordinator will have responsibility to initiate timely and appropriate corrective actions.
- 3.3. The Safety Coordinator will be knowledgeable about general workplace safety and health issues. This knowledge will be gained through training and experience.
- 3.4. The Safety Coordinator will monitor and report directly to the President results of safety and health programs, training and accident prevention activities as measured by criteria such as:
  - 3.4.1. Records of new hire safety orientations and ongoing safety training activities
  - 3.4.2. The tracking of accident and "near miss" incidents
  - 3.4.3. Injury and illness incidents that are recordable on the OSHA 300 form
  - 3.4.4. Workers' compensation injury and illness initial and ongoing reports
  - 3.4.5. Insurance company loss runs and statistical analysis
- 3.5. Safety Coordinator responsibilities include, but will not be limited to:
  - 3.5.1. Conduct or schedule to be conducted, safety inspections, surveys, audits and assessments throughout the Company workplace.
  - 3.5.2. Review safety inspection reports and unsafe or unsanitary conditions that are reported by Supervisors, Employees or others. Obtain corrective actions as needed.
  - 3.5.3. Resolve questions, approve and/or recommend necessary expenditures to correct unsafe conditions.

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- 3.5.4. Actively support and promote Company safety and health programs and activities.
- 3.5.5. Plan, coordinate, perform and/or delegate safety training of Supervisors and Employees.
- 3.5.6. Maintain appropriate training and testing records for each Employee.
- 3.5.7. Report unsafe Employee practices and/or behaviors to their respective Supervisors.
- 3.5.8. Review and monitor any disciplinary actions and/or remedial training.
- 3.5.9. Conduct or delegate regular safety meetings with Supervisors and Employees to promote safety awareness and compliance with the Safety & Health Program.
- 3.5.10. Investigate or cause the investigation of at-work accidents, injuries, illnesses and “near miss incidents. Assist as needed when these investigations are performed by Supervisors or others.
- 3.5.11. Review investigation reports to determine possible preventative actions. Take immediate corrective actions as required.
- 3.5.12. Ensure that reportable injuries are being documented on applicable state workers’ compensation forms and OSHA forms 300A, 301 and 300 as required.
- 3.5.13. Review the safety and health programs of contractors before they perform work on a Company premises. Contractor safety and health programs must meet OSHA requirements. They must be effective in protecting contractor personnel and also Company Employees who may be exposed to hazards associated with work performed by contractors. Programs will be reviewed periodically to ensure that they remain relevant and appropriate to the organization.

#### **4. Supervisor Safety Responsibilities**

- 4.1. Supervisors will be responsible for following and promoting safety rules, policies and safe work procedures throughout the Company workplace.
- 4.2. For purposes of this program, the term “Supervisors” will be defined as any Employee who has the authority to direct the work of other Employees.
- 4.3. Supervisors will be concerned about the safety and welfare of fellow Employees in the Company workplace. Consequently, if a Supervisor observes a hazard or safety violation in an area outside of his or her direct authority, he or she will report this to the Supervisor in charge of the work area and then to the Safety Coordinator.
- 4.4. If the hazard or violation presents an immediate danger to life or health, the Supervisor observing the danger will intervene immediately to the extent necessary to prevent injury or harm to persons without causing danger to him or herself. This protection of persons is of primary importance! Preventing damage to Company facilities and/or property is a secondary priority.

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4.5. Any observed hazard requiring corrective action that is outside the Supervisor's authority and/or ability to correct or eliminate, will be immediately reported to the Safety Coordinator.

4.6. Supervisor job responsibilities include:

4.6.1. Help ensure compliance with Company safety rules and safe work procedures through daily supervision of Employees. Take corrective and disciplinary action as needed.

4.6.2. Conduct and/or assist in the safety orientation of new hires about department safe work practices and potentially hazardous conditions within the assigned work area. This includes ensuring that personal protective equipment (PPE) is either issued or available to new hires and re-assigned Employees. Initial safety training of new and re-assigned Employees will be completed before they begin duties in the Company workplace.

4.6.3. When possible, correct unsafe conditions anywhere they are observed in the workplace. If the situation involves another Supervisor's area of responsibility, or if additional authorization or resources are required, inform the Safety Coordinator or, in the Safety Coordinator's absence the senior Supervisor in charge of overall Company operations.

4.6.4. Help ensure that all accidents, injuries and "near miss" incidents are reported by Employees.

4.6.5. Investigate reported accidents and "near miss" incidents in accordance with Company policies and procedures.

4.6.6. If an injury requires more than self-administered first aid, make sure that the Employee receives first aid and medical attention as needed. This may include taking the injured Employee to the Company's designated medical provider, or arranging for transportation. Report any such incident to the site Safety Representative immediately.

4.6.7. In emergency situations, alert and cooperate with emergency medical, fire and/or police. Notify the Company Safety Coordinator promptly after meeting immediate needs of the emergency.

4.7. All Supervisors will work to develop and support safety awareness throughout the workplace. This includes maintaining an open and responsive attitude when Employees ask about or raise safety issues.

4.8. All Supervisors will set a good example with respect to safety by their personal behavior. This includes wearing personal protective equipment in areas where it is required, and personally complying with Company safety policies and safe work procedures.

## **5. Employee Safety Responsibilities**

5.1. Management considers the health and safety of each Employee to be a Company core value. All Employees will share and respect this Company value.

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- 5.2. Employees must assume primary responsible for their own safety because no other person can fulfill this role. Employees must make every initiative to protect their own safety and that of their fellow workers.
- 5.3. Employees will learn, understand and follow Company safety rules and safe work procedures. This includes maintaining an awareness of the potential hazards pertaining to their work assignment. Safety compliance is a condition of employment at the Company. Employees will conform to the OSHA expectations for Housekeeping as spelled out in CFR 1926.25, 1926.51 and 1910.22, which are later defined.
- 5.4. Employees are not required to perform any task that they believe to be dangerous or unsafe.
- 5.5. Below are other individual Employee safety responsibilities:
  - 5.5.1. Employees will perform those duties assigned by the Company through its Supervisors.
  - 5.5.2. Employees will utilize personal protective equipment (PPE) when it is required.
  - 5.5.3. Before beginning special work or new assignments, Employees will review applicable and appropriate safety rules
  - 5.5.4. If an Employee has any question about how a task should be done safely, he or she will suspend work on the task until he or she has discussed the situation with his or her Supervisor. Together, the employee and the Supervisor will determine the safest way to accomplish the task.
  - 5.5.5. After discussing a safety situation with his or her Supervisor and site Safety Representative, if the Employee still has questions or concerns regarding the task, he or she will be permitted to notify the Company Safety Coordinator. Unsatisfactory answers and/or additional concerns will be directed to the President of the Company.
  - 5.5.6. If an Employee observes what he or she believes is a hazardous condition, unsafe work practice, defective machine, tool, vehicle, facility or equipment in the workplace, he or she will report this immediately to his or her Supervisor.
  - 5.5.7. If the Supervisor is not immediately available, Employees will take action as necessary to protect others from what they believe is the hazard. This may include taking a malfunctioning machine or tool out of service so that it is not used by someone else. The Employee then will notify a Supervisor or the site Safety Representative at his or her earliest opportunity, and no later than the end of the day's shift.

## 6. Stop Work Authority

- 6.1. The Company has established a *Stop Work Authority* (SWA) program that assigns each Employee, any Subcontractor Personnel or Visitor on a job site with the individual responsibility, authority and obligation to suspend a single work task or group operation if he or she reasonably believes that they, other persons or the environment are in danger; or when there are concerns or questions about the health, safety and environmental risk controls in place.

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- 6.2. The SWA process generally involves a stop, notify, correct and resume approach for the resolution of the perceived hazard, unsafe condition, act, error, omission, or lack of understanding that could result in an incident, injury, environmental damage or other undesirable event.
- 6.3. This authority includes the individual right to require a safety review of any task to assure that all appropriate hazard controls are in place before the task is performed.
- 6.4. All job site personnel will exercise this authority when deemed necessary by issuing an immediate *Stop Work Order (SWO)*, either verbally or by some other means of communication, as required to cause an immediate intervention. No work will resume until all issues and concerns are addressed in accordance with this program and it is safe to do so.
- 6.5. Reprimand, intimidation or any type of retribution against any individual or company for invoking *Stop Work Authority* will not be tolerated.
- 6.6. Employees, Subcontractors and Visitors will be given an orientation on SWA prior to entering the job site or work location. This will be documented with the Employee's name, date of training, information communicated, and name of the trainer.
- 6.7. This orientation will include the following instructions:
  - 6.7.1. If you see an apparent hazard, unsafe condition or behavior; deficiency or failure of a safe work procedure in your work area, stop working immediately.
  - 6.7.2. Secure your equipment, cordon off the work area as required so that others are not exposed, and then contact your site Supervisor or Safety Representative immediately.
  - 6.7.3. Employees are responsible for initiating a SWO in accordance with this program.
  - 6.7.4. Supervisors and Management are responsible for taking actions in accordance with this program, as well as supporting and creating an environment that encourages free exercise of SWA.
- 6.8. This policy shall be prominently displayed and available to all Employees, Subcontractors and Visitors a language commonly understood.
- 6.9. This SWA policy will be reviewed frequently, such as during New Hire training, location-specific orientations, pre-job and Subcontractor meetings, and during communication of job site safety, health and environmental requirements to Supervisors and Subcontractors.
- 6.10. Guidelines for executing a 'stop work' intervention must be developed and communicated to facilitate a culture where SWA is freely exercised. A workforce that clearly understands how to initiate, receive and respond to a SWO intervention is more likely to participate. Though obvious to some, a simple step-by-step instruction creates an environment/culture where people know how to act and respond. Such step-by-step instructions will include instruction on expected behavior as well as SWA process.
- 6.11. An important consideration in development of this SWA process at a job site is to establish a conflict resolution procedure when opinions may differ regarding the validity of a SWA intervention or the decision to resume work. A clear protocol must be

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established to properly resolve the conflict. As part of establishing a site-specific SWA program, individuals with proper authority and who are not party to the conflict will be specifically identified to resolve such issues.

- 6.12. Stop work interventions will be formally documented in writing and reported to the Company Safety Coordinator in order to:
  - 6.12.1.1.1. Measure participation
  - 6.12.1.1.2. Determine quality of interventions and follow-up
  - 6.12.1.1.3. Trend common issues and identify opportunities for improvement
  - 6.12.1.1.4. Facilitate sharing of learnings
  - 6.12.1.1.5. Feed recognition processes
- 6.13. Reporting can be achieved either by developing a standalone reporting process, or expanding existing behavior-based safety or incident reporting processes. Whatever method is selected, separate detail regarding 'stop work' interventions shall be maintained as a demonstration of process maturity and value.
- 6.14. The desired outcome of any SWO intervention is that identified safety concerns are effectively addressed to the satisfaction of all persons involved before work is resumed. While most issues can be adequately resolved in a timely fashion at the job site, occasionally additional investigation and corrective actions may be required to identify and address root causes. Site-specific SWA programs will include the ability to identify and assign the need for further follow-up when required (i.e., root cause analysis, engineering studies, procedural review, assignment of action items, etc.).
- 6.15. The Company has implemented methods of individual recognition of Employees and others who exercise SWA in accordance with this program. These methods are intended to help develop and support positive reinforcement of desired behaviors (i.e., the timely execution and response to SWO interventions).
- 6.16. Conscious effort will be given to recognize individuals or work groups that exercise their authority to stop work in a manner consistent with company policy. Many opportunities exist to provide such recognition as:
  - 6.16.1. Individual recognition by the Supervisor for each intervention
  - 6.16.2. Regular peer recognition of "good stops" in safety meetings
  - 6.16.3. Periodic public recognition of Company-wide "good stops" published on Company newsletters, bulletins, web sites or other such communications
  - 6.16.4. Award of nominal prizes for proactive participation

## 7. Safety Meetings

- 7.1. Meetings with Employees will be conducted periodically to discuss safety, health, environmental and security issues concerning Company operations. The primary function of these meetings is to promote safety awareness and communication throughout the workplace.



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- 7.2. Employees and Supervisors will attend safety meetings. Safety meetings will be conducted by the site Safety Representative, Supervisor or some other person designated by the Safety Representative or management.
- 7.3. If a scheduled meeting must be postponed, it will be held later on a date and at a time determined by the Safety Representative.
- 7.4. Safety meetings will include ongoing Employee safety training and discussions to encourage safety awareness. Meetings will also address specific safety issues raised by Employees.
- 7.5. A written attendance record, signed by each Employee, will be maintained as documentation for every safety meeting.

## **8. Employees Reporting a Hazard Are Protected**

- 8.1. The purpose of this section is to state Company policy and procedure regarding protection for Employees who report a safety hazard. It affects all organizational units of Company operations.
- 8.2. Policy & Procedures
  - 8.2.1. It is the policy and philosophy of the Company that every Employee must feel secure and comfortable in reporting a known or perceived safety hazard to his or her Supervisor, to higher management within the Company, and to any appropriate governmental authority.
  - 8.2.2. To this end, and to protect the legitimate rights, health and safety of every Employee, it is the policy of the Company that no person will discharge or in any manner discriminate against any Employee who reports or calls to the attention of management what he or she believes to be a safety or health hazard; or any unsafe, unhealthy condition or situation in the workplace.
  - 8.2.3. Furthermore, no person will discharge or in any manner discriminate against any Employee because such Employee has filed any complaint, instituted or caused to be instituted any proceeding under or related to state or federal occupational health and safety law, has testified or is about to testify in any such proceeding, or because of the exercise by such Employee on behalf of himself or others of any right afforded by state or federal law.
  - 8.2.4. Any Employee who feels he or she has been discriminated against for any of the above reasons will report this directly to the Company Safety Coordinator or an appointed alternate.
  - 8.2.5. The intention of this policy is to support legitimate Employee comments, suggestions and complaints, and to ensure protection against illegal discrimination.
  - 8.2.6. At the same time, the Company will take appropriate action in response to the filing of a false claim, or a claim with little merit that Company management judges to have been filed primarily to harass the Company, an individual Employee or Supervisor.

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## 9. Access to Employee Exposure & Medical Records

- 9.1. Employees and former Employees of the Company who are, have been or may be exposed to toxic substances or harmful physical agents, have direct access to exposure and medical records maintained by the Company, as required by OSHA Standard 1910.1020.
- 9.2. Company Employees will be informed of the existence, location and availability of these records. Employees will be informed of their rights to have to access to these records. Request for these records will be made in writing.
- 9.3. "Access" will mean the right and opportunity to examine and copy. Access to Employee medical and exposure records will be provided in a reasonable manner and place. Access will be provided as promptly as possible. If access cannot be provided within 15 days after the Employee's request, the Company will state the reason for the delay and the earliest date that the records will be made available.
- 9.4. Responses to initial requests, and new information that has been added to the initial request, will be provided without cost to the Employee or their designated representative. At the sole discretion of the Company, Employees requesting access will be given records and the use of mechanical copying facilities so that the Employee may copy the records; or lend Employees their records for copying off the premises. Additionally, medical and exposure records will be made available, on request, to authorized OSHA representatives to examine and copy.
- 9.5. Regarding exposure records, if no such records exist for the Employee making written request, the Company will provide records (if such exist) of other Employees who have job duties/environment similar to those of the requesting Employee. Medical records relevant to the Employee requesting access will be provided to this Employee, their designated representative, or to authorized representatives of OSHA, under guidelines and provisions contained in 1910.1020(e)(2)(ii). Access to the medical records of another Employee will be provided ONLY if specific written consent can be obtained from that Employee.
- 9.6. The Employee requesting access, their designated representative, or OSHA will also have access to analyses (if any such exist) that were developed using information from exposure or medical records about the Employee's working conditions or workplaces. Personal identities, such as names, addresses, social security and payroll numbers, age, race and sex will be removed from the data analyses prior to access.
- 9.7. A copy of 29 CFR 1910.1020 is maintained by the Company for general reference and review by Employees. It is available to any Employee upon request.

## 10. Safety & Health Self-Inspections

- 10.1. The Company has implemented a program to identify, correct and control hazards on an ongoing basis.
  - 10.1.1. Safety & Health Self-Inspections
    - 10.1.1.1. Supervisors in each department and job site will conduct scheduled "in-house" safety and health self-inspections at least monthly in their area(s) of responsibility. Inspection will include, but will not be limited to: any tools, equipment, machinery,

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operating procedures and any existing and/or potential hazards on the work site, or working conditions that are unsanitary, hazardous or dangerous to Employees.

- 10.1.1.2. Each department/location will develop and maintain one or more self-inspection checklists specific to its operation. The list will be developed utilizing a general inspection checklist and will be evaluated and updated with hazards that are identified during the inspections, and from other pertinent data (injury reports, "near misses," Employee observations and suggestions) as such information is acquired.
- 10.1.1.3. Contents of checklists will be reviewed on a regular basis to ensure that they are current and updated. Checklists will become a part of the permanent record of the inspection and will serve as one confirmation of the self-inspection.
- 10.1.1.4. Each checklist will indicate the location or specific site or area surveyed, name and title of the inspector, date and time of the inspection, corrective action(s) taken for specific hazards or violations, and specific person(s) either initially informed or assigned to make sure that corrective actions are effectively implemented.
- 10.1.1.5. The self-inspection report will be forwarded to the Company Safety Coordinator for use in trend analysis and recordkeeping.
- 10.1.1.6. Employees will be notified of any hazard that poses an immediate threat of physical harm or property damage, and be informed of measures or steps taken to eliminate, correct or control the hazard.
- 10.1.1.7. The Safety Coordinator will review self-inspection checklists to confirm that any required corrective action has been completed.

## **11. Accident Reporting & Investigations**

11.1. The Company will investigate all work-related accidents, injuries and near miss incidents involving Employees or other persons; or significant damage to Company property. The company will ensure all equipment and materials need to conduct a proper investigation will be readily available. This investigation will be used to develop preventive measures and implement corrective actions.

### **11.2. Reporting**

11.2.1. All Employees are required to report any of the following to their immediate Supervisor as quickly as possible and without delay:

11.2.1.1. Accidents or incidents resulting in injury or illness of any magnitude (including first aid related cases); Employees who could be first responders will be trained and qualified in first aid techniques.

11.2.1.2. Accidents or incidents resulting in significant property or equipment damage; and

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11.2.1.3. Any near miss incidents that could potentially have resulted in injury or illness to an Employee, or damage to property.

11.2.1.4. After injured personnel are attended to, maintenance personnel will be summoned to assess integrity of buildings and equipment, engineering personnel to evaluate the need for bracing of structures.

### 11.3. Accident Investigation

11.3.1. The site Supervisor and Safety Representative will be responsible for conducting accident investigations that occur in areas that affect Employees under their supervision. Upon notification of an accident or near miss incident, the Safety Representative and/or Supervisor, will begin an investigation to determine the following:

11.3.1.1. How the accident or incident occurred;

11.3.1.2. Reporting of the incident must occur in a specified manner and the reporting sequence must be posted. For example, in the event of an incident, the following are contacted in order: 911, department supervisor, section manager, company physician, security, human resources, safety department, and other organizations as required. The employer must also verbally report required incidents to OSHA within 8 hours of their discovery. Incidents must also be reported to the Owner Client as soon as possible or in a timely manner (OSHA requires reporting of work related incidents resulting in the death of an employee or the hospitalization of three or more employees. within 24 hours of incident).

11.3.1.3. Special circumstances involved;

11.3.1.4. Underlying, indirect or associated causes; and

11.3.1.5. Corrective actions or preventive measures and controls indicated by investigation results.

11.3.2. Accidents and incidents involving situations where multiple Supervisors are affected, such as an Employee of one area injured in another area, will be investigated as a joint effort directed and overseen by the Company Safety Coordinator.

### 11.4. Documentation

11.4.1. All activities and findings of the investigations will be documented and recorded for review by the Safety Coordinator.

11.4.2. Accident and incident investigation documentation will record, as a minimum, the following information:

11.4.2.1. Date of occurrence;

11.4.2.2. Name of person(s) involved, job title, area assigned and length of experience in the Company with this job;

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- 11.4.2.3. Location of occurrence;
- 11.4.2.4. Nature and severity of injury or illness;
- 11.4.2.5. Name of Supervisor(s) involved in the investigation;
- 11.4.2.6. Job assignment or duties being performed at time of incident;
- 11.4.2.7. A list of any Personal Protective Equipment and/or operator certification(s) required for this job or assignment, and whether the person(s) involved were using this PPE and/or held current certifications as required;
- 11.4.2.8. Special circumstances or encumbrances;
- 11.4.2.9. Details of how the accident or incident occurred;
- 11.4.2.10. Equipment affected or involved;
- 11.4.2.11. Written statements shall be of the person(s) injured or directly involved (unless unavailable due to injury);
- 11.4.2.12. Names and written statements of witnesses;
- 11.4.2.13. All evidence such as photos witness statements shall be kept secure.
- 11.4.2.14. Apparent direct cause;
- 11.4.2.15. Apparent indirect, underlying or contributing factors – “root causes” (including fault or failure in Safety & Health Program elements); and
- 11.4.2.16. Incident investigations will result in corrective actions where individuals will be assigned responsibilities relative to the corrective actions. These actions will be tracked to closure. Lessons learned will then be reviewed and communicated to prevent reoccurrence or similar events.

## 12. Analysis & Review

- 12.1. Company management and the Safety Coordinator will periodically review and analyze records and documentations pertaining to ongoing implementation of the Safety & Health Program, accidents, injuries and near miss incidents.
- 12.2. Management will also ensure Personnel is trained in their roles and responsibilities for incident response and incident investigation techniques. Training requirements relative to incident investigation and reporting (Awareness, First Responder, Investigation, and training frequency) will be identified in the program.
- 12.3. This review will focus on hazard analysis and recognition of any developing trends.
- 12.4. Trend analysis will identify recurring accidents and near miss incidents resulting in, or potentially involving injury, illness or property damage.
- 12.5. The analysis also will be used to identify deficiencies in program components so that enhancements can be made as needed.

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- 12.6. This process will include review of Employee training records to ensure that new hire and safety procedures training are being accomplished in accordance with Company requirements.
- 12.7. Processes are established to ensure that monitoring and measurement can be carried out in a manner consistent with monitoring and measuring requirements. To ensure valid results, measuring equipment will:
  - 12.7.1. Be calibrated and/or verified at specified intervals (weekly or monthly, as needed) or prior to use against measurement standards traceable to international or national measurement standards;
  - 12.7.2. Be adjusted or re-adjusted as necessary;
  - 12.7.3. Have identification to determine its calibration status;
  - 12.7.4. Be safeguarded from adjustments that would invalidate the measurement result;
  - 12.7.5. Be protected from damage and deterioration during handling, maintenance and storage.

**13. Orientation & Training**

- 13.1. The Company will provide initial safety and health orientation and related ongoing training to Employees at all levels of the organization.
- 13.2. The Safety Coordinator will develop, implement and maintain the safety and health orientation and training programs. These are intended to educate and familiarize Employees with safety and health procedures, rules and safe work practices established for Company operations.
- 13.3. Management will encourage and require participation of all Employees.
- 13.4. Management will support the safety orientation and training programs with sufficient allocations of time and funding for effective implementation.

**14. Training & Development**

- 14.1. Safety and health orientations and training will be developed to inform Employees about:
  - 14.1.1. Potential hazards associated with the work area;
  - 14.1.2. Potential hazards associated with specific job or task assignments;
  - 14.1.3. Emergency procedures;
  - 14.1.4. Personnel Protective Equipment (PPE) required for specific tasks or assignments;
  - 14.1.5. Hazard Communication Standard (Right-to-Know) information about chemicals used in the workplace;
  - 14.1.6. Specific equipment operations and/or competent person training related to Employee tasks or job assignments;
  - 14.1.7. Company safety rules and safe work procedures;

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- 14.1.8. Employee reporting requirements regarding safety hazards, accidents, injuries and near miss incidents;
  - 14.1.9. Accident investigation procedures and requirements; and
  - 14.1.10. Personnel health monitoring requirements as applicable to a task or job assignment.
- 14.2. Employee safety and health training will be implemented in three ways -- New Hire Safety & Health Orientation; Reassigned Personnel Safety and Health Orientation; and Ongoing / Annual Safety & Health Training.
- 14.2.1. New Hire Safety & Health Orientation
    - 14.2.1.1. New Hire Safety Orientation Training will be administered to all new Employees prior to the initial work assignment.
    - 14.2.1.2. The orientation will consist of all required training programs as well as job and site-specific safety and health information.
    - 14.2.1.3. New Hire Orientation includes an overview of the Safety & Health Program, plus explanation of Individual Employee Safety Responsibilities; the written Hazard Communication Standard (Right-to-Know) Program; General Safe Working Procedures; Job-Specific and Site-Specific Safety and Health Procedures (including special training about Company safety and safe work procedures); Fire Extinguisher Training and Emergency Response Procedures.
    - 14.2.1.4. All New Hires will be given a tour of the facility/job site and an opportunity to pose questions to the site Safety Representative or Supervisor as needed to help the new Employee understand safety and health information, rules, policies and procedures.
  - 14.2.2. Reassigned Personnel Safety & Health Orientation
    - 14.2.2.1. Personnel who are given a new work assignment will receive an orientation on safety rules and safe work procedures relating to these new duties.
    - 14.2.2.2. This is referred to as the REASSIGNED PERSONNEL SAFETY ORIENTATION. In addition to job specific safety training, reassigned personnel will receive information/training on the chemical hazards and emergency procedures for the reassigned work area.
  - 14.2.3. Ongoing Safety & Health Training
    - 14.2.3.1. Employees will participate and be involved in ongoing safety and health training at the Company. This type of activity provides both refresher training and reinforcement of safe work procedures. It also helps communicate new information and general safety awareness.

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14.3. Annual Safety & Health Training

14.3.1. Annual training and recertification training will be developed and/or reviewed by the Safety Coordinator.

14.3.2. Annual training topics may include, but may not be limited to the following:

14.3.2.1. Hazard Communication

14.3.2.2. Proper Selection and Use of Personal Protective Equipment

14.3.2.3. Responding to Injuries and Illnesses at Work – First Aid and CPR Options

14.3.2.4. Bloodborne Pathogens Awareness

14.3.2.5. Fire Safety, Prevention and Response

14.3.2.6. Electrical Safety

14.3.2.7. Control of Hazardous Energy – Lockout and Tagout

14.3.2.8. Emergency Response, Evacuation and Shelter In Place Procedures

14.3.2.9. Housekeeping for Safety / Safe Walking and Working Surfaces

14.3.2.10. Material Handlings / Preventing Back Injuries

14.3.2.11. Machine Guarding and Safe Operations of Powered Equipment

14.3.2.12. Ergonomics in the Company Workplace

14.3.2.13. Preventing Violence In The Workplace

14.3.2.14. Heat Related Illnesses

14.3.2.15. Stairs and Ladder Safety / Fall Protection

14.3.2.16. Office Safety

14.4. Documentation of Training

14.4.1. The Safety Coordinator will maintain a written record of safety training taken by each Employee during the year.

14.4.2. Employee safety and health training will be documented with at least the following information:

14.4.2.1. Date of training session;

14.4.2.2. Provider (name of person conducting training and affiliation, if not an Employee of the Company);

14.4.2.3. Subject matter;

14.4.2.4. Legible name of attendee(s) and supplemental identification if needed or required;

14.4.2.5. Printed name and signature of Employee as acknowledgment of attendance.



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14.4.3. Individual training records will be maintained for the duration of employment plus three years.

## **15. Concepts About General Safety & Specific Duty Training**

- 15.1. The Safety & Health Program is designed to provide detailed information to Employees about the Company's safety related policies, as well as to serve as a training guide and reference source.
- 15.2. The program presents GENERAL SAFETY TRAINING to Employees about health and safety subject matter that pertains to all Company operations.
- 15.3. Job-specific or task-specific safety and health orientation is presented as SPECIFIC DUTY TRAINING. It is provided to Employees who are assigned to work in jobs or at tasks that require specialized safety/health knowledge, understanding and proficiency.
- 15.4. Examples of these types of assignments include operation of heavy equipment, cranes and hoists; forklift operator safety training and certification; performance of lockout and tagout procedures for authorized persons; excavation safety training and certification; confined space entry safety training and certification; use of powered equipment and tools; and vehicle operations when in the course and scope of employment with the Company.
- 15.5. Employees will receive both types of training based upon and before they begin a job assignment.
- 15.6. Training procedures shall take into account differing levels of:
  - 15.6.1. Responsibility, ability, language skills and literacy; and
  - 15.6.2. Risk.

## **16. Recordkeeping**

- 16.1. The Company believes that the only valid means of reviewing and identifying trends and deficiencies in a safety program is through an effective Recordkeeping Program. The recordkeeping element is also essential in tracking the performance of duties and responsibilities under the Program.

The Company is committed to implementing and maintaining an active, up-to-date Recordkeeping Program. Therefore, all documents and records applicable to the Company will be submitted and maintained on file for verification purposes at the address given below:

Cleveland Integrity Services

Attn: Recordkeeping

ADD

CSZ

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15.2. Injury & Illness Data

- 15.2.1. The Personnel Department will maintain records of all work-related Employee injuries and illnesses.
- 15.2.2. The following records are applicable only to work-related injuries and illnesses:
  - 15.2.2.1. OSHA 300 Log or Recordable Injuries and Illnesses, or equivalent if required;
  - 15.2.2.2. OSHA 301 Injury and Illnesses Incident Report, or equivalent if required;
  - 15.2.2.3. OSHA 300A Summary of Work-Related Injuries and Illnesses, or equivalent if required; and
  - 15.2.2.4. State workers' compensation and insurance carrier forms (as appropriate)
- 15.2.3. The OSHA 300 Log, an Annual Log of Recordable Injuries and Illnesses, or an equivalent record, will be maintained at each job site for not less than five (5) years. The OSHA 301 Injury and Illness Incident Report, or an acceptable equivalent, will be established bearing a case number correlating with the case identifier on the OSHA 300 Log and all pertinent and required information. The information contained or entered on these records will be made current within six working days of a recordable incident.
- 15.2.4. A copy of the completed and signed OSHA 300 annual summary must be posted in each establishment in a conspicuous place or places where notices to Employees are customarily posted. The Company will ensure that the posted annual summary is not altered, defaced or covered by other material.
- 15.2.5. The completed and signed OSHA 300 annual summary will be posted no later than February 1 of the year following the year covered by the records. The posting will remain in place until April 30.

15.3. Other Safety-Related Records

- 15.3.1. The Company will maintain and review records of safety audits and inspections that are conducted within or that affect the Company, employees or facilities.
- 15.3.2. The Company will document and maintain records of safety and health related Employee training. This documentation will be maintained as proof of attendance and for review to assist in determining the need for additional or recurring training for Employees on an individual basis.
- 15.3.3. The Company will maintain records and documentation of accident and incident investigations.
- 15.3.4. The Company will maintain records and data pertaining to equipment and maintenance programs performed at each workplace. Applicable forms and records are:

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- 15.3.4.1. Routine inspection and maintenance records;
- 15.3.4.2. Documentation of services performed by contract agreement; and
- 15.3.4.3. Documentation of repair and replacement of parts or equipment.

**16. Annual Review & Revision of Program Elements**

- 16.1. At least yearly, the Safety Coordinator, management and other designated Company personnel will review and revise the components of the Accident Prevention Plan and the Safety & Health Program for effective implementation.
- 16.2. Specific attention will be devoted to the introduction of new procedures, processes and equipment, as well as indications that a program component needs revision or updating.
- 16.3. Information for this review process will be solicited from Supervisors and Employees.
- 16.4. Analysis will be made to ensure the management system has been properly implemented and maintained, are effective in meeting the organization's policy and objectives and provide information on the results of audits of management.
- 16.5. Management shall review the system to assess opportunities for improvement. Input to reviews shall include:
  - 16.5.1. Results of internal audits and evaluations of compliance with applicable legal requirements;
  - 16.5.2. Results of participation and consultation;
  - 16.5.3. Relevant communication from external parties;
  - 16.5.4. Status of incident investigations, corrective actions and preventative actions;
  - 16.5.5. Follow-up actions from previous reviews;
  - 16.5.6. Recommendations for improvements to the system and how they can be implemented.

**17. Housekeeping**

- 17.1. Employees are expected to conform to the basic regulations on housekeeping, including, but not limited to:
  - 17.1.1. During the course of construction, alteration or repairs form and scrap lumber with protruding nails and all other debris, shall be kept cleared from work areas, passageways, and stairs, in and around buildings or other structures.
  - 17.1.2. Combustible scrap and debris shall be removed at regular intervals during the course of construction. Safe means shall be provided to facilitate such removal.

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- 17.1.3. Containers shall be provided for the collection and separation of waste, trash, oily and used rags and other refuse. Containers used for garbage and other oil, flammable, or hazardous wastes, such as caustics, acids, harmful dusts, etc. shall be equipped with covers. Garbage and other waste shall be disposed of at frequent and regular intervals.
- 17.2. To comply with sanitation procedures, all work locations will be fully equipped with:
  - 17.2.1. Potable Water
    - 17.2.1.1. An adequate supply of potable water shall be provided in all places of employment.
    - 17.2.1.2. Portable containers used to dispense drinking water shall be capable of being tightly closed and equipped with a tap. Water shall not be dipped from containers.
    - 17.2.1.3. Any container used to distribute drinking water shall be clearly marked as to the nature of its contents and not used for any other purpose.
    - 17.2.1.4. Common drinking cups are prohibited.
    - 17.2.1.5. Where single service cups are supplied, both a sanitary container for the unused cups and a receptacle for disposing of the used cups shall be provided.
    - 17.2.1.6. **Potable Water** means water that meets the standards for drinking purposes of the State or local authority having jurisdiction, or water that meets the quality standards prescribed by the U.S. Environmental Protection Agency's National Primary Drinking Water Regulations.
  - 17.2.2. Nonpotable Water
    - 17.2.2.1. Outlets for nonpotable water, such as water for industrial or firefighting purposes only, shall be identified by signs meeting the requirements of subpart G of this part, to indicate clearly that the water is unsafe and is not to be used for drinking, washing or cooking purposes.
    - 17.2.2.2. There shall be no cross-connection, open or potential, between a system furnishing potable water and a system furnishing nonpotable water.

17.2.3. Toilets at Construction Jobsites

17.2.3.1. Toilets shall be provided for employees according to the following table:

**Table D-1**

Number of employees	Minimum number of facilities
20 or less	1.
20 or more	1 toilet seat and 1 urinal per 40 workers.
200 or more	1 toilet seat and 1 urinal per 50 workers.

17.2.3.2. Under temporary field conditions, provisions shall be made to assure not less than one toilet facility is available.

17.2.3.3. Job sites not provided with a sanitary sewer shall be provided with one of the following toilet facilities, unless prohibited by local codes:

- 17.2.3.3.1. Privies;
- 17.2.3.3.2. Chemical Toilets;
- 17.2.3.3.3. Recirculating Toilets; or
- 17.2.3.3.4. Combustion Toilets.

17.2.3.4. These requirements shall not be made to mobile crews.

17.2.4. Food Handling

17.2.4.1. All employees' food service facilities and operations shall meet the applicable laws, ordinances, and regulations of the jurisdictions in which they are located. In addition, they will have sound hygienic principles. In all places of employment where all or part of the food service is provided, the food dispensed shall be wholesome, free from spoilage, and shall be processed, prepared, handled and stored in such a manner as to be protected against contamination.

17.3. Supervisors will ensure that good housekeeping is maintained at the worksite. This practice will be followed to prevent unnecessary injuries. The following will outline basic housekeeping guidelines which will be part of each daily practice.

17.3.1. Trash, scrap material with protruding nails or sharp edges, bulky merchandise, equipment, tools and all other debris will be kept clear from work areas, passageways and stairs, in and around buildings or other structures which may accumulate during the course of any work, construction, alteration, or maintenance repairs.

17.3.2. During the course of work, combustible scraps and debris will be removed at regular intervals. Safe means will be provided to facilitate such removal.

17.3.3. Containers will be provided for the collection and separation of waste, trash, oily and used rags and other refuse.

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17.3.4. Metal containers used for garbage and other oily, flammable\combustible, or hazardous wastes, such as caustics, acids, harmful dusts, etc. will be equipped with air tight covers.

17.3.5. Garbage and other waste will be disposed of at frequent and regular intervals.

## **18. Sidewalks, Driveways, And Walkways**

18.1. Sidewalks, driveways, and walkways will be maintained in good repair and free of debris and residuals such as grease, oil, and other materials which may be subject to cause bodily injury due to slips, trips and/or falls. In operational areas which pose a high risk to these type of potential injuries, care should be taken to insure that tracking residual materials into other areas of the site is eliminated.

18.2. Spills and fallen or dropped objects will be pickup immediately. Small particles and debris will not be allowed to accumulate on the floor at any time particularly around machinery. Additional safety guidelines will be followed as outlined in the *"Preventing Slips and Falls"* section of this program.

## **19. Lighting**

19.1. All lighting, both inside and outside, will be inspected and maintained in good working order to provide and comply with illumination requirements and recommendations. Defective lighting such as bulbs, especially at all exits, emergency exits and outside lights will be reported and repaired immediately.

19.2. Emergency lighting will be installed to provide required illumination to exit the premises in the event of interruption of normal lighting.

## **20. Trash**

20.1. Trash should not accumulate anywhere on the premises. Wrappers, empty cans or bottles, remnants of lunches or snacks all contribute to an unacceptable level of housekeeping. Frequent policing of the area should be required to maintain a safe and healthful environment. Convenient trash receptacles will be provided for easy disposal.

20.2. Boxes and/or combustible material must not accumulate anywhere on the premises. Dumpsters will not be overloaded. Supervisory personnel will schedule additional trash pick-ups if dumpster overloading is apparent. Sharp edged or jagged material, fluorescent tubes, pipe, and lumber will not be permitted to protrude over the top of trash receptacles and/or dumpsters and into areas of ingress and egress.

## **21. Rodents, Pests, And Insects**

21.1. Every enclosed workplace will be so constructed, equipped, and maintained, so far as reasonably practicable, as to prevent the entrance or harborage of rodents, insects, and other vermin. Therefore, rodents, pests, and insects will be controlled to maintain a safe and healthful working environment free of potential disease and health risks. Regular professional extermination may be required to maintain vermin control. Extermination of mosquitos may be necessary to control potential disease transmission and health risks.

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## 22. Slips, Trips & Falls

- 22.1. The best walking or working surface is flat, level, uncluttered, clean, dry and stable. Slips and falls can cause serious injury in the workplace. Other portions of this Safety & Health Program require that employees wear sensible footwear with slip-resistant soles in the workplace. Several sections focus on eliminating trip hazards in walkways and with keeping work areas clean and clear of clutter
- 22.2. All aisles and passageways will be kept clear. Aisles and passageways will be clearly marked. Wet surfaces will be covered with non-slip material and all holes properly covered or marked with warning guards. All spills will be cleaned up immediately, and a caution sign placed on all wet or drying surfaces.
- 22.3. Inspect walkways to ensure that all floor openings that must remain open (such as floor drains) are covered with grates or similar covers.
- 22.4. In cases of passageways used by forklifts, trucks or other machinery, use a separate aisle for walking, if available. If no separately marked aisle is available, use extreme caution. Walking in a passageway used by machinery is like walking in the middle of a street used by cars: The employee may have the right of way, but the heavier vehicle cannot always see the pedestrian and cannot always stop in time. The key to moving around in such circumstances is to stop, look and listen and then to move when there is no danger. Employees should make eye contact with the drivers of moving vehicles so that they can see the Employee.
- 22.5. Equipment will be properly stored so that sharp edges do not protrude into walkways. Changes in elevations will be clearly marked, as must passageways near dangerous operations like welding, machinery operation or painting.
- 22.6. If there is a low ceiling, a warning sign will be posted. If the walkway or stairway is more than thirty inches above the floor or ground, it must have a guardrail.
- 22.7. This section also addresses care and maintenance of floors and walking surfaces, taking into account factors which affect the Coefficient of Friction (COF) as it relates to slip resistance of walkway surfaces
- 22.8. Floor maintenance is every employee's responsibility. Metal scrap, loose parts, pieces, boxes and trash can be hazardous. Damage, defects or similar hazards observed in floors, aisles, thresholds, sidewalks, steps, stairs and other walkways should be reported immediately to a Supervisor or the Safety Coordinator.
- 22.9. During floor maintenance (i.e. mopping floors in public areas and restrooms, and while stripping or applying wax, be sure to place "Caution -- Wet Floor" signs around the affected area. Wet floors create slippery conditions. They also coat shoe soles with moisture. Areas around vending machines and areas where food and beverages are consumed require special attention. Where there is food or beverages, there is always the chance of spills.
- 22.10. Maintenance and shop areas always have the potential for spills of lubricants, oil, grease and other residues. Housekeeping and proper floor maintenance is critical here.
- 22.11. Trip hazards such as pallets, boxes, containers, product or materials stored or projecting into walkways are not allowed. Any employee or Supervisor who sees

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such a hazard must take immediate corrective action. This can include removing the hazard if this is practical, reasonable and possible; "guarding" the hazard by placing a barrier or marker over or around the hazard to warn others until it can be properly corrected; and reporting the situation to a Supervisor or the Safety Coordinator

#### 22.12. Proper Floor Surfaces Cleaning Methods

- 22.12.1. Use sorbent material (the "kitty litter" type product) for absorption of oil spills during work. When cleaning an oil spill, **DO NOT** simply wipe up the spill and "run a dry rag over it". Oil based products will seep into the floor, leaving a very thin film or sheen of oily residue. Usually, the most effective method for cleaning up an oily spill is to wipe it up as much as possible and then use a dry powder cleaner to pickup the remaining residue. Then wipe up the powder
- 22.12.2. When walking anywhere on the companies premises, inside or outside, watch where you are going and pay attention. Studies have shown that 98 percent of all trips, slips and falls are avoidable if proper attention is being paid.
- 22.12.3. Watch for change of height and change of surface. Be prepared for a difference in friction when going from one type of flooring or surface to another. An example here is walking from a carpeted surface onto tile or concrete. The Coefficient of Friction is substantially different between the two surfaces and this will be anticipated.
- 22.12.4. Shoes or boots with high heels or leather soles present their own hazards. These types of footwear are prohibited in the company workplace, with the exception of specific positions in the business offices, or when employees are working off company premises in public contacts where these types of footwear are appropriate to performance of the work
- 22.12.5. As stated consistently throughout this policy, employees are required to wear footwear with slip-resistant soles in the company workplace. Everyone should understand, however, that slip-resistant and rubber-soled footwear can become slippery when exposed to oil, grease or other such residue. For this reason, walk-off mats are provided in certain areas and situations for keeping soles clean during the work period. The following rules pertaining to proper floor and walkway maintenance will be followed:

#### 22.13. Exterior Walkways and Pavements:

- 22.13.1. The company strives to keep outside walkways, sidewalks and pavements in good condition. Potholes, cracks, obstructions, projections and other types of potential trip hazards should be reported to a Supervisor, regardless of where on company premises these problems are discovered. The Supervisor is responsible for forwarding any such report to the Safety Coordinator.
- 22.13.2. Cleaning of walkways minimizes the amount of dirt, sand or grit on the parking lot, sidewalks, outside steps, porches and paved approaches to



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entrances. Cleaning walkways on the outside and inside of entrances is fundamental to slip and fall prevention because it helps prevent slippery material like dirt, sand, water and ice from being tracked inside.

22.13.3. Toward this end, the company has established a plan and schedule for regular and consistent sweeping of sidewalks, ramps, steps, stairs and exterior entry walkways leading to entrances. Cleaning will be done with brooms, mechanical sweepers or other methods which are appropriate to the task. Frequency of regular sweeping will be established based upon the volume of traffic through the entrance, exterior conditions and other such factors.

22.13.4. Spills and potentially hazardous accumulations on exterior walkways and pavements, when reported, will be cleaned by sweeping, mopping, wet washing or other appropriate means in a timely manner.

### 23. Walkways, Landings and Floors at Entrances

- 23.1. On the inside, the initial 15-25 feet is a critical area for regular floor maintenance. People and equipment entering may bring in oil, grit, dirt and moisture. This will be controlled immediately. In some areas walk-off mats are provided on the inside of these entrances. The mats serve to wipe off and remove moisture picked up outside. The cleaner the shoe is, the less chance for a slip and fall. Walk-off mats will be long enough for four or five normal strides and wide enough to cover entire entrance.
- 23.2. Frequent cleaning and maintenance of walk-off mats is critical. This keeps them from becoming overloaded with dirt, sand, moisture and oil. A mat that is "overloaded" cannot perform its footwear cleaning function. An "overloaded" mat is worse than no mat at all.
- 23.3. Daily maintenance may include vacuuming, or shaking the mat and cleaning the residue. Weekly maintenance should include shampooing or, in some cases, washing the mat (top and bottom) and allowing it to dry. Proper drying is important because a damp mat may actually apply moisture to footwear upon entry. A clean surface under the mat is very important. A dirty back can cause mat to slip or bunch up and cause a tripping hazard.
- 23.4. Where mats are not used, be sure that entrances are kept clean and are not slippery. The same care will be given to aisles and walkways inside the shop facilities since they have the most traffic. Remember that dirt, grease and oil residue can build up quickly on heavy traffic aisles. Hand trucks and forklifts can also add to slippery conditions.
- 23.5. Regarding regular interior floor care, contaminated floor polish or wax will not be used. **NEVER** pour unused polish or wax back into a container or drum. The slightest bit of dirt can cause bacterial contamination which can change the Coefficient of Friction. Contamination can also occur if an unclean applicator or mop is used. **DO NOT** use the same mop for mopping floors or cleaning spills and applying wax. Use separate mops or applicators for these jobs.
- 23.6. Different types of wax are used for different floor surfaces. Make sure that you know and use the proper wax for the floor surface being maintained. Manufacturers

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are familiar with these conditions and decisions. They can recommend the proper wax to achieve an appropriate Coefficient of Friction for a particular surface.

- 23.7. When floor maintenance includes use of a dust mop, **DO NOT** use mops that have been treated with oil to improve dust collection ability. An oil streak can increase chances for slips and falls.
- 23.8. **DO NOT** allow oil treated walk-off mats. Oil is sometimes added to increase absorbency. But when moisture is added, this can be an additional slip and fall problem.

#### 24. Violence in The Workplace

- 24.1. It is the policy of Cleveland Integrity Services to prohibit any unauthorized visitor. All visitors in non-public areas will be accompanied by an employee who will act as a guide. No visitor is to be allowed free access to roam about at will. Visitors are required to observe the same rules as employees.
- 24.2. Firearms and weapons shall not be permitted on company premises unless by special permission of the President of the company, in writing and in advance. Any violation of this rule may result in immediate dismissal.
- 24.3. It is critical to both management and workers that they are working with people who want to be safe. Some management actions might consist of:
  - 24.3.1. Reviewing military record.
  - 24.3.2. Verification of Prior Employment Practices.
  - 24.3.3. Control access to employee home phone numbers and addresses.
  - 24.3.4. Confirming visitor identification/retaining visitor ID as appropriate.
  - 24.3.5. Absolutely no weapons (i.e. guns, knives, bats, clubs, etc.) in the workplace.
  - 24.3.6. Minimizing outside access through one-way fire doors and directing visitors through specific routes of entry by locking doors or using receptionists. **DO NOT** leave non-public doors unlocked or uncontrolled.
- 24.4. Employees
  - 24.4.1. **DO NOT** argue with employees, visitors or intruders.
  - 24.4.2. Avoid hostile confrontations.
  - 24.4.3. Always have a means of exit available (i.e., unlocked door).
  - 24.4.4. When a vehicle is used as part of the job, ensure that valuables are not visible, vehicle is parked in a safe location and doors are locked.
  - 24.4.5. Contact Police (911) and the Safety Coordinator to deal with violence situations or suspicious individuals who should not be in the area. Post Emergency Phone numbers.

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#### 24.5. Management's Response

- 24.5.1. Violent behavior is the result of more than people just letting off steam. It is a verbal warning to both management and their fellow workers that the work situation is getting out of control. There are some basic causes of why this situation is happening.
- 24.5.2. They stem from whether employees feel that they are being treated fairly. All that is important is how they perceive the situation. Management's behavior is critical in the workplace. Management personnel should:
  - 24.5.2.1. Present a pleasant disposition.
  - 24.5.2.2. Avoid verbal arguments.
  - 24.5.2.3. Be open to discussing problems.
  - 24.5.2.4. Do not accept threats within the workplace.
  - 24.5.2.5. Recognize and deal with unacceptable levels of stress.
  - 24.5.2.6. Give fair and equal treatment and **DO NOT** play favorites. **ALWAYS** be consistent.
  - 24.5.2.7. Apply the disciplinary process in a consistent and fair manner.
- 24.6. After the Supervisor has taken appropriate action, it becomes each employee's responsibility to recognize the warning signs of violence. If a co-worker is having temper tantrums or loses his/her temper frequently, it should be reported it to the Supervisor.
- 24.7. It could be as simple as a misunderstanding or miscommunication, or the employee could have serious emotional problems that will be dealt with now.
- 24.8. If management has not been made aware of the situation, the upset employee could be a **ticking bomb ready to go off**. Therefore, **ALL** reports concerning potential violent acts against company employees, property or interests will be considered serious and authentic until investigated.
- 24.9. Supervisors receiving a report concerning any form of a potential violence in the workplace will act upon the information in an appropriate manner.

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**Applicable OSHA Standards: 29 CFR 1926.453 and 1910.67**

**1. Purpose**

- 1.1. This program establishes the minimum requirements for the safe operation of aerial lifts by Cleveland Integrity Services and contractor personnel in a Company workplace.
- 1.2. This program also establishes requirements for the training and certification of personnel who are authorized by the Company to operate aerial lifts; and requires that such training, certification and authorization take place BEFORE individual employees or contractor personnel perform any type of operation involving the use of aerial lifts at a work location. This is done to prevent accidents, injuries and damages caused by the unsafe operation of this equipment.

**2. Scope**

- 2.1. Company and contractor personnel designated under these procedures are instructed in the safety significance, priority, rules and safe work practices for safe operations of aerial lifts.
- 2.2. Each new or transfer-affected employee who is required to operate aerial lifts in the workplace will be trained, certified and authorized by the Company in the manner established by this program.

**3. Responsibilities**

- 3.1. This program establishes specific responsibilities for designated personnel. As the individual who has ultimate authority over all operations in a Company workplace or job site, the Site Supervisor is responsible for ensuring that this Aerial Lift Safety program is implemented as explained herein.
- 3.2. The Site Supervisor will designate individuals within the Facility organization to assist in this implementation. Delegations include:
  - 3.2.1. Company supervisors are responsible: for initial proficiency training for the operation of aerial lifts; for authorization of specific individuals who are determined by the supervisor to be trained and proficient in aerial lift operations; and for implementation of all Aerial Lift Safety policies and procedures established under this program throughout their respective areas of supervisory responsibility.
  - 3.2.2. Individuals who have demonstrated to their supervisor competency to operate aerial lifts and scissor lifts to which they will be assigned to do work are required to successfully complete Aerial Lift Safety Training presented by the Company Safety Representative.

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- 3.2.3. Company supervisors may designate specific personnel under their management authority to assist in the implementation of these responsibilities.
- 3.2.4. The Company Safety Representative is responsible for either providing or obtaining specific safety training to personnel who have been designated by Company supervisors to serve as aerial lift operators. The manner of individual safety training, testing and operator observation will be as established by this program.

#### **4. Aerial Lift Specifications**

- 4.1. Aerial lifts acquired for use on or after January 22, 1973 will be designed and constructed in accordance with American National Standards for "Vehicle Mounted Elevating and Rotating Work Platforms," ANSI A92.2-1969, including appendix.
- 4.2. Aerial lifts acquired before January 22, 1973 which do not meet these requirements will not be used unless they have been modified and conform to applicable design and construction requirements of ANSI A92.2-1969.
- 4.3. When aerial lift equipment has an obstructed view to the rear, the vehicle will have either a reverse signal alarm that is audible above the surrounding noise level or, an observer will be utilized to signal the operator when it safe to back up.

#### **5. Safety Training**

- 5.1. Only trained and authorized operators are permitted to operate aerial lifts. Methods are devised to train operators in the safe operation of this equipment. This training includes:
- 5.2. Information about federal Occupational Health and Safety (OSHA) regulations contained in 29 CFR-1910.67 (Vehicle-mounted elevating and rotating work platforms).
  - 5.2.1. Basic principles and safe work procedures about aerial lifts.
  - 5.2.2. Pre-work or pre-task operator inspection procedures for aerial lifts.
  - 5.2.3. Safe work procedures for utilization of aerial lifts by authorized personnel.
  - 5.2.4. Safe operations procedures regarding aerial lift operations in proximity to other personnel, pedestrians, electrical sources, obstructions and other situations that have the potential to present hazards or cause complications to the task.
  - 5.2.5. Aerial lift and other related safety procedures that pertain to specific work assignments at customer/host employer work locations.
  - 5.2.6. Recognizing hazards that specifically relate to aerial lift operations.

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- 5.3. Individual Participants in Aerial Lift Safety Training will be given written materials that follow information presented during Classroom Instruction, and will complete a written test given immediately following Classroom Instruction. To successfully complete this safety training, Participants will pass this test with a score that is acceptable to the Company Safety Coordinator.

## **6. Certification Process**

- 6.1. Basic Competency at Aerial Lift Operations: Determined by the on-site Company supervisor after sufficient direct observation and, as required, basic training on the operation of aerial lift so that, in the opinion of the supervisor, the individual Operator is ready to complete the Safety Training requirements.
- 6.2. Safety Training Classroom Instruction: This is the portion of the certification process involving a Safety Trainer designated by the Company Safety Coordinator. This Trainer will present Classroom Instruction and then give each Class Participant a written test to help confirm basic understanding of the information presented. The Trainer will issue written certification for each Participant who successfully completes the Classroom Instruction and passes the Test (at a minimum score determined by the Safety Coordinator).
- 6.3. Direct Observation for Certification: This will be conducted by the instructor or someone specifically designated by the Safety Coordinator. The Site Supervisor will concur with the certification of each individual Powered Lift Operator. Operators certified by the Company are issued a written certification that identifies them as a Company-certified Aerial Lift Operator.

## **7. Certification Documentation**

- 7.1. Cleveland Integrity Services will use written documentation of a certificate, wallet card and / or badge to readily identify individuals who are certified to operate specified types of powered equipment.
- 7.2. Operators of aerial lifts, who are designated and authorized by their Company supervisor and have successfully completed Aerial Lift Safety Training as specified in this program, will be issued such documentation to be worn or carried on their person when using this equipment in a Company workplace.

## **8. Qualifications of Aerial Lift Operators**

- 8.1. Only trained and authorized persons are permitted to operate aerial lifts. Operators of aerial lifts will be qualified as to visual, auditory, physical, and mental ability to operate the equipment safely.
- 8.2. Only those employees determined by the Company supervisor to be competent by reason of training and experience to operate aerial lifts are permitted to operate such equipment. Exception: Employees being trained and supervised by a designated person may operate such machinery and give signals to operators during training.

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- 8.3. No employee known to have defective uncorrected eyesight or hearing, or to be suffering from heart disease, epilepsy, or other ailments which may suddenly incapacitate him, are permitted to operate an aerial lift.
- 8.4. The primary responsibility of the operator is to use aerial lifts safely following the instructions given in the training program.
- 8.5. Unsafe or improper operation of an aerial lift can result in: death or serious injury to the operator or others; damage to product, facilities or other property.

## **9. General Requirements of Operation for Aerial Boom Lifts**

- 9.1. Operators will be trained and authorized in accordance with this program before they are permitted to use aerial lift equipment.
- 9.2. A malfunctioning lift will be shut down until repaired.
- 9.3. The controls are to be plainly marked as to their function.
- 9.4. Lift controls will be checked and tested each day prior to use to determine that they are in safe operating condition.
- 9.5. All personnel in the platform will wear an approved safety harness with lanyard attached to the platform attachment point. The lanyard selected will be of a restraint-type system that allows for positioning so that the operator cannot “bounce” or fall from the basket; or be rigged in such a way that the operator can neither free fall more than 6 feet, nor contact any lower level.
- 9.6. Selection of fall protection is made to comply with these requirements while the personnel basket is at any level during raising and lowering – not just the maximum height of the task.
- 9.7. The manufacturer’s specified load limits for booms and baskets will not be exceeded.
- 9.8. Instruction on warning placards must be legible.
- 9.9. Aerial lifts are used only as intended by the manufacturer. Lifts will not be “field modified” for uses other than those intended by the manufacturer unless such modifications have been approved and certified by the manufacturer or an equivalent authority.
- 9.10. Aerial lifts will not be used near electric power lines unless the lines have been de-energized or adequate clearances are maintained. For electrical lines rated 50 kV or below, the minimum clearance distance between the lines and any part of the lift or any extension is 10 feet. A safe distance of 10 to 35 feet or more between the lift and power lines will be determined as appropriate to allow for swaying power lines and/or platform movement.

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- 9.11. Employees using aerial lifts will be instructed on how to recognize and avoid unsafe conditions and hazards.
- 9.12. Ground controls will not be operated unless permission has been obtained from personnel in the platform (except in case of emergency).
- 9.13. Daily inspection of the area lift is performed.
- 9.14. Personnel will always stand on the floor of the platform (not on boxes, planks, railing, or other devices).

## 10. **Driving/Towing**

- 10.1. Always post a lookout when driving in areas where vision is restricted.
- 10.2. Assure that machine is in stowed position and turntable is secured when towing.
- 10.3. Beware of clearances when traveling or towing.
- 10.4. Always position boom in line with direction of travel.
- 10.5. Always secure turntable prior to any extended traveling.
- 10.6. Keep your eyes and mind fixed on the direction of travel.
- 10.7. Do not permit personnel on machine or in platform when towing.
- 10.8. Machine must be mechanically assisted when traveling grades exceed 15 degrees.
- 10.9. Do not travel or drive machine on soft or uneven surfaces as tipping can occur.
- 10.10. Assure steer/tow selector valve pulled out; drive hubs disconnected prior to starting tow operations. Special Note: Towing permitted only for emergency travel on job site. No highway towing permitted.

## 11. **Operation**

- 11.1. Maintain safe clearance from electrical lines and apparatus. You must allow for platform sway and rock or sag in electrical lines.
- 11.2. This machine is not electronically insulated.
- 11.3. You must maintain a clearance of at least ten feet between any part of the machine or its load and any electrical line or apparatus carrying up to 50,000 volts. One-foot additional clearance is given for each additional 30,000 volts.
- 11.4. Allow only persons who are authorized and qualified to operate the machine. These are individuals who have demonstrated that they understand proper operation maintenance of the unit.



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- 11.5. Do not mechanically block the platform foot switch.
- 11.6. Do not use the boom for any purpose other than positioning personnel (people) and their tools and equipment.
- 11.7. Check clearances above and on sides and bottom of platform when raising, lowering, swinging and telescoping boom.
- 11.8. Check tail swing (counterweight) clearance before swinging turntable.
- 11.9. Keep mud, oil, grease and slippery substances cleared from your footwear and/or the platform deck.
- 11.10. To avoid falling, use extreme caution when entering and leaving the platform. Enter and exit through gate only.
- 11.11. Know your weight (people and tools). Do not exceed manufacturer's rated platform capacity. Refer to capacity indicator, on boom or mounted in platform control console.
- 11.12. Do not operate a malfunctioning machine. If a malfunction occurs, shut down machine and notify proper authorities.
- 11.13. Do not allow ground personnel in areas around and under the raised platform.
- 11.14. Approved hard hats are worn by all operating and ground personnel.
- 11.15. Make sure machine is positioned on a firm, level, and uniform supporting surface before raising or extending the boom, If not, tipping can occur.
- 11.16. Read and obey all warnings, cautions, and operating instructions on the machine and in the individual lift operation and safety manufacturer's manual.
- 11.17. Be familiar with locations and operation of all safety and override controls.
- 11.18. Machine must always be shut off when refueling. No smoking is permitted. Do not refuel during an electrical storm. Be sure that caps are closed and secure at all other times.
- 11.19. Do not attempt to free the machine by lifting it off the ground with the boom.
- 11.20. Do not attach wire, cable, or any similar items to a platform for lifting purposes.
- 11.21. When riding in or working from platform, both feet must be firmly positioned on the deck floor. Do not sit or climb on rails or the edge of the basket.
- 11.22. Do not use ladders, boards or other component placed on the rails or deck floor to raise the working surface higher than the deck floor. This can compromise fall protection provided by the height of the railing or basket containment.

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- 11.23. Always use a safety harness as fall protection when working in an aerial lift. Secure the harness lanyard to the proper attachment point on the platform -- NEVER to an adjacent object or structure.
- 11.24. Do not use the drive or telescope features of the machine to move either the machine or other objects.
- 11.25. Do not operate any machine on which danger, warning, caution or instruction placards or decals are missing or not readable.
- 11.26. Do not pull the machine or other objects by attaching wire, cable or similar means to the platform, then retracting and extending the boom.
- 11.27. Do not attempt to use the boom for crane functions.
- 11.28. Do not "walk the boom" to gain access to or leave the platform.
- 11.29. Do not slam the control lever through neutral to the opposite direction. Return lever to neutral, stop and then proceed.
- 11.30. Do not position ladders, steps, or similar items in the platform to provide additional reach for any purpose.
- 11.31. Always operate controls with slow, even pressure.
- 11.32. Stow the boom and shut off all power before leaving the machine.

## 12. Scissor Lifts

- 12.1. Pre-start Inspection
- 12.2. Conduct a walk around inspection at the beginning of each shift prior to using a scissor lift. This inspection will include the following:
  - 12.2.1. Check scissor end joints for cracks and broken weld points.
  - 12.2.2. Check the hydraulic cylinders, hoses and fittings.
  - 12.2.3. Check drive axles, wheels and hubs for loose, damaged or missing parts.
  - 12.2.4. Check tires for cracks, cuts, bulges and proper inflation.
  - 12.2.5. Check the battery for cables that might be frayed or have broken insulation.
  - 12.2.6. Make sure that the terminal posts are not loose on the battery.
  - 12.2.7. Check for corrosion and cracking around the battery terminals.

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- 12.2.8. On propane or diesel powered lifts, check the fuel tank for cracks, broken welds or any damage.
- 12.2.9. Checks on fuels systems will always be conducted outdoors, not indoors.
- 12.2.10. Make sure there is a fire extinguisher on hand, in the event of a fire.
- 12.2.11. Check outriggers, stabilizers and guardrails.
- 12.2.12. Read the rating capacity, and the placard.
- 12.3. After conducting the walk around inspection, test to make sure the lift is working correctly by elevating it from the ground controls. This test is conducted for any lift that has been in service for three months or 150 hours. Any lift that has been out of service for three months or longer will be inspected by a qualified mechanic prior to use.
- 12.4. Control boxes will be readily accessible to the operator. If a control box is not permanently attached, its normal location will be clearly marked.
- 12.5. Check the controls prior to operation of the lift. The movement controls will automatically return to "off" or "neutral" when released. Upper controls will be protected against accidental operation from ground level. Ground level controls will have some type of device to prevent someone from operating the device from ground level while workers are in the lift, operating controls from the control box.
- 12.6. The operator must know the rating capacity.
- 12.7. The lift must be equipped with a capacity brake that will prevent it from moving while on a slope.

### **13. Training Specific to Scissor Lifts**

- 13.1. All new employees to Cleveland Integrity Services whose job requires them to operate a scissor lift is trained on the functions and hazards of the scissor lift prior to being authorized to operate one.
- 13.2. Operators will always read the manufacturer's manual prior to his or her first use of the equipment.
- 13.3. Scissor lift operators must understand the concept of stability which includes factors such as height, weight and conditions.
- 13.4. Inspect the work area for hazards such as drop offs, bumps, debris or other obstacles on the floor.
- 13.5. Check for areas with high voltage or any overhead obstructions before proceeding with driving the scissor lift or raising or lowering the platform.

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- 13.6. Be alert for any electrical hazard and always keep a distance of 10 to 35 feet between the lift and any power lines. Add more distance to account for swaying power lines and/or platform movement.

**14. Fall Protection Relating to Scissor Lifts**

- 14.1. Fall protection is mandatory when working on or operating a scissor lift. Follow these basic rules regarding fall protection while operating or working on a scissor lift.
- 14.2. Make sure that guard rails are in place.
- 14.3. Make sure you are tied off to the lift, not to an adjacent structure.
- 14.4. Do not place a load on the platform that is heavier than the capacity rating provided by the manufacturer and posted on the unit.
- 14.5. Ensure that all loads, including tools, are evenly distributed on the platform.
- 14.6. When driving the lift to the work site, make sure the route to the work area is not obstructed.
- 14.7. Watch out for other traffic on the job site.
- 14.8. Make sure pedestrians are at least 6 feet away from the lift.
- 14.9. Do not drive the lift on a slope or grade that exceeds the level indicated on the placard.
- 14.10. Do not drive the lift in a confined area, or in reverse, and do not operate at high speeds on a grade.
- 14.11. Yield the right of way if another lift or vehicle is traveling close by.
- 14.12. Position the lift chassis upon arriving at the work location.
- 14.13. Check the overhead, side and below to determine the clearance available when raising or lowering the lift.
- 14.14. Do not climb on the scissor arms in order to get on the platform.
- 14.15. Do not stand on boxes, ladders, planks or railings on the platform.
- 14.16. Platforms must be within one foot of the adjacent structure before attempting to enter the structure.
- 14.17. Do not leave cords from power tools hanging of the platform.
- 14.18. The lift operator is responsible for all machine operations on the lift.

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- 14.19. Before raising or lowering the platform, make sure other employees on the lift with you are aware that the platform is going to move. Check the equipment and structures before raising or lowering.
  
- 14.20. Retract the stabilizers and leveling jacks prior to moving the lift.

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Applicable OSHA Standards: Supplemental and supportive of general safety and compliance

## 1. Purpose

- 1.1. Cleveland Integrity Services has established written safety rules and safe work procedures as one method of helping safeguard employees, host employer personnel and property from accidents, injuries, damages and business interruptions. Company policy also requires compliance with federal and state occupational safety and health laws and regulations, as well as the safety and health requirements of host employers.
- 1.2. At the same time, the Company, as a long-experienced employer, recognizes that regulatory and technical safety compliance frequently does not fully address how unsafe individual behaviors cause accidents both on and off the job.
- 1.3. For this reason, Cleveland Integrity Services has developed and implemented a behavior-based Job Safety Observation (JSO) program. This program acknowledges and utilizes established fundamentals of human psychology, motivation and response toward identifying critical behaviors in the workplace and then applying the modification of antecedents toward conversion of observable “unsafe” or “at-risk” behaviors into “safe” behaviors.

## 2. Scope

- 2.1. This policy applies to all employees and subcontractors working within Company controlled work sites.

## 3. Overview

- 3.1. Studies indicate that most workplace injuries or near misses are caused by unsafe behaviors, not unsafe conditions. At the same time, unsafe conditions -- known to management and left uncorrected -- affect behaviors.
- 3.2. The Company’s Job Safety Observation program is intended to encourage employees and management to correct hazardous conditions and change unsafe behaviors through positive reinforcement in the context of “real life” daily activities.
- 3.3. When the employee has received positive reinforcement through work observation and BBS processes, he or she is encouraged toward safe behaviors that become a habit and, eventually, a personal value.
- 3.4. Employees will then help reinforce this value in their co-workers and encourage them when they demonstrate safe behavior.
- 3.5. The BBS program is intended to achieve the following benefits for employees and the Company:
  - 3.5.1. Safer work environment

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- 3.5.2. Frequency and severity of injuries decreases
- 3.5.3. Safe behaviors increase, and at-risk behaviors decrease
- 3.5.4. Employee participation in Company “safety culture” increases
- 3.5.5. Reporting of near-misses increases
- 3.5.6. Acceptance of responsibility and accountability increases

#### **4. Methods**

- 4.1. Cleveland Integrity Services has established an in-house team and retained consulting support to assist in developing the Job Safety Observation (JSO) and BBS program. The Company is dedicated to building a program that is employee-based and involves individuals at all levels of the Company in a process specific to our unique work operations.
- 4.2. The Company Safety Coordinator will be responsible for organization of the JSO Development and Process Team and ongoing support for program implementation.
- 4.3. The following steps generally describe the basic process adopted for the Company JSO and BBS program:

#### **5. Design & Development Team**

- 5.1. A process development team consisting of the Safety Coordinator, individual supervisors and individual employees was organized and consulted regarding decisions and fundamental elements for developing and implementing this program

#### **6. Identify Critical Behaviors**

- 6.1. Critical behaviors are those that have the potential to cause injury and incidents. In the Company’s experience and on advice from our consultant the development team will consider that a small number of unsafe behaviors may well be responsible for a majority of injuries and incidents in the workplace. These critical behaviors will be identified and given primary initial focus for positive modification.
- 6.2. These have been and, in future JSO activities will continue to be identified through a process of Critical Behavior Analysis.
- 6.3. The following processes and methods were used to identify critical behaviors and initiate a behavior-based corrective approach:
  - 6.3.1. Look at incident trends to determine what processes are causing the most incidents.
  - 6.3.2. Conduct a hazard evaluation of job sites to determine the areas that have the greatest risk for an incident.

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- 6.3.3. Look at tasks that have the potential for serious injury or death.
- 6.3.4. Once the critical behaviors have been identified, implement effective engineering and/or administrative controls when and where possible. Eliminating the hazard should always be the first priority.
- 6.3.5. Determine if employees have been properly trained. Unsafe behaviors may be the result of the employee not knowing proper procedures for performing work tasks.
- 6.3.6. Rank behaviors identified in the above steps and concentrate on the most critical first.

## **7. Pinpoint those practices**

- 7.1. After the behaviors have been identified, break down each step in the process. The steps identified should be detailed enough so that independent observers evaluating the same employee will get similar results.
- 7.2. As an example, one of the items on the checklist may be to observe the use of personal protective equipment (PPE). Be specific on the PPE required. Do not leave it up to the observer to determine what PPE is needed.
- 7.3. To begin with, break down the task into the following four critical practices:
  - 7.3.1. PPE – Determine what personal protective equipment is required to perform the task. Again, be specific.
  - 7.3.2. Housekeeping – The observer will evaluate the work area and document its condition.
  - 7.3.3. Using Tools and Equipment – The observer needs to know the appropriate tools and equipment that are to be used while performing this task. They should also understand how the tools are to be used safely.
  - 7.3.4. Body Positioning / Protection – The observer will determine if the employee is performing the task in such a way as to protect himself from strains, falling objects, exposure to a sudden release of chemicals or hazardous energy, etc.

## **8. Develop a Job Safety Observation Checklist and BBS Observer Process**

- 8.1. Observations provide direct, measurable information on employees' work practices. The observer uses the checklist to document employees performing their routine tasks.
- 8.2. The observer records both safe and unsafe behaviors on the checklist. This information will be used to provide feedback and measure progress toward goals.
- 8.3. Use the critical behaviors and practices identified earlier to develop the checklist.



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**9. Develop Observation & Feedback Procedures**

- 9.1. Observation and feedback are the most important components of the JSO and BBS process.
- 9.2. Observation provides the data that makes this process uniquely effective. Frequent, objective, positive feedback is essential in maintaining any safe behavior.
- 9.3. After data is evaluated the employee is provided positive feedback on the safe behaviors, and non-threatening, instructive feedback on how to correct unsafe behaviors.
- 9.4. All unsafe behaviors and hazardous conditions shall be prioritized and corrective action tracked to completion.
- 9.5. The safety department or company representative shall ensure all corrective actions is completed in a timely manner depending on severity and probability at the condition.

**10. Finalize the checklist, and then follow these steps to design the observation and feedback procedures:**

- 10.1. Determine who will conduct observations.
- 10.2. Determine the frequency of observations.
- 10.3. Develop observation procedures.
- 10.4. Determine who will provide feedback and when.
- 10.5. Give training on conducting observations and providing feedback.

**11. Determine who will conduct observations**

- 11.1. Observers should include members of the design team and additional volunteers. Whether employees (peers), supervisors or members of management are used depends on the culture of the organization.
- 11.2. If employees trust supervisors and managers to observe and not to use the observations for disciplinary reasons, then they can function effectively as observers. If not, it is probably better to use employees' peers.
- 11.3. Observers should be committed to safety. Each observer must be willing to undergo basic training and continue to observe their colleagues' safety performance as an ongoing safety activity.
- 11.4. Cleveland Integrity Services goal is that ALL EMPLOYEES are trained and able to participate as observers.

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- 11.5. Management must allow observers and other design team members the time needed to participate in this process.
- 11.6. All employees should receive initial training on the observation process initially as new hires, and receive refresher training at least annually. All employees must be advised that they may be observed at any time.

## 12. **Determine the frequency of observations**

- 12.1. What gets measured gets done. That is why employees should observe their peers' safety behaviors on a regular basis. The greater the number of observations, the more reliable the data and the more likely it is that safe behavior will improve.
- 12.2. It has been noted that the very act of observing and measuring people's safety behavior alters the behavior of both parties.
- 12.3. The frequency of observations is very important. The risks associated with the task should determine whether the observations are performed daily, weekly, or monthly. If the task is high risk, the observations should be conducted more frequently.
- 12.4. Different levels of management may also conduct observations at different intervals. Peers may conduct observations weekly, supervisor's biweekly, and management monthly. Having management periodically conduct observations will help with quality control.

## 13. **Develop the observation procedures**

- 13.1. The observer will watch the other employee work, and will use the checklist to record the number of safe and unsafe behaviors the employee performs.
- 13.2. Under the program's initial methods, each observation should take no longer than 5-10 minutes to complete.

## 14. **Identify and Set Improvement Goals**

- 14.1. Setting improvement goals increases the effectiveness of feedback and the success of the JSO and BBS process. These goals should be based on the workers' perceptions of their work practices and how they can improve.
- 14.2. Action plans are then developed to support their efforts and help them achieve their goals.

## 15. **Develop Procedures for Providing Positive Reinforcement**

- 15.1. Providing positive reinforcement when employees improve or attain goals is a key to a successful BBS process. Positive reinforcement usually takes one of these forms:
  - 15.1.1. Immediate verbal feedback

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- 15.1.2. Graphical feedback placed in strategic locations in the workplace
- 15.1.3. Weekly/monthly briefings during which the observation scores are analyzed to provide detailed feedback about specific behaviors
- 15.1.4. In combination, these forms of feedback are motivational, self-reinforcing and help keep focus on improvements.

**16. Measure Success**

- 16.1. Individual departments, as well as the Company as a whole, will compare these measurements. Sharing successes with employees is another form of positive feedback that can contribute to continued success.
- 16.2. The Company will track JSO and BBS results by a computer-based method so that numerical and statistical comparisons can be made over time.

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Applicable OSHA Standards: 29 CFR 1910.1028, 1926.1128

## 1. Purpose

- 1.1 The following written *Benzene Protection Program* has been established for Cleveland Integrity Services' employees who, in the course and scope of their work, may be in an area where benzene is, or could be present; or in the event of an accidental exposure to benzene.
- 1.2 When any such exposures are over the PEL, this *Benzene Protection Program* is implemented and followed to reduce employee exposure to or below the PEL primarily by means of engineering and work practice controls in accordance with requirements of 1910.1028.
- 1.3 A specific benzene safety program based upon requirements of 29 CFR 1910.1028 and 1926.1128 and this *Benzene Protection Program* is written for each project that presents an exposure to benzene. Each such project-specific program includes a schedule for development and implementation of the engineering and work practice controls. These plans are reviewed and revised as appropriate based on the most recent exposure monitoring data for the project, to reflect the current status of each program.
- 1.4 Written compliance programs are furnished upon request for examination and copying to the Assistant Secretary of the U.S. Department of Labor; the Director of the National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designee; affected employees and designated employee representatives.

## 2. Scope

- 2.1 The written Benzene Protection Program will apply to all Cleveland Integrity Services' employees and employees of subcontractors. This program is considered the minimum requirements and if conflicts arise between customer/client programs or applicable regulatory requirements, the most stringent will apply.

## 3. Definitions

- 3.1. Action Level: Means an airborne concentration of benzene of 0.5 ppm calculated as an 8-hour time weighted average.
- 3.2. Authorized Person: Means any person specifically authorized by the employer whose duties require the person to enter a regulated area, or any person entering such an area as a designated representative of employer, for the purpose of exercising the right to observe monitoring and measuring procedures.
- 3.3. Benzene (C<sub>6</sub>H<sub>6</sub>) Means Liquefied or Gaseous Benzene: It includes benzene contained in liquid mixtures and the benzene vapors released by these liquids. It does not include

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trace amounts of un-reacted benzene contained in solid materials, unless vapor concentration exceeds the action level.

- 3.4. Employee Exposure: Means exposure to airborne benzene, which would occur if the employee were not using respiratory protective equipment.

#### **4. Responsibilities**

- 4.1. The Project Manager or Site Supervisor is responsible for disciplinary action resulting from failure to follow the guidelines as set forth in this program.
- 4.2. The company Safety Coordinator or designee is responsible for the monitoring and guidance for the implementation of this program.
- 4.3. The First Line Supervisor, Foreman, or Leadsperson of record is responsible for the implementation and training of the benzene program.
- 4.4. When Cleveland Integrity Services performs work in a host facility where benzene is used, all employees will be notified about the location of benzene in the facility, as well as trained in benzene awareness and on the procedures to follow if a leak or accidental release is suspected.
- 4.5. Employees are informed about any safety rules, contingency or emergency plans and procedures in place, specifically for benzene.

#### **5. Potential Exposure Locations & Situations**

- 5.1. Employees have potential for exposure to benzene in situations where they may come in contact with gasoline products during pipeline repair and maintenance operations.
- 5.2. Potential locations where foreseeable exposure may occur are:
  - 5.2.1. Gasoline and petroleum pipelines
  - 5.2.2. Pipeline valve assemblies
  - 5.2.3. Tank repair, maintenance and cleaning operations at plant and pipeline facilities
  - 5.2.4. Field maintenance operations
  - 5.2.5. Refinery operations
  - 5.2.6. Marine, rail, bulk terminals and service station operations

#### **6. Characteristics and Health Effects of Benzene**

- 6.1. Benzene is toxic. It has a clear, colorless liquid with a pleasant, sweet odor.

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- 6.2. The odor of benzene does not provide adequate warning of its hazard.
- 6.3. Benzene can seriously affect a person's health if it is swallowed, inhaled, or if it comes in contact with the skin or eyes.
- 6.4. Short-term (acute) overexposure to high concentrations of benzene (well above the levels where its odor is first recognizable) can cause someone to feel breathless, irritable, euphoric or giddy. There may be irritation in the eyes, nose and respiratory tract. Other symptoms may include headache, feeling dizzy, nauseated or intoxicated. Severe exposures may lead to convulsions and loss of consciousness.
- 6.5. Long-term (chronic) exposure to benzene (repeated or prolonged) can occur even at relatively low concentrations. Chronic exposure may result in various blood disorders ranging from anemia to leukemia -- an irreversible and potentially fatal disease. Many blood disorders associated with benzene exposure may occur without symptoms.
- 6.6. Benzene liquid is highly flammable. Its vapors can form explosive mixtures.
- 6.7. Benzene vapors are heavier than air and can travel along the ground. Consequently, accidental ignition by sparks or an open flame can occur at locations remote from the site where the benzene is being handled.
- 6.8. Benzene does not dissolve in water.
- 6.9. Hazardous decomposition products of benzene are toxic gases and vapors (such as carbon monoxide).

## **7. Safe Work Procedures**

- 7.1. Site-specific safe work procedures are developed as required based on requirements of this program and other related company safety and health requirements (i.e., proper selection and use of PPE, respiratory protection, fire safety, responding to a leak or spill).
- 7.2. Because benzene liquid is highly flammable, and its vapors form explosive mixtures in the air, smoking, open flames and other potential sources of ignition are prohibited in areas where benzene is being handled or where there is a benzene exposure
- 7.3. Fire extinguishers are readily available by trained employees in areas where there is exposure to benzene.
- 7.4. Host employers have the responsibility to inform Company personnel of any benzene exposures in a job site or facility prior to work commencing. Site-specific planning for benzene exposures is coordinated with host employer safety procedures, planning and protocols. Company employees performing work are notified and informed about host employer benzene safety and health procedures.

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## 8. Medical Surveillance

- 8.1. Medical surveillance is performed for all Company employees who may be exposed to benzene, at or above the action level 30 or more days per year, or employees who are or may be exposed to benzene at or above the permissible exposure limits for 10 or more days per year, or for employees who have been exposed to more than 10 ppm of benzene for 30 days or more in a year prior to the effective date of the standard when employed by their current employer.
- 8.2. All medical examinations and procedures are performed by or under the supervision of a licensed physician.
- 8.3. An accredited laboratory will conduct all laboratory tests.
- 8.4. All costs for physicals and laboratory work, etc. are paid by Cleveland Integrity Services.
- 8.5. Initial Exam
  - 8.5.1. The Company provides employees who work in an area where he/she could be exposed to benzene, a medical examination to include the following:
    - 8.5.1.1. Detailed occupational history which includes:
      - 8.5.1.1.1. Post work exposure to benzene or other hematological toxins.
      - 8.5.1.1.2. A family history of blood diseases includes hematological neoplasms.
      - 8.5.1.1.3. A history of blood diseases including genetic hemoglobin abnormalities, bleeding abnormalities, abnormal function of formed blood elements.
      - 8.5.1.1.4. A history or renal or liver dysfunction.
      - 8.5.1.1.5. A history of medical drugs routinely taken.
      - 8.5.1.1.6. A history of previous exposure to ionizing radiation.
      - 8.5.1.1.7. Exposure to marrow toxins outside of the current work situation.
    - 8.5.1.2. Complete Physical Examination
    - 8.5.1.3. Laboratory Test

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8.5.1.4. Complete blood count, including a leukocyte counts with differential.

8.5.1.4.1. Quantitative thrombocyte counts.

8.5.1.4.2. Hematocrit

8.5.1.4.3. Hemoglobin

8.5.1.4.4. Erythrocyte counts

8.5.1.4.5. The results of the above laboratory tests will be reviewed by the examining physician.

## 8.6. Periodic Examinations

8.6.1. The Company will provide each employee a medical examination annually. This examination will include the following:

8.6.1.1. A brief history regarding any new exposure.

8.6.1.2. Changes in medical drugs used.

8.6.1.3. Appearance of physical signs relating to blood disorders.

8.6.1.4. A complete blood count including:

8.6.1.4.1. Leukocyte counts with differential

8.6.1.4.2. Quantitative thrombocyte counts

8.6.1.4.3. Hemoglobin

8.6.1.4.4. Hematocrit

8.6.1.4.5. Erythrocyte counts

8.6.1.4.6. Erythrocyte indicates (MCV, MCH, MCHC)

8.6.2. If an employee develops signs or symptoms commonly associated with toxic exposure to benzene, the Company will provide the employee with an additional examination, which will include those elements considered appropriate by the examining physician.



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## 8.7. Post Employment Examination

8.7.1. At the conclusion of a job that required benzene physicals each employee will have a complete physical examination before the employee is ROF or transferred to another jobsite that has no benzene hazard. This physical will include:

8.7.1.1. Complete blood count, including a leukocyte counts with differential.

8.7.1.2. Quantitative thrombocyte counts.

8.7.1.3. Hematocrit

8.7.1.4. Hemoglobin

8.7.1.5. Erythrocyte counts

## 8.8. Emergency Examinations

8.8.1. In addition to the surveillance required, if an employee is exposed to benzene in an emergency situation the Company will have the employee provide a urine sample and have a Phenol Test performed on the sample. The urine specific gravity will be corrected to 1.024.

8.8.2. If the result of the urinary phenol test is below 75mg Phenol level of urine, no further testing is required.

8.8.3. If the result of the urinary phenol test is equal to or greater than 75mg the Company will provide the employee with a complete blood count, leukocyte count, with differential and thrombocyte count at monthly intervals for duration of three months.

8.8.4. If conditions warrant after three months and a physician deems necessary, the Company will provide its employee with additional physicals per physician's direction.

## 8.9. Additional Examinations and Referrals

8.9.1. Where the results of the complete blood count required for the initial and periodic examinations indicate any of the following abnormal conditions exist, then the blood count will be repeated within 2 weeks.

8.9.2. The hemoglobin level or the hematocrit falls below the normal limit [outside the 95% confidence interval (C.I.)] as determined by the laboratory for the particular geographic area and/or these indices show a persistent downward trend from the individual's pre-exposure norms; provided these findings cannot be explained by other medical reasons.

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- 8.9.3. The thrombocyte (platelet) count varies more than 20% below the employee's most recent values or falls outside the normal limit (95% C.I.) as determined by the laboratory.
- 8.9.4. The leukocyte count is below 4,000 per mm<sup>3</sup> or there is an abnormal differential count.
  - 8.9.4.1. If the abnormality persists, the examining physician will refer the employee to a hematologist or an internist for further evaluation unless the physician has good reason to believe such referral is unnecessary.
  - 8.9.4.2. The employer will provide the hematologist or internist with the information required to be provided to the physician.
  - 8.9.4.3. The hematologist's or internist's evaluation will include a determination as to the need for additional tests, and the employer will assure that these tests are provided.
- 8.10. Information provided to the Physician
  - 8.10.1. The employer will provide the following information to the examining physician.
    - 8.10.1.1. A copy of this regulation and its appendices.
    - 8.10.1.2. A description of the affected employee's duties as they relate to the employee's exposure.
    - 8.10.1.3. The employee's actual or representative exposure level.
    - 8.10.1.4. A description of any personal protective equipment used or to be used.
    - 8.10.1.5. Information from previous employment related medical examinations of the affected employee, which is not otherwise available to the examining physician.
- 8.11. Physician's Written Opinions
  - 8.11.1. For each examination under this section, the Company will obtain and provide the employee with a copy of the examining physician's written opinion within 15 days of the examination. The written opinion is limited to the following information.
  - 8.11.2. The occupationally pertinent results of the medical examination and tests.

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- 8.11.3. The physician's opinion concerns whether the employee has any detected medical conditions, which would place the employee's health at greater than normal risk of material impairment from exposure to benzene.
- 8.11.4. The physician's recommended limitations upon the employee's exposure to benzene or upon the employee's use of protective clothing or equipment and respirators.
- 8.11.5. A statement that the employee has been informed by the physician of the results of the medical examination and any medical conditions resulting from benzene exposure which require further explanation or treatment.
- 8.11.6. The written opinion obtained by the employer will not reveal specific records, findings and diagnosis that have no bearing on the employee's ability to work in a benzene-exposed workplace.

#### 8.12. Medical Removal Plan

- 8.12.1. When a physician makes a referral to a hematologist/internist as required under this section, the employee will be removed from areas where exposures may exceed the action level until such time as the physician makes a determination.
- 8.12.2. Following the examination and evaluation by the hematologist/internist, a decision to remove an employee from areas where benzene exposure is above the action level or to allow the employee to return to areas where benzene exposure is above the action level is made by the physician in consultation with the hematologist/internist. This decision is communicated in writing to the employer and employee. In the case of removal, the physician will state the required probable duration of removal from occupational exposure to benzene above the action level and the requirements for future medical examinations to review the decision.
- 8.12.3. For any employee who is removed pursuant to this section, the Company will provide a follow-up examination. The physician, in consultation with the hematologist/internist, will make a decision within 6 months of the date the employee was removed as to whether the employee will return to the usual job or whether the employee should be removed permanently.
- 8.12.4. Whenever an employee is temporarily removed from benzene exposure pursuant to this section, the Company will transfer the employee to a comparable job for which the employee is qualified (or can be trained for in a short period) and where benzene exposures are as low as possible, but in no event higher than the action level. The Company will maintain the employee's current wage rate, seniority and other benefits. If there is no such job available, the Company will provide medical removal protection benefits until such a job becomes available or for 6 months, whichever comes first.

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8.12.5. Whenever an employee is removed permanently from benzene exposure based on a physician's recommendation pursuant to this section, the employee is given the opportunity to transfer to another position which is available, or later becomes available, for which the employee is qualified (or can be trained for in a short period) and where benzene exposures are as low as possible but in no event higher than the action level. The employer will assure that such employee suffers no reduction in current wage rate, seniority or other benefits as a result of the transfer.

#### 8.13. Medical Removal Protection Benefits

8.13.1. The Company will provide to an employee six months of medical removal benefits immediately following each occasion an employee is removed (from exposure to benzene because of hematological findings from exposure to benzene) unless the employee has been transferred to a comparable job where benzene exposures are below the action level. For the purposes of this section, the requirement that an employer provide medical removal protection benefits means that the employer will maintain the current wage rate, seniority and other benefits of an employee as though the employee had not been removed.

8.13.2. The Company's obligation to provide medical removal protection benefits to a removed employee is reduced to the extent that the employee received compensation for earnings lost during the period of removal either from a publicly or employer funded compensation program, or from employment with another employer made possible by virtue of the employee's removal.

### 9. Recordkeeping for Health Hazard Compliance Program

#### 9.1. General

9.1.1. The company is required to keep all records of an employee's exposure to benzene and medical surveillance for a period of duration of employment plus (+) thirty (30) years, or forty (40) years whichever is the longer.

#### 9.1.2. Specific records to be kept include:

9.1.2.1. All records associated with monitoring, the results of individual monitoring and acknowledgment that the employee was informed of the results of the monitoring.

9.1.2.2. All records pertaining to medical surveillance and the acknowledged results of all examinations.

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## 9.2. Storage

- 9.2.1. All records subject to these provisions are stored in the affected employee's personnel jacket/folder maintained at the Corporate Office(s).
- 9.2.2. This is necessary since our projects do not normally have safe and secure storage facilities onsite.
- 9.2.3. Any records can be made available to proper authorities from this office.

## 9.3. Copies

- 9.3.1. Copies of pertinent records are made available only to the individual, a duly authorized representative of the individual, or the individual's personal physician (in case of medical records) and then by written request to the Corporate Office only.

## 10. Use of Respirators

- 10.1. When employees use respirators as required by this program, the company will provide respirators that comply with the requirements of 1910.1028(g)(1).  
Respirators must be used during:
  - 10.1.1. Periods necessary to install or implement feasible engineering and work-practice controls.
  - 10.1.2. Work operations for which the company establishes that compliance with either the TWA or STEL through the use of engineering and work-practice controls is not feasible. (For example, some maintenance and repair activities, vessel cleaning, or other operations for which engineering, and work-practice controls are infeasible because exposures are intermittent and limited in duration).
  - 10.1.3. Work operations for which feasible engineering and work-practice controls are not yet sufficient or are not required by OSHA standards to reduce employee exposure to or below the PELs.
  - 10.1.4. In emergency situations.

## 11. Respiratory Protection Program

- 11.1. The company will supply approved respirators and filters for all benzene hazards which an employee would encounter at the jobsite at no cost to the employee.
  - 11.1.1. The company will train all employees operating under the *Benzene Protection Program* in the proper use, maintenance and limitation of the respirator they are using.

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11.1.2. The company provides medical physical examination and fit testing for all employees required to wear a respirator (refer to the company's Respiratory Protection Program).

11.2. The company has established and implemented a written Respiratory Protection Program in accordance with 29 CFR 1910.134. Any use of respirators relating to benzene exposure is done in compliance with the company's Respiratory Protection Program.

11.3. For air-purifying respirators, the company will replace the air-purifying element at the expiration of its service life or at the beginning of each shift in which such elements are used, whichever comes first.

11.4. If NIOSH approves an air-purifying element with an end-of-service-life indicator for benzene, such an element may be used until the indicator shows no further useful life.

## **12. Respirator Selection**

12.1. Selection of respirators is based on airborne concentrations of benzene or conditions where respirators are used. The company supervisor in charge of a project where respirators are used due to benzene exposure will select the appropriate respirator from Table 1 of section 1910.1028 (g)(3).

12.2. Any employee who cannot use a negative-pressure respirator will be allowed to use a respirator with less breathing resistance, such as a powered air-purifying respirator or supplied-air respirator.

12.3. All respirators selected will be approved by NIOSH.

## **13. Protective Clothing and Equipment**

13.1. Personal protective equipment is utilized as needed to prevent liquid benzene contact with the eyes and to limit skin exposure.

13.2. Protective clothing (such as barrier overalls, aprons, sleeves, gloves, boots, etc.) is worn over any parts of an affected employee's body that could be exposed to liquid benzene.

13.3. Protective clothing and equipment are provided by Cleveland Integrity Services at no cost to the employee. The company, through its supervisors, assures proper use of protective clothing and equipment where appropriate.

13.4. Employees will wear splash-proof safety goggles if it is possible that benzene may get into the eyes. In addition, employees will wear a face shield if the face could be splashed with liquid benzene.

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- 13.5. PPE must meet the requirements of 29 CFR 1910.133 and provided at no cost to the employees.

#### 14. Notes to Exposure Model

##### 14.1. Less than 0.5 ppm

- 14.1.1. Upon implementation of this *Benzene Compliance Program* and annually thereafter, project evaluations will be made to determine the presence of benzene on this project, as applicable.
- 14.1.2. All employees are presented the company's Benzene Training Program including respiratory protection and placed on the Authorized Persons Listing.
- 14.1.3. If benzene is present on a project, initial monitoring is conducted to determine the degree of exposure of our people to benzene.
- 14.1.4. The initial medical surveillance is performed on all employees who have the possibility of benzene exposure.
- 14.1.5. This medical surveillance is repeated if the employee during the previous year has had any opportunity to be exposed to benzene.
- 14.1.6. In addition, annual monitoring is conducted to determine if the project in general is exposing our people to less than 0.5 PPM over an eight-hour time weighted average.

##### 14.2. Equal to or Greater than 0.5 PPM, but less than 1.0 ppm

- 14.2.1. All exposed employees are placed in our initial medical surveillance program.
- 14.2.2. All employees are presented our Benzene Training Program including respiratory protection and placed upon Authorized Persons Listing.
- 14.2.3. Medical surveillance is repeated on a semi-annual basis.
- 14.2.4. Monitoring is completed on a quarterly basis until such time that two consecutive personnel monitoring programs show that the employee has been exposed to less than 0.5 PPM.
- 14.2.5. If quarterly monitoring results indicate that exposure levels are below 0.5 ppm, the project will then only be required to repeat the monitoring and medical surveillance on an annual basis.
- 14.2.6. Any change in the project that could cause exposures to increase over the 0.5 ppm, the requirements for 0.5 ppm or greater will be followed.

##### 14.3. Equal to, or Greater than 1.0 ppm-to Equal to 10.0 ppm

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- 14.3.1. Employees working in areas where benzene exposure is greater than 1.0 ppm (up to 10.0 ppm) will be equipped with a chemical cartridge respirator with an organic vapor cartridge and half mask or any type of supplied air respirator with half mask. They will not be allowed to work in any area containing more than 1.0 ppm benzene without proper respiratory equipment.
- 14.3.2. All employees are presented our Benzene Training Program including respiratory protection and placed upon Authorized Persons Listing.
- 14.3.3. Respiratory protective program is presented, and a follow-up made to be certain that our employees are complying with such program.
- 14.3.4. Medical surveillance is completed within thirty days of implementation of this program or the discovery of benzene environments greater than 1.0 ppm.
- 14.3.5. All medical surveillance is repeated semi-annually.
- 14.3.6. Monitoring programs are repeated on a monthly basis until such time that two consecutive months show that the exposure level is less than 1.0 ppm.
- 14.3.7. In addition, all other parts of compliance of this program will be followed including authorized persons list and sign in and sign out of the area.
- 14.4. Greater than 10.0 ppm, but less than or equal to 50 ppm
  - 14.4.1. When exposure levels have been found to be this high, immediate steps are taken to withdraw company employees from the area except those necessary to establish engineering and work practice controls to reduce the exposure levels to below 10.0 ppm and preferably below 1.0 ppm.
  - 14.4.2. While working in areas performing engineering and work practice controls, our employees are equipped and required to wear chemical cartridge respirators with organic vapor cartridge and full-face piece, or any supplied air with full-face piece or any organic gas mask, or any self-contained breathing apparatus with full-face piece.
  - 14.4.3. Prior to admittance to the area, these employees have completed all training programs, medical surveillance programs, and respiratory protection program, and are placed on authorized persons list and are required to sign in and out of the restricted area.
- 14.5. Benzene Exposure greater than 50.0 ppm but equal to or less than 1000 ppm
  - 14.5.1. Company employees are allowed in this area only for the purpose of establishing engineering and work practice controls.
  - 14.5.2. They are equipped with supplied air respirator with half mask and positive pressure mode.



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- 14.5.3. Prior to admittance into the area, all employees are instructed in our training respiratory protective programs and have completed all medical surveillance and been placed on our authorized persons list. In addition, they will sign in and out while in the area to perform engineering controls.
- 14.6. Benzene Exposure greater than 1000 ppm but equal to or less than 2000 ppm
  - 14.6.1. Company employees are equipped with supplied air respirators with full-face piece, helmet or hood and positive pressure mode. All requirements as established above will be followed.
- 14.7. Greater than 2000 ppm but equal to or less than 10,000 ppm
  - 14.7.1. Company employees, if allowed in this area, are allowed only to shut off valves and to perform emergency operations. They are equipped with a supplied air respirator and auxiliary self-contained breathing apparatus with full-face piece and positive pressure mode.
  - 14.7.2. In addition, all other requirements as outlined above will be followed.

## 15. Escape

- 15.1. Since benzene can be fatal in only a very short period of time at concentrations greater than 10,000 ppm, anyone exposed to areas of such high concentration will use any organic vapor gas mask or self-contained breathing apparatus with full face piece for purposes of escape from the area.
- 15.2. This escape will be undertaken immediately upon the sensing of vapors or an alarm of vapors being this high.
- 15.3. EMERGENCY SITUATION: Equal to or greater than 100 ppm
  - 15.3.1. Where an employee is exposed to a massive release of benzene (100 ppm) due to some type of failure, the employee is required to participate in special medical tests program.
  - 15.3.2. Special tests are provided by the end of the employee's work shift.
  - 15.3.3. If the results of the tests are positive, additional tests will be provided as soon as practicable and repeated one month later.

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Applicable OSHA Standards: 29 CFR 1910.1030

## 1. Purpose & Scope

- 1.1. Cleveland Integrity Services is committed to providing a safe and healthful work environment. In pursuit of this endeavor, the following Exposure Control Plan (ECP) is provided to eliminate or minimize occupational exposures to bloodborne pathogens.
- 1.2. This program applies to all employees who have an occupational exposure to bloodborne pathogens. The program also ensures that these employees are trained regarding preventing and responding to bloodborne pathogens exposures prior to assignment, with training, providing personal protective equipment and other elements of implementation at no cost to the employee. The company Safety Representative is responsible for effective implementation and management of this program.
- 1.3. The basis of this Plan is to comply with the OSHA Bloodborne Pathogens Standard, Title 29 Code of Federal Regulations 1910.1030. It will provide protection for employees through the use of "Universal Precautions" as a major component of the Plan. Because individuals generally cannot know whether blood, body fluids or detached tissues are infected with bloodborne pathogens, Universal Precautions assumes that ALL blood and body fluids are infectious and must be treated accordingly.
- 1.4. All employees will have access to and the opportunity to review this plan at any time during their work shifts by contacting their Supervisor or the company's Safety Representative. Employees seeking copies of the Plan may contact the Safety Representative. A copy of the Plan is available at no charge and within 15 days of the request. The Exposure Control Plan shall also be used as a basis for training.
- 1.5. The Safety Representative will also be responsible for reviewing and updating the ECP annually or sooner if necessary. To reflect any new or modified tasks and procedures which affect occupational exposure, and to reflect new or revised employee posters with occupational exposure.

## 2. Employee Exposure Determination

- 2.1. Occupational exposure to blood and body fluids is limited to our designated first aid responders as they are needed for a worksite where professional emergency medical services are not readily available within an acceptable response time.
- 2.2. When professional emergency medical services are readily available within an acceptable response time, company personnel are not required as part of their employment to provide first aid or CPR to another person.
- 2.3. Although this Exposure Control Plan includes considerations and provisions for the proper selection and use of personal protective equipment, such implementation is performed without consideration of whether personal protective equipment is utilized.

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- 2.4. Our facility has decided to offer the hepatitis B pre-exposure vaccination to each first aid provider at the time they are so designated and prior to their commencement of these responsibilities.
- 2.5. In the event of a first aid incident if blood or other potentially infectious materials are present, the affected first aid responder(s) is instructed to report to the Safety Representative before the end of his or her work shift.
- 2.6. The Safety Representative will maintain a report that includes the name of the first aide responder, as well as the date, time and description of the incident. The Safety Representative will ensure that any first aid responder that desires the vaccine series after an incident will receive it as soon as possible, but not later than twenty four hours after the incident.
- 2.7. The Safety Representative will train first aid providers on the specifics of the reporting procedures and all other training associated with bloodborne pathogen requirements.

### **3. Engineering Controls and Work Practices**

- 3.1. Engineering controls and work practice controls are used to prevent or minimize exposure. Hand washing facilities are available at all jobsites. Employees will wash after administering first aid. In the event that hand washing facilities are not available, disposable “one use” towelettes that utilize disinfecting and sanitizing products are provided and used by affected personnel until proper hand washing is possible. All equipment used or contaminated during first aid assistance will be decontaminated in a proper manner or discarded in appropriate containers.
- 3.2. Engineering controls and work practices are reviewed as needed, and at least annually, to ensure that procedures continue to be effective in preventing employee exposures.
- 3.3. Additionally, in the event of a reported “near miss” incident involving potential exposure to bloodborne pathogens, engineering controls and work practices shall also be reviewed and revised as needed.

### **4. Personal Protective Equipment**

- 4.1. First aid responders will use personal protective equipment appropriate for administering the first aid required. All jobsite first aid kits contain gloves, eye protection, resuscitation bags and one-way CPR mouthpiece devices.
- 4.2. PPE is provided by the company at no charge or cost to employees. PPE may include items such as latex medical-type gloves, splash goggles, face shields and body protection such as aprons, depending on the anticipated situations for providing first response in a medical emergency. PPE is provided in various types and sizes to facilitate ease of use. Additionally, PPE shall be replaced, decontaminated or repaired as necessary.

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- 4.3. Life-threatening situations may require immediate action before personal protective equipment can be obtained – for example, beginning CPR without a one-way CPR mask, or applying direct pressure to a hemorrhaging wound or amputation. In this situation, it is always the employee’s choice and at their discretion to render assistance without use of PPE until proper PPE can be obtained.
- 4.4. In such situations and when an employee chooses to render aid without proper PPE, they will take advantage of whatever barrier protection that may be immediately available. For example, regular safety glasses with side shields and standard work gloves usually will provide some level of additional barrier protection in comparison to not utilizing safety glasses and regular work gloves.

## 5. Labeling

- 5.1. Biohazard warning labels displaying the biohazard symbol are placed on all containers for wastes, which may be contaminated with blood or body fluids, and red leak proof bags will be used as required.



**Biohazard Symbol**

## 6. Housekeeping

- 6.1. If a first aid incident occurs, the first aid responders will take precautions to decontaminate work surfaces, tools and equipment. Personal protective equipment is used during cleanup.
- 6.2. Mechanical means such as tongs, forceps or a brush and a dust pan are used to pick up contaminated broken glassware. The waste is treated as regulated waste and disposed of in closable and labeled or color coded containers.
- 6.3. When storing, handling, transporting or shipping, place other regulated waste in containers that are constructed to prevent leakage. The waste is then discarded according to federal, state, and local regulations.
- 6.4. Specimens of blood or other potentially infectious materials (i.e. bandages, clothing, etc), are to be placed in a container which prevents leakage during collection, handling, processing, storage, transport and/or shipping. The container will be color coded and closed prior to transport. If outside contamination occurs, secondary containment meeting these same requirements must be provided.

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- 6.5. In the event of a first aid incident in which the first aid responders' clothes become contaminated, the following actions will be taken:
- 6.6. Contaminated laundry is handled as little as possible and with minimum agitation. Appropriate personal protective equipment will be worn when handling contaminated laundry.
- 6.7. Contaminated laundry is placed in color coded bags at its location of use, and taken by a commercial launderer. The launderer are given the appropriate warnings.

## **7. Regulated Waste: Contaminated Sharps, Discarding & Containment**

- 7.1. Contaminated sharps shall be discarded immediately or as soon as feasible in containers that are:
  - 7.1.1. Closable;
  - 7.1.2. Puncture resistant;
  - 7.1.3. Leakproof on sides and bottom; and
  - 7.1.4. Labeled or color-coded in accordance with this standard.
- 7.2. During use, containers for contaminated sharps shall be easily accessible to personnel and located as close as is feasible to the immediate area where sharps are used or can be reasonably anticipated to be found. These locations may include, but are not limited, to laundries, for example.
- 7.3. All sharps containers must be maintained upright throughout their use and be replaced routinely so as to avoid overfilling.
- 7.4. When moving containers of contaminated sharps from the area of use, the containers will be:
  - 7.4.1. Closed immediately prior to removal or replacement to prevent spillage or protrusion of contents during handling, storage, transport or shipping;
  - 7.4.2. Placed in a secondary container if leakage is possible. The secondary containment must meet the same requirements as those of the first container.
- 7.5. Cleveland Integrity Services will establish and maintain a sharps injury log for the recording of percutaneous injuries from contaminated sharps. The information in the sharps injury log is recorded and maintained in such manner as to protect the confidentiality of the injured employee. The sharps injury log will contain, at a minimum:
  - 7.5.1. The type and brand of device involved in the incident;
  - 7.5.2. The department or work area where the exposure incident occurred; and

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7.5.3. An explanation of how the incident occurred.

7.6. This requirement to establish and maintain a sharps injury log applies to any employer who is required to maintain a log of occupational injuries and illnesses. All information will be maintained for a minimum of five (5) years.

7.7. An example of this Sharps Injury Log can be found in Attachment A at the end of this program.

## **8. Training**

8.1. All designated first aid responders receive training conducted by the Safety Representative or a qualified instructor designated by the Safety Representative. The bloodborne pathogens training program covers, at a minimum, the following elements:

8.1.1. A copy and explanation of the standard.

8.1.2. Epidemiology and symptoms of bloodborne pathogens.

8.1.3. Modes of transmission.

8.1.4. The Exposure Control Plan and a way to obtain a copy.

8.1.5. Methods to recognize exposures related to specific tasks, situations and other activities that may involve exposure to blood.

8.1.6. Use and limitations of engineering controls, safe work practices, and PPE.

8.1.7. PPE types, use, location, removal, handling, decontamination, disposal and basis for selection.

8.1.8. Hepatitis B Vaccine offered free of charge. Training is given prior to vaccination on its safety, effectiveness, benefits, and method of administration.

8.1.9. Emergency procedures for blood and other potentially infectious materials. Exposure incident procedures post exposure evaluation and follow up signs and labels.

8.2. Training for employees who are determined to be occupationally exposed to bloodborne pathogens is conducted initially on hiring or assignment, with annual re-training (i.e. training to take place within one year of initial training).

8.3. Training records are maintained for 3 years from the date of training, and must include the dates and contents of training along with the names and job titles of employees attending the training.

8.4. All medical records of employees are maintained and stored for the duration of employment by the employee plus 30 years.

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- 8.5. The employee may consent to having medical records released to a representative of the employee by written consent.
  - 8.5.1. The Assistant Secretary or director may also request the medical records for examination or copying.
  - 8.5.2. All medical records are transferred to and maintained by any successors to the business, or the employee must be notified if there is no successor at least 3 months prior to being destroyed.

## 9. Hepatitis-B Virus (HBV) Vaccinations

- 9.1. Employees who are required to provide first aid or emergency response duties or medical care on a routine basis are offered Hepatitis-B Virus (HBV) vaccinations at company expense and with no charge or cost to the employee. Employees who transfer to a job, or if their job is reclassified to include exposure to bloodborne pathogens are offered HBV vaccinations within 10 working days of the transfer or reclassification.
- 9.2. The choice for HBV vaccination is not mandatory. If affected employees choose not to have the vaccination at the initial offering, they have the opportunity to be vaccinated when they are ready. The company will document the offer, acceptance or declination, and vaccination dates using written formats as required by OSHA.

## 10. Post Exposure Evaluation And Follow Up

- 10.1. If an exposure incident occurs, contact the Safety Representative immediately. A confidential medical evaluation and follow up is conducted by the company's designated medical provider. The following will be performed:
  - 10.1.1. Document the routes of exposure and how exposure occurred.
  - 10.1.2. Identify and document source individual, unless infeasible or prohibited by state or local law.
  - 10.1.3. Obtain consent and test source individual's blood, document the source's blood test results.
  - 10.1.4. If the source individual is known to be infected, testing need not be repeated.
  - 10.1.5. Provide the exposed employee with the source individual's test results, and if information about applicable disclosure laws and regulations concerning the source identity and infectious status.
  - 10.1.6. After obtaining consent, collect exposed employee's blood as soon as feasible after the exposure incident and test blood for HBV and HIV serological status.

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- 10.1.7. If the employee does not give consent for HIV serological testing during the collection of blood for baseline testing, preserve the baseline blood sample for at least 90 days.

## **11. Post Exposure Evaluation**

- 11.1. The circumstances of exposure incidents will be reviewed to determine if procedures, protocols and/or training need to be revised.

## **12. Health Care Professionals**

- 12.1. Health care professionals responsible for employee's HB vaccination, post exposure evaluation and follow up are given a copy of the OSHA Bloodborne Standard. The health care professional evaluating an employee after an exposure incident will also receive the following:

- 12.1.1. A description of the employee's job duties relevant to the exposure incident.

- 12.1.2. Route(s) of exposure.

- 12.1.3. Circumstances of exposure.

- 12.1.4. If possible, a result of the source individual's blood test.

- 12.1.5. Relevant employee medical records, including vaccination status.

## **13. Health Care Professional's Written Opinion**

- 13.1. The designated Health Care Professional will provide the employee with a copy of the evaluating health care professional's written opinion within 15 days after completion of the evaluation.

The written opinion for post exposure evaluation and follow up are limited to whether or not the employee has been informed of the results of the medical evaluation and any medical conditions which may require further evaluation and treatment for HB vaccinations.

- 13.2. The opinion is limited to whether the employee required or received the vaccine. All other diagnoses will remain confidential and not be included in the written report.

## **14. Recordkeeping**

- 14.1. Medical Records:

- 14.1.1. Medical records are maintained for each employee with exposure in accordance with 29 CFR-1910.1020. In addition to the requirements of 29 CFR 1910.1020, the medical record includes:

- 14.1.1.1. The name, social security number, job designation of employee.



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- 14.1.1.2. Date(s) of bloodborne pathogens training, written acknowledgement of training and a record of the training curriculum utilized and the job assignment(s) or classifications of the personnel so trained.
- 14.1.1.3. A copy of the employee's Hepatitis B vaccinations and any medical records relative to the employee's ability to receive vaccination.
- 14.1.1.4. A copy of all results of examinations, medical testing, and follow up procedures as required.
- 14.1.1.5. A copy of all health care professional written opinion(s) as required by the standard.

14.1.2. Employee medical records are kept confidential and will not be disclosed or reported without the employee's express written consent except as required by OSHA or other law. Employee medical records are maintained for at least the duration of employment and, in the case of records regarding bloodborne pathogens program compliance, at least an additional 30 years.

14.1.3. Employee medical records are provided (within 15 working days) upon written request of the employee or to anyone having written consent of the employee.

14.2. Training Records:

14.2.1. Bloodborne pathogen training records are maintained by the Safety Representative at the Company's main office.

14.2.2. Each record gives an accurate report of training for individual employees who are determined to have an occupational exposure to bloodborne pathogens.

14.2.3. Each training record includes the date of training, curriculum, the instructor's name, and the names and job assignments or titles of the individuals trained. These records are maintained for three years from the date of training.

14.3. Transfer of Records:

14.3.1. If the company ceases to do business and there is not a successive employer, the employer shall notify the Director of the National Institute for Occupational Safety and Health (NIOSH) at least three months prior to scheduled records disposal, and prepare to transmit them to the Director.

**15. Supplemental Information**

15.1. Designated First Aid Providers: Foreman or Site Supervisor for work location

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- 15.2. Medical Evaluations Performed By: Local Physician as selected for project location
- 15.3. Designated Health Care Professional: Nearest Emergency Facility
- 15.4. Location of Training Records: Cleveland Integrity Services

Attachment A

Sharps Injury Log

Cleveland Integrity Services

Year 20\_\_\_\_\_

Date	Case/Report No.	Type of Device (Ex: syringe, suture, needle)	Brand Name of Device	Work Area where Injury Occurred (Ex: field, pipeyard, etc)	Brief Description of how the Incident Occurred (Ex: procedure being done, action being performed, body part injured)

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Applicable OSHA Standards: 29 CFR 1910.1051

## 1. Purpose

- 1.1 The following written *Butadiene Protection Program* has been established for Cleveland Integrity Services' employees who, in the course and scope of their work, may be in an area where butadiene is, or could be present; or in the event of an accidental exposure to butadiene.
- 1.2 When any such exposures are over the PEL, this *Butadiene Protection Program* will be implemented and followed to reduce employee exposure to or below the PEL primarily by means of engineering and work practice controls in accordance with requirements of 1910.1051.
- 1.3 A specific butadiene safety program based upon requirements of 29 CFR 1910.1051 and this *Butadiene Protection Program* will be written for each project that presents an exposure to butadiene. Each such project-specific program will include a schedule for development and implementation of the engineering and work practice controls. These plans will be reviewed and revised as appropriate based on the most recent exposure monitoring data for the project, to reflect the current status of each program.
- 1.4 Written compliance programs will be furnished upon request for examination and copying to the Assistant Secretary of the U.S. Department of Labor; the Director of the National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designee; affected employees and designated employee representatives.

## 2. Scope

- 2.1 The written Butadiene Protection Program will apply to all Cleveland Integrity Services employees and employees of subcontractors. This program will be considered the minimum requirements and if conflicts arise between customer/client programs or applicable regulatory requirements, the most stringent will apply.

## 3. Definitions

- 3.1. Action Level: Means an airborne concentration of butadiene of 0.5 ppm calculated as an 8-hour time weighted average.
- 3.2. Permissible Exposure Limit (PEL) for butadiene is 1 ppm measured as an 8-hour time weighted average and 5 ppm as determined over a sampling period of 15 minutes.
- 3.3. Authorized Person: Means any person specifically authorized by the employer whose duties require the person to enter a regulated area, or any person entering

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such an area as a designated representative of employer, for the purpose of exercising the right to observe monitoring and measuring procedures.

- 3.4. "1,3-Butadiene" means an organic compound with chemical formula  $\text{CH}_2=\text{CH}-\text{CH}=\text{CH}_2$  that has a molecular weight of approximately 54.15 gm/mole.
- 3.5. Employee Exposure: Means exposure to airborne butadiene, which would occur if the employee were not using respiratory protective equipment.

#### 4. Responsibilities

- 4.1. The Project Manager or Site Supervisor will be responsible for disciplinary action resulting from failure to follow the guidelines as set forth in this program.
- 4.2. The company Safety Coordinator or designee will be responsible for the monitoring and guidance for the implementation of this program.
- 4.3. The First Line Supervisor, Foreman, or Leadsperson of record will be responsible for the implementation and training of the butadiene program.
- 4.4. When the Company performs work in a host facility where butadiene is used, employees will be notified about the location of butadiene in the facility, as well as procedures to follow if a leak or accidental release is suspected.
- 4.5. Employees also will be informed about any safety rules, contingency or emergency plans and procedures in place specifically for butadiene.
- 4.6. Employees will be trained after initial assignment and annually thereafter on the following: Health hazards associated with BD exposure; reason and description of the medical surveillance program; the quantity, location, use, release, and storage of BD and the specific operations that could result in exposure to BD; the engineering controls and safe work practices associated with the employee's job assignment; emergency procedures and personal protective equipment; and the measures employees can take to protect themselves from exposure to BD.

#### 5. Potential Exposure Locations & Situations

- 5.1. Employees have potential for exposure to butadiene in production of styrene-butadiene rubber and polybutadiene rubber for the tire industry.
- 5.2. Potential locations where foreseeable exposure may occur are:
  - 5.2.1. Production of styrene-butadiene rubber and polybutadiene rubber for the tire industry.
  - 5.2.2. Copolymer latexes for carpet backing
  - 5.2.3. Paper coating

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- 5.2.4. Resins and polymers for pipes and automobile and appliance parts
- 5.2.5. Production of such chemicals as fungicides
- 5.2.6. Refineries and Petrochemical Plants

## 6. Characteristics and Health Effects of Butadiene

- 6.1. Butadiene can be found as a gas or liquid. Is a colorless, non-corrosive, flammable gas with a mild aromatic odor or gasoline-like odor at standard ambient temperature and pressure. The odor of butadiene does not provide adequate warning of its hazard.
- 6.2. Butadiene can affect the body if the gas is inhaled or if the liquid form, which is very cold (cryogenic), comes in contact with the eyes or skin.
- 6.3. Short-term (acute) overexposure to high concentrations of butadiene (well above the levels where its odor is first recognizable). Effects of overexposure: Breathing very high levels of BD for a short time can cause central nervous system effects, blurred vision, nausea, fatigue, headache, decreased blood pressure and pulse rate, and unconsciousness. There are no recorded cases of accidental exposures at high levels that have caused death in humans, but this could occur. Breathing lower levels of BD may cause irritation of the eyes, nose, and throat. Skin contact with liquefied BD can cause irritation and frostbite.
- 6.4. Long-term (chronic) exposure to butadiene (repeated or prolonged) can occur even at relatively low concentrations. Chronic exposure may result in an increased risk of developing leukemia. The risk of leukemia increases with increased exposure to BD. OSHA has concluded that there is strong evidence that workplace exposure to BD poses an increased risk of death from cancers of the lymph hematopoietic system.
- 6.5. Butadiene vapors are highly flammable.
- 6.6. Butadiene vapors are heavier than air and can travel along the ground. Consequently, accidental ignition by sparks or an open flame can occur at locations remote from the site where the butadiene is being handled.
- 6.7. Butadiene is insoluble in water, stable, and reacts with oxidizers.
- 6.8. Hazardous decomposition products of butadiene may form explosive peroxides upon exposure to air.

## 7. Safe Work Procedures

- 7.1. Site-specific safe work procedures will be developed as required based on requirements of this program and other related company safety and health requirements (i.e. proper selection and use of PPE, respiratory protection, fire safety, responding to a leak or spill).

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- 7.2. Because butadiene vapors form explosive mixtures in the air, smoking, open flames and other potential sources of ignition are prohibited in areas where butadiene is being handled or where there is a butadiene exposure
- 7.3. Fire extinguishers will be readily available by trained employees in areas where there is exposure to butadiene.
- 7.4. Host employers have the responsibility to inform Company personnel of any butadiene exposures in a job site or facility prior to work commencing. Site-specific planning for butadiene exposures will be coordinated with host employer safety procedures, planning and protocols. Company employees performing work will be notified and informed about host employer butadiene safety and health procedures.
- 7.5. The employer will establish a regulated area wherever occupational exposures to airborne concentrations of BD exceed or can reasonably be expected to exceed the permissible exposure limits, either the 8-hr TWA or the STEL. Access to regulated areas shall be limited to authorized persons.
  - 7.5.1 Regulated areas shall be demarcated from the rest of the workplace in any manner that minimizes the number of employees exposed to BD within the regulated area. At a multi-employer worksite who establishes a regulated area shall communicate the access restrictions and locations of these areas to other employers with work operations at that worksite whose employees may have access to these areas.

## **8. Medical Surveillance**

- 8.1. Medical surveillance will be performed for all Company employees who may be exposed to butadiene, at or above the action level 30 or more days per year, or employees who are or may be exposed to butadiene at or above the permissible exposure limits for 10 or more days per year, or for employees who have been exposed to more than 10 ppm of butadiene for 30 days or more in a year prior to the effective date of the standard when employed by their current employer.
- 8.2. All medical examinations and procedures will be performed by or under the supervision of a licensed physician.
- 8.3. An accredited laboratory will conduct all laboratory tests.
- 8.4. All cost for physicals and laboratory work etc. will be paid by Cleveland Integrity Services.
- 8.5. Initial Exam
  - 8.5.1. The Company will provide employees who work in an area where he/she could be exposed to butadiene, a medical examination to include the following:
    - 8.5.1.1. Detailed occupational history which includes:

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- 8.5.1.1.1. Post work exposure to butadiene or other hematological toxins.
- 8.5.1.1.2. A family history of blood diseases includes hematological neoplasms.
- 8.5.1.1.3. A history of blood diseases including genetic hemoglobin abnormalities, bleeding abnormalities, abnormal function of formed blood elements.
- 8.5.1.1.4. A history or renal or liver dysfunction.
- 8.5.1.1.5. A history of medical drugs routinely taken.
- 8.5.1.1.6. A history of previous exposure to ionizing radiation.
- 8.5.1.1.7. Exposure to marrow toxins outside of the current work situation.

8.5.1.2. Complete Physical Examination

8.5.1.3. Laboratory Test

8.5.1.4. Complete blood count, including a leukocyte counts with differential.

8.5.1.4.1. Quantitative thrombolytic counts.

8.5.1.4.2. Hematocrit

8.5.1.4.3. Hemoglobin

8.5.1.4.4. Erythrocyte counts

8.5.1.4.5. The results of the above laboratory tests will be reviewed by the examining physician.

8.6. Periodic Examinations

8.6.1. The Company will provide each employee a medical examination annually. This examination will include the following:

8.6.1.1. A brief history regarding any new exposure.

8.6.1.2. Changes in medical drugs used.

8.6.1.3. Appearance of physical signs relating to blood disorders.

8.6.1.4. A complete blood count including:



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- 8.6.1.4.1. Leukocyte counts with differential
- 8.6.1.4.2. Quantitative thrombolytic counts
- 8.6.1.4.3. Hemoglobin
- 8.6.1.4.4. Hematocrit
- 8.6.1.4.5. Erythrocyte counts
- 8.6.1.4.6. Erythrocyte indicates (MCV, MCH, MCHC)

8.6.2. If an employee develops signs or symptoms commonly associated with toxic exposure to butadiene, the Company will provide the employee with an additional examination, which will include those elements considered appropriate by the examining physician.

#### 8.7. Post Employment Examination

- 8.7.1. At the conclusion of a job that required butadiene physicals each employee will have a complete physical examination before the employee is ROF or transferred to another job-site that has no butadiene hazard. This physical will include:
  - 8.7.1.1. Complete blood count, including a leukocyte counts with differential.
  - 8.7.1.2. Quantitative thrombolytic counts.
  - 8.7.1.3. Hematocrit
  - 8.7.1.4. Hemoglobin
  - 8.7.1.5. Erythrocyte counts

#### 8.8. Additional Examinations and Referrals

- 8.8.1. Where the results of the complete blood count required for the initial and periodic examinations indicate any of the following abnormal conditions exist, then the blood count will be repeated within 2 weeks.
- 8.8.2. The hemoglobin level or the hematocrit falls below the normal limit [outside the 95% confidence interval (C.I.)] as determined by the laboratory for the particular geographic area and/or these indices show a persistent downward trend from the individual's pre-exposure norms; provided these findings cannot be explained by other medical reasons.

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8.8.3. The thrombolytic (platelet) count varies more than 20% below the employee's most recent values or falls outside the normal limit (95% C.I.) as determined by the laboratory.

8.8.4. The leukocyte count is below 4,000 per mm<sup>3</sup> or there is an abnormal differential count.

8.8.4.1. If the abnormality persists, the examining physician will refer the employee to a hematologist or an internist for further evaluation unless the physician has good reason to believe such referral is unnecessary.

8.8.4.2. The employer will provide the hematologist or internist with the information required to be provided to the physician.

8.8.4.3. The hematologist's or internist's evaluation will include a determination as to the need for additional tests, and the employer will assure that these tests are provided.

#### 8.9. Information provided to the Physician

8.9.1. The employer will provide the following information to the examining physician.

8.9.1.1. A copy of this regulation and its appendices.

8.9.1.2. A description of the affected employee's duties as they relate to the employee's exposure.

8.9.1.3. The employee's actual or representative exposure level.

8.9.1.4. A description of any personal protective equipment used or to be used.

8.9.1.5. Information from previous employment related medical examinations of the affected employee, which is not otherwise available to the examining physician.

#### 8.10. Physician's Written Opinions

8.10.1. For each examination under this section, the Company will obtain and provide the employee with a copy of the examining physician's written opinion within 15 days of the examination. The written opinion will be limited to the following information.

8.10.2. The occupationally pertinent results of the medical examination and tests.

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- 8.10.3. The physician's opinion concerns whether the employee has any detected medical conditions, which would place the employee's health at greater than normal risk of material impairment from exposure to butadiene.
  - 8.10.4. The physician's recommended limitations upon the employee's exposure to butadiene or upon the employee's use of protective clothing or equipment and respirators.
  - 8.10.5. A statement that the employee has been informed by the physician of the results of the medical examination and any medical conditions resulting from butadiene exposure which require further explanation or treatment.
  - 8.10.6. The written opinion obtained by the employer will not reveal specific records, findings and diagnosis that have no bearing on the employee's ability to work in a butadiene -exposed workplace.
- 8.11. Medical Removal Plan
- 8.11.1. When a physician makes a referral to a hematologist/internist as required under this section, the employee will be removed from areas where exposures may exceed the action level until such time as the physician makes a determination.
  - 8.11.2. Following the examination and evaluation by the hematologist/internist, a decision to remove an employee from areas where butadiene exposure is above the action level or to allow the employee to return to areas where butadiene exposure is above the action level will be made by the physician in consultation with the hematologist/internist. This decision will be communicated in writing to the employer and employee. In the case of removal, the physician will state the required probable duration of removal from occupational exposure to butadiene above the action level and the requirements for future medical examinations to review the decision.
  - 8.11.3. For any employee who is removed pursuant to this section, the Company will provide a follow-up examination. The physician, in consultation with the hematologist/internist, will make a decision within 6 months of the date the employee was removed as to whether the employee will be returned to the usual job or whether the employee should be removed permanently.
  - 8.11.4. Whenever an employee is temporarily removed from butadiene exposure pursuant to this section, the Company will transfer the employee to a comparable job for which the employee is qualified (or can be trained for in a short period) and where butadiene exposures are as low as possible, but in no event higher than the action level. The Company will maintain the employee's current wage rate, seniority and other benefits. If there is no such job available, the Company will provide medical removal protection benefits until such a job becomes available or for 6 months, whichever comes first.

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8.11.5. Whenever an employee is removed permanently from butadiene exposure based on a physician's recommendation pursuant to this section, the employee will be given the opportunity to transfer to another position which is available, or later becomes available, for which the employee is qualified (or can be trained for in a short period) and where butadiene exposures are as low as possible but in no event higher than the action level. The employer will assure that such employee suffers no reduction in current wage rate, seniority or other benefits as a result of the transfer.

#### 8.12. Medical Removal Protection Benefits

8.12.1. The Company will provide to an employee six months of medical removal benefits immediately following each occasion an employee is removed (from exposure to butadiene because of hematological findings from exposure to butadiene ) unless the employee has been transferred to a comparable job where butadiene exposures are below the action level. For the purposes of this section, the requirement that an employer provide medical removal protection benefits means that the employer will maintain the current wage rate, seniority and other benefits of an employee as though the employee had not been removed.

8.12.2. The Company's obligation to provide medical removal protection benefits to a removed employee will be reduced to the extent that the employee received compensation for earnings lost during the period of removal either from a publicly or employer funded compensation program, or from employment with another employer made possible by virtue of the employee's removal.

### 9. Recordkeeping for Health Hazard Compliance Program

#### 9.1. General

9.1.1. The company is required to keep all records of an employee's exposure to butadiene and medical surveillance for a period of duration of employment plus (+) thirty (30) years, or, forty (40) years whichever is the longer.

#### 9.1.2. Specific records to be kept include:

9.1.2.1. All records associated with monitoring, the results of individual monitoring and acknowledgment that the employee was informed of the results of the monitoring.

9.1.2.2. All records pertaining to medical surveillance and the acknowledged results of all examinations.

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## 9.2. Storage

- 9.2.1. All records subject to these provisions will be stored in the affected employee's personnel jacket/folder maintained at the Corporate Office(s).
- 9.2.2. This is necessary since our projects do not normally have safe and secure storage facilities onsite.
- 9.2.3. Any records can be made available to proper authorities from this office.

## 9.3. Copies

- 9.3.1. Copies of pertinent records will be made available only to the individual, a duly authorized representative of the individual, or the individual's personal physician (in case of medical records) and then by written request to the Corporate Office only.

## 10. Use of Respirators

- 10.1. When employees use respirators as required by this program, the company will provide respirators that comply with the requirements of 1910.1051(g)(1).  
Respirators must be used during:
  - 10.1.1. Periods necessary to install or implement feasible engineering and work-practice controls.
  - 10.1.2. Work operations for which the company establishes that compliance with either the TWA or STEL through the use of engineering and work-practice controls is not feasible. (For example, some maintenance and repair activities, vessel cleaning, or other operations for which engineering and work-practice controls are infeasible because exposures are intermittent and limited in duration).
  - 10.1.3. Work operations for which feasible engineering and work-practice controls are not yet sufficient, or are not required by OSHA standards to reduce employee exposure to or below the PELs.
  - 10.1.4. In emergency situations.

## 11. Respiratory Protection Program

- 11.1. The company will supply approved respirators and filters for all butadiene hazards which an employee would encounter at the job-site at no cost to the employee.
  - 11.1.1. The company will train all employees operating under the *Butadiene Protection Program* in the proper use, maintenance and limitation of the respirator they will be using.

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11.1.2. The company will provide medical physical examination and fit testing for all employees required to wear a respirator (refer to the company's Respiratory Protection Program).

11.2. The company has established and implemented a written Respiratory Protection Program in accordance with 29 CFR 1910.134. Any use of respirators relating to butadiene exposure will be done in compliance with the company's Respiratory Protection Program.

11.3. For air-purifying respirators, the company will replace the air-purifying element at the expiration of its service life or at the beginning of each shift in which such elements are used, whichever comes first.

11.4. If NIOSH approves an air-purifying element with an end-of-service-life indicator for butadiene, such an element may be used until the indicator shows no further useful life.

## **12. Respirator Selection**

12.1. Selection of respirators will be based on airborne concentrations of butadiene or conditions where respirators will be used. The company supervisor in charge of a project where respirators will be used due to butadiene exposure will select the appropriate respirator from Table 1 of section 1910.1051 (h)(3)(i) .

12.2. Any employee who cannot use a negative-pressure respirator will be allowed to use a respirator with less breathing resistance, such as a powered air-purifying respirator or supplied-air respirator.

12.3. All respirators selected will be approved by NIOSH.

## **13. Protective Clothing and Equipment**

13.1. Personal protective equipment will be utilized as needed to prevent liquid butadiene contact with the eyes and to limit skin exposure.

13.2. Protective clothing (such as barrier overalls, aprons, sleeves, gloves, boots, etc.) will be worn over any parts of an affected employee's body that could be exposed to liquid butadiene.

13.3. Protective clothing and equipment will be provided by the company at no cost to the employee. The company, through its supervisors, will assure proper use of protective clothing and equipment where appropriate.

13.4. Employees will wear splash-proof safety goggles if it is possible that butadiene may get into the eyes. In addition, employees will wear a face shield if the face could be splashed with liquid butadiene.

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- 13.5. PPE must meet the requirements of 29 CFR 1910.133 and provided at no cost to the employees.

#### 14. Notes to Exposure Model

##### 14.1. Less than 0.5 ppm

- 14.1.1. Upon implementation of this *Butadiene Compliance Program* and annually thereafter, project evaluations will be made to determine the presence of butadiene on this project, as applicable.
- 14.1.2. All employees will be presented the company's Butadiene Training Program including respiratory protection and placed on the Authorized Persons Listing.
- 14.1.3. If butadiene is present on a project, initial monitoring will be conducted to determine the degree of exposure of our people to butadiene.
- 14.1.4. The initial medical surveillance will be performed on all employees who have the possibility of butadiene exposure.
- 14.1.5. This medical surveillance will be repeated if the employee during the previous year has had any opportunity to be exposed to butadiene.
- 14.1.6. In addition, annual monitoring will be conducted to determine if the project in general is exposing our people to less than 0.5 PPM over an eight-hour time weighted average.

##### 14.2. Equal to or Greater than 0.5 PPM, but less than 1.0 ppm

- 14.2.1. All exposed employees will be placed in our initial medical surveillance program.
- 14.2.2. All employees will be presented our Butadiene Training Program including respiratory protection and placed upon Authorized Persons Listing.
- 14.2.3. Medical surveillance will be repeated on a semi-annual basis.
- 14.2.4. Monitoring will be completed on a quarterly basis until such time that two consecutive personnel monitoring programs show that the employee has been exposed to less than 0.5 PPM.
- 14.2.5. If quarterly monitoring results indicate that exposure levels are below 0.5 ppm, the project will then only be required to repeat the monitoring and medical surveillance on an annual basis.
- 14.2.6. Any change in the project that could cause exposures to increase over the 0.5 ppm, the requirements for 0.5 ppm or greater will be followed.

##### 14.3. Equal to, or Greater than 1.0 ppm-to Equal to 10.0 ppm

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- 14.3.1. Employees working in areas where butadiene exposure is greater than 1.0 ppm (up to 10.0 ppm) will be equipped with a chemical cartridge respirator with an organic vapor cartridge and half mask or any type of supplied air respirator with half mask. They will not be allowed to work in any area containing more than 1.0 ppm butadiene without proper respiratory equipment.
  - 14.3.2. All employees will be presented our Butadiene Training Program including respiratory protection and placed upon Authorized Persons Listing.
  - 14.3.3. Respiratory protective program will be presented and a follow-up made to be certain that our employees are complying with such program.
  - 14.3.4. Medical surveillance will be completed within thirty days of implementation of this program or the discovery of butadiene environments greater than 1.0 ppm.
  - 14.3.5. All medical surveillance will be repeated semi-annually.
  - 14.3.6. Monitoring program will be repeated on a monthly basis until such time that two consecutive months show that the exposure level is less than 1.0 ppm.
  - 14.3.7. In addition, all other parts of compliance of this program will be followed including authorized persons list and sign in and sign out of the area.
- 14.4. Greater than 10.0 ppm, but less than or equal to 50 ppm
- 14.4.1. When exposure levels have been found to be these high, immediate steps should be taken to withdraw company employees from the area except those necessary to establish engineering and work practice controls to reduce the exposure levels to below 10.0 ppm and preferably below 1.0 ppm.
  - 14.4.2. While working in areas performing engineering and work practice controls, our employees will be equipped and required to wear chemical cartridge respirators with organic vapor cartridge and full-face piece, or any supplied air with full-face piece or any organic gas mask, or any self-contained breathing apparatus with full-face piece.
  - 14.4.3. Prior to admittance to the area, these employees will have completed all training programs, medical surveillance programs, and respiratory protection program, and will be placed on authorized persons list and will be required to sign in and out of the restricted area.
- 14.5. Butadiene Exposure greater than 50.0 ppm but equal to or less than 1000 ppm
- 14.5.1. Company employees will be allowed in this area only for the purpose of establishing engineering and work practice controls.



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- 14.5.2. They will be equipped with supplied air respirator with half mask and positive pressure mode.
- 14.5.3. Prior to admittance into the area, all employees will be instructed in our training respiratory protective programs and have completed all medical surveillance and been placed on our authorized persons list. In addition, they will sign in and out while in the area to perform engineering controls.
- 14.6. Butadiene Exposure greater than 1000 ppm but equal to or less than 2000 ppm
  - 14.6.1. Company employees will be equipped with supplied air respirators with full-face piece, helmet or hood and positive pressure mode. All requirements as established above will be followed.
- 14.7. Greater than 2000 ppm but equal to or less than 10,000 ppm
  - 14.7.1. Company employees, if allowed in this area, will be allowed only to shut off valves and to perform emergency operations. They will be equipped with a supplied air respirator and auxiliary self-contained breathing apparatus with full-face piece and positive pressure mode.
  - 14.7.2. In addition, all other requirements as outlined above will be followed.

## 15. Monitoring

- 15.1 Initial monitoring will be performed to determine accurately the airborne concentrations of BD to which employees may be exposed.
  - 15.1.1 The initial monitoring shall be completed within 60 days of the introduction of BD into the workplace.
- 15.2 Periodic monitoring and its frequency.
  - 15.2.1 If the initial monitoring reveals employee exposure to be at or above the action level but at or below both the 8-hour TWA limit and the STEL, the employer shall repeat the representative monitoring every twelve months.
  - 15.2.2 If the initial monitoring reveals employee exposure to be above the 8-hour TWA limit, the employer will repeat the representative monitoring at least every three months until the employer has collected two samples per quarter (each at least 7 days apart) within a two-year period, after which such monitoring must occur at least every six months.
  - 15.2.3 If the initial monitoring reveals employee exposure to be above the STEL, the employer will repeat the representative monitoring at least every three months until the employer has collected two samples per quarter (each at

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least 7 days apart) within a two-year period, after which such monitoring must occur at least every six months.

- 15.2.4 The employer may alter the monitoring schedule from every six months to annually for any required representative monitoring for which two consecutive measurements taken at least 7 days apart indicate that employee exposure has decreased to or below the 8-hour TWA, but is at or above the action level.
- 15.3 Additional monitoring will be conducted following a spill, leak, or release to ensure that exposures have returned to the level that existed prior to the incident.
- 15.4 The employer must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees.

## 16. Escape

- 16.1. Since butadiene can be fatal in short period of time at concentrations greater than 10,000 ppm, anyone exposed to areas of such high concentration will use any organic vapor gas mask or self-contained breathing apparatus with full face piece for purposes of escape from the area.
- 16.2. This escape will be undertaken immediately upon the sensing of vapors or an alarm of vapors being this high.
- 16.3. EMERGENCY SITUATION: Equal to or greater than 100 ppm
  - 16.3.1. Where an employee is exposed to a massive release of butadiene (100 ppm) due to some type of failure, the employee will be required to participate in special medical tests program.
  - 16.3.2. Special tests will be provided by the end of the employee's work shift.
  - 16.3.3. If the results of the tests are positive, additional tests will be provided as soon as practicable and repeated one month later.

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Applicable Standards: Supplemental to Company Safety & Health Initiatives

## 1. Introduction to the Workplace Injury Management Program

- 1.1. Cleveland Integrity Services has established this program to help return employees to productive employment as quickly and as safely as possible following a work-related injury or illness.
- 1.2. The underlying principle of workplace injury management is that rehabilitation in the workplace, rather than at home or in a medical institution, is both more effective and more productive.
- 1.3. This *Workplace Injury Management Program* must be read and applied in conjunction with applicable and coordinated human resources policies and procedures, including confidentiality of employee records relating to medical treatments. Additionally, program components coordinate with state worker's compensation laws and insurance carrier requirements.
- 1.4. The Company supports the commencement of return to work as soon as practicable following work-related injury and / or illness, and is committed to the principle of workplace injury management.

## 2. Coordination with workers' compensation insurance benefits and requirements

- 2.1. Objectives of Cleveland Integrity Services's workers' compensation program and insurance coverage encourage and support the following:
  - 2.1.1. To assist in securing the health, safety and welfare of workers and, in particular, preventing work-related injury
  - 2.1.2. To establish a system that seeks to achieve optimum results in terms of a timely, safe and durable return to work for workers following workplace injuries.
  - 2.1.3. To provide for:
    - 2.1.3.1. Prompt treatment of injuries;
    - 2.1.3.2. Effective and pro-active management of injuries;
    - 2.1.3.3. Necessary medical and vocational rehabilitation following injuries in order to assist injured workers and to promote their return to work as soon as possible; and
    - 2.1.3.4. Injured workers and their dependents with income support in accordance with the Company's workers' compensation insurance benefits.

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### 3. Safety & Health Responsibilities

- 3.1. The Company aims to provide a physically safe, healthy and secure working environment for all employees, contractors and visitors. To achieve this goal, everyone in a Company workplace is required to ensure their actions do not adversely affect the health and safety of others.
- 3.2. Company management consults with employees through safety and health training activities, job safety observations, open communications with supervisors and site safety representatives. Open communication and feedback are essential components in Company workplace safety programs, planning and initiatives.

### 4. Injury Management Commitments

- 4.1. Cleveland Integrity Services is committed to support the following objectives of injury management and the rehabilitation of all employees who suffer a work-related injury or illness:
  - 4.1.1. Ensure that injured employees return to work as soon as practicable, and that returning to work is a normal practice and expectation.
  - 4.1.2. Provide suitable duties/employment, where practicable, for injured employees as an integral part of the injury management process.
  - 4.1.3. Ensure that participation in the injury management program will not, of itself, jeopardize job security.
  - 4.1.4. Consult with employees and, where necessary, relevant stakeholders, to ensure the program operates effectively.
  - 4.1.5. Maintain confidentiality of information relating to injured employees on rehabilitation (return to work) programs.
  - 4.1.6. Ensure that all Company employees have access to the *Injury Management Program* by making a written request to the Company Safety Coordinator.

### 5. Definitions relating to Program Components

- 5.1. *Injured Employee* -- Injured employee means an employee who has received a workplace injury.
- 5.2. *Injury Management* -- Injury management means the process that comprises activities and procedures that are undertaken or established for the purpose of achieving a timely, safe and durable return to work for employees following workplace injuries.
- 5.3. *Injury Management Program* -- Injury management program means a coordinated and managed program in accordance with the Company worker's compensation coverage and in-house tracking of claims management. This generally integrates

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aspects of injury management (including treatment, rehabilitation, retraining, claims management and employment management practices) for the purpose of achieving optimum results in terms of a timely, safe and durable return to work for injured employees.

- 5.4. *Injury Management Plan* -- Injury Management Plan means a plan for coordinating and managing those aspects of injury management in coordination with the Company's workers' compensation insurance coverage and associated insurance carrier benefits, duties, responsibilities and requirements. This generally concerns the treatment, rehabilitation and retraining of an injured employee, for the purpose of achieving a timely, safe and durable return to work for the employee.
- 5.5. *Return to Work Plan* -- Return to Work Plan means a plan which indicates and identifies potential suitable duties for a future return to work and outlines the steps that are taken to facilitate this return for the purpose of achieving optimum results in terms of a timely, safe and durable return to work for injured employees.
- 5.6. *Significant Injury* -- Significant injury means a workplace injury that is likely to result in the employee being incapacitated for a continuous period of more than seven days, whether or not any of those days are work days and whether or not the incapacity is total or partial or a combination of both.
- 5.7. *Workplace Injury* -- Workplace injury means an injury to an employee in respect of which compensation is or may be payable under the Company's workers' compensation coverage.
- 5.8. *Designated Medical Provider* – Designated Medical Provider means the hospital emergency room and occupational medical clinic or physician who the Company generally utilizes when providing professional medical to employees who suffer an at-work injury, a work-related illness, or an injury or medical condition that is reportedly work related and requires professional medical attention.
- 5.9. *Workers' Compensation Insurance Carrier* – This means the insurance company that the Company has selected to provide workers' compensation for Company operations.

## 6. Injury Management Responsibilities

- 6.1. Workplace injury management requires co-operation between all parties involved to achieve a timely, safe and durable return to work for employees following workplace injuries.

Specific responsibilities are detailed below:

### 6.1.1. Employee Responsibilities

- 6.1.1.1. Employees must notify their supervisor of any work-related injury or illness as soon as possible after the injury happens and of their ongoing medical and rehabilitation status.

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- 6.1.1.2. An injured employee must participate and co-operate in the establishment of their Injury Management Plan.
- 6.1.1.3. An injured employee must comply with their obligations under the Injury Management Plan.
- 6.1.1.4. An injured employee is expected to cooperate in and provide necessary information for any incident investigation process in accordance with the Company's written *Accident Prevention Plan* and established incident response procedures of the Company and/or, when a work-related injury occurs on the premises of a Host employer, the Host employer's incident investigation and incident response procedures.
- 6.1.1.5. An injured employee is expected to cooperate and comply with routines, procedures and requirements as stipulated by the workers' compensation insurance carrier and state workers' compensation law.
- 6.1.1.6. An injured employee must make all reasonable efforts to return to work as soon as possible, having regard to medical advice and the nature of the injury.
- 6.1.1.7. An injured employee will report on their progress at regular intervals to the workers' compensation carrier's claims manager or designated representative while participating in an Injury Management Plan.

## 6.2. Cleveland Integrity Services Responsibilities

- 6.2.1. The Company will assist the employee in making contact with the workers' compensation insurance carrier, and cooperate in accordance with the responsibilities of the insured employer under the carrier's insurance policy provisions.
- 6.2.2. The Company will comply with requirements of the state's workers' compensation law.
- 6.2.3. The Company will provide suitable duties, so far as reasonably practicable, for an employee who has been totally or partially incapacitated and is able to return to work on a full-time or part-time basis.

## 6.3. Manager / Supervisor Responsibilities

- 6.3.1. Managers/supervisors will provide suitable duties for their injured employees wherever and whenever possible or practicable.

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- 6.3.2. When advised that an employee has suffered a work-related injury or illness and will require medical or other treatment and/or time off work for their injury/condition:
- 6.3.3. The manager/supervisor will contact the Safety Coordinator in accordance with the Company's incident response procedures as explained in the written *Accident Prevention Plan*.
- 6.3.4. The manager/supervisor will also advise the employee to contact the Company Safety Coordinator to confirm that required medical treatment has been obtained; confirm that applicable post-incident drug screen requirements have been met; give information as required for incident investigation and toward submission of the first report to the workers' compensation carrier. This contact is made as soon as possible.
- 6.3.5. The manager/supervisor must immediately notify the Company Safety Coordinator if presented with medical certificate indicating an injured employee is only fit to perform duties that vary from their normal duties, or if there are any restrictions on the employee's working activities.
- 6.3.6. The manager/supervisor will ensure that any medical recommendations are abided by until such time as adequate assessment can be initiated.

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## **1. Purpose**

- 1.1. Company associates will maintain the highest ethical standards in the conduct of Company affairs. Intent of this policy is that each associate will conduct the Company's business with integrity and comply with all applicable laws in a manner that excludes considerations of personal advantage or gain.
- 1.2. The following is a summary of the Company's policy with respect to gifts, favors, entertainment and payments given or received by Company associates. Potential conflicts of interest and certain other matters.

## **2. Gifts, favors and payments by the company**

- 2.1. Gifts, favors and payments may be given to others are Company expense, if they meet all the following criteria:
  - 2.1.1. They are consistent with accepted business practices
  - 2.1.2. They are of sufficiently limited value and in a form that will not be construed as a bribe or payoff
  - 2.1.3. They are not in violation of applicable law and generally accepted ethical standards; and
  - 2.1.4. Public disclosure of the facts that will not embarrass the company
  - 2.1.5. Payments, commissions or other compensation to or for the benefit of associates of customers (or their family members or associates) not required by written contract are contrary to Company policy.

## **3. Gifts, Favors, Entertainment and Payments Received by Company Associates**

- 3.1. Associates shall not seek or accept for themselves or others any gifts, favors, entertainment, payments without a legitimate business purpose nor shall they seek or accept personal loans other than conventional loans at market rates from lending institutions) from any persons or business organizations that do or seek to do business with or is a competitor of the Company. In the application of this policy:
- 3.2. Associates may accept for themselves and members of their families common courtesies usually associated with customary business practices. These include but are not limited to:
  - 3.2.1. Lunch and/or dinner with vendors sometimes including spouses as long as the invitation is extended by the vendor.
  - 3.2.2. Gifts of small value from vendors such as calendars, pens, pads, knives, etc.
  - 3.2.3. Tickets to events (such as sports, arts, etc.) are acceptable if offered by the vendor and the vendor accompanies the associate to the event. These are not to be solicited by the company associate and must be approved by the appropriate company officer.
  - 3.2.4. Overnight outings are acceptable under the condition that individuals from either other companies or the vendor are in attendance. The associate must have prior approval from the appropriate company officer.
  - 3.2.5. The receipt of alcoholic beverages is discouraged.
  - 3.2.6. Gifts of perishable items usually given during the holidays such as hams, cookies, nuts, etc., are acceptable.
- 3.3. A strict standard is expected with respect to gifts, services, discounts, entertainment or considerations of any kind from suppliers



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- 3.4. Day outings such as golf, fishing, and hunting are acceptable with prior approval from the appropriate company official. The vendor must be in attendance and participation by the associate's family members is not acceptable.
- 3.5. Use of vendor's facilities (vacation homes, etc.) by associates or families for personal use is prohibited. In the event the vendor is present for the duration of the visit such a situation is acceptable as long as it is only once per year and for limited duration, i.e. a long weekend. The associate must have prior approval from the appropriate company officer.
- 3.6. It is never permissible to accept a gift in cash or cash equivalent such as stocks or other forms of marketable securities of any amount.
- 3.7. Management associates should not accept gifts from those under their supervision of more than limited value.

**4. Conflicts of Interest**

- 4.1. Associates should avoid any situation which involves or may involve a conflict between their personal interest and the interest of the Company. As in all other facets of their duties, associates dealing with customers, suppliers, contractors, competitors or any person doing or seeking to do business with the company are to act in the best interest of the company. Each associate shall make prompt and full disclosure in writing to their manager of any potential situation which may involve a conflict of interest. Such conflicts include:
  - 4.1.1. Ownership by associate or by a member of their family of a significant interest in any outside enterprise which does or seeks to do business with or is a competitor of the company.
  - 4.1.2. Serving as a director, officer, partner, consultant, or in a managerial or technical capacity with an outside enterprise which does or is seeking to do business with or is a competitor of the company. Exceptions to this can be approved by the Chief Executive Officer of Cleveland Integrity Services.
  - 4.1.3. Acting as a broker, finder, go-between or otherwise for the benefit of a third party in transactions involving or potentially involving the Company or its interests.
  - 4.1.4. Any other arrangements or circumstances, including family or other personal relationships, which might dissuade the associate from acting in the best interest of the company.

**5. Confidential Information**

- 5.1. The revelation or use of any confidential product information, data on decisions, plans, or any other information which might be contrary to the interest of the Company without prior authorization, is prohibited. The misuse, unauthorized access to, or mishandling of confidential information, particularly personnel information, is strictly prohibited and will subject an associate to the Discipline Policy up to and including immediate discharge.
- 5.2. Trade Secrets, From the applicable OSHA regulations on Process Safety management:
  - 5.2.1. "Employers will make all information necessary to comply with the section available to those persons responsible for compiling the process safety information (required by paragraph (d) of this section), those assisting in the development of the process hazard analysis (required by paragraph (e) of this section), those responsible for developing the operating procedures (required by paragraph (f) of this section), and those involved in incident investigations (required by paragraph (m) of this section), emergency planning

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and response (paragraph (n) of this section) and compliance audits (paragraph (o) of this section) without regard to possible trade secret status of such information.”

5.2.2. Nothing in this paragraph will preclude the employer from requiring the persons to whom the information is made available under paragraph (p)(1) of this section to enter into confidentiality agreements not to disclose the information as set forth in 29 CFR 1910.1200.

5.2.3. Subject to the rules and procedures set forth in 29 CFR 1910.1200(i)(1) through 1910.1200(i)(12), employees and their designated representatives will have access to trade secret information contained within the process hazard analysis and other documents required to be developed by this standard.

## **6. Compliance**

6.1. Any violation of this policy will subject the associate to Administrative disciplinary action or immediate discharge. Any Company associate having knowledge of any violation of the policy shall promptly report such violation to the appropriate level of management. Each vice president and company officer of Cleveland Integrity Services is responsible for compliance in their area of responsibility. When questions arise concerning any aspect of this policy, contact the corporate Vice President Human Resources.

6.2. A sales commission is a sum of money paid to an employee upon completion of a task, usually selling a certain amount of goods or services. Employers sometimes use sales commissions as incentives to increase worker productivity. A commission may be paid in addition to a salary or instead of a salary

## **7. Wages and the Fair Labor Standards Act (FLSA)**

7.1. The representative period for determining if enough commissions have been paid may be as short as one month but must not be greater than one year. The employer must select a representative period in order to determine if this condition has been met.

7.2. If the employee is paid entirely by commissions, or draws and commissions, or if commissions are always greater than salary or hourly amounts paid, the-greater-than-50%-commissions condition will have been met. If the employee is not paid in this manner, the employer must separately total the employee’s commissions and other compensation paid during the representative period. The total commissions paid must exceed the total of other compensation paid for this condition to be met.

## Employee Statement of Understanding

I, \_\_\_\_\_ *PRINTED NAME* \_\_\_\_\_, have read and understand the Company Ethics Policy. If there has been any confusion, I have further clarified my roles, responsibilities and authorities with a Cleveland Integrity Services representative. Additionally, I have been informed that I may be given both a copy of this program and of this statement, should I request them.

\_\_\_\_\_  
Signature of Employee

\_\_\_\_\_  
Date

\_\_\_\_\_  
Witness Signature

\_\_\_\_\_  
Date

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Applicable OSHA Standards: 29 CFR 1910.101 and 49 CFR parts 171-179 and 14 CFR part 103

## 1. Purpose & Scope

- 1.1. The purpose of this Cleveland Integrity Services policy is to outline prevention and protective measures which are taken to ensure protection of personnel, property, and the environment from a compressed gas cylinder incident.
- 1.2. This program applies to all company-controlled worksites where an employee or a subcontract worker may be occupationally exposed to compressed gas cylinders.

## 2. Storage of Compressed Gas Cylinders

- 2.1. All cylinders are visually inspected prior to movement or use. This is done in accordance with 49 CFR parts 171-179 and 14 CFR part 103. The company will determine that cylinders are in a safe condition to the extent that this can be determined by visual inspection.
- 2.2. All cylinders are secured in an upright position in such a way that they cannot be knocked over or damaged (i.e. with a chain). The cylinders are:
  - 2.2.1. Stored in a vertical position.
  - 2.2.2. Not stored in hallways.
  - 2.2.3. Segregated based upon their contents.
- 2.3. Oxidizers and flammables are separated by 20 feet or more or there are firewalls erected at least five feet high and with a fire rating of 30 minutes.
- 2.4. All cylinders are kept away from heat sources.
- 2.5. Separate the full cylinders from "empty" cylinders in storage. Storage areas for full and empty cylinders are designated and labeled.
- 2.6. Storage areas are away from elevators, stairs or gangways.
- 2.7. Tie cylinders in a vertical position.
- 2.8. Keep oil and grease away from oxygen valves.
- 2.9. Turn cylinders off when not in use.
- 2.10. Protect cylinders from excess heat (sun, open flame, equipment exhausts, sparks slag, etc.)

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- 2.11. When storing cylinders inside of buildings, they are stored in a well-protected, well-ventilated dry location. The cylinders must not be stored in unventilated enclosures such as lockers or cupboards.
- 2.12. Cylinders may be stored in the open; however they should be protected from the ground beneath to prevent rusting. Cylinders may be stored in the sun except in localities where extreme temperatures prevail, or in the case of certain gases where the supplier's recommendation for shading shall be observed. If ice or snow accumulate on a cylinder, thaw at room temperature, or with water at a temperature not exceeding 125°F
- 2.13. All hoses and connections are inspected daily for damage. Store hoses in cool areas and protect them from damage
- 2.13 Compressed gas cylinders are legibly marked, for the purpose of identifying the gas content, with either the chemical or the trade name of the gas. Such marking are made by means of stenciling, stamping, or labeling, and are not readily removable. Whenever practical, the marking are located on the shoulder of the cylinder.

### **3. Handling and Transporting Compressed Gas Cylinders safely**

- 3.1. All compressed gas cylinders have the contents clearly identified by stenciling or stamped on the cylinder or label. Do not use the cylinder if the contents are not legibly identified by name.
- 3.2. Cylinder caps that can't be removed by hand are tagged "Do Not Use" and returned to the designated storage area to be returned to the vendor.
- 3.3. All cylinders must be equipped with the correct regulator.
- 3.4. Only tools provided by the supplier are used to open and close cylinder valves.
- 3.5. Cylinders must not be rolled.
- 3.6. Cylinders are transported in a vertical secure position using a cylinder basket or cart.
- 3.7. Regulators must be removed and cylinders capped before being moved.
- 3.8. The proper use of compressed gas air cylinders includes:
  - 3.8.1. Valves must be closed when the cylinders are not being used.
  - 3.8.2. Do not use cylinders as rollers or supports.
  - 3.8.3. Do not place cylinders in a location where they may come in contact with electrical circuits.
  - 3.8.4. Protect all cylinders from sparks, slag or flames from welding, burning or cutting operations.

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3.8.5. Return cylinders to the empty storage area as soon as possible after use.

3.8.6. Regulators and cylinder valves should be inspected for grease, oil, dirt and solvents prior to use.

3.9. A leaking cylinder must be moved away to an isolated, well ventilated area away from ignition sources.

3.9.1. Use soapy water to detect where the leak is located. If the leak is at the junction of the cylinder valve and the cylinder, call the vendor to ask for response instructions.

3.10. When cylinders are emptied, they are marked with an MT and the date the cylinder was emptied.

3.11. Never mix gasses in a cylinder. Only professionals may refill cylinders. Use the same caution handling an empty cylinder as you would with a filled one.

3.12. Never use compressed gas to dust off clothing. This action could cause serious injury to the eyes or body and has the potential to create a fire hazard.

#### **4. Engineering Controls**

4.1. Engineering controls like emergency shutoff switches, gas cabinets and flow restrictors should be utilized whenever possible.

4.2. Emergency eyewash stations are utilized when corrosive materials or gasses are used.

4.3. Compressed gas cylinders, portable tanks and cargo tanks will have pressure relief devices installed and maintained.

4.4. If a cylinder leaks and the leak cannot be remedied by simply tightening a valve gland or packing nut, close the valve and attach a cap or tag stating that the cylinder is unserviceable.

4.5. When removable caps are provided for valve protection, such caps should be kept on cylinders at all times, except when they are in use.

#### **5. Training**

5.1. All employees are trained on the use, handling and storage of compressed gas cylinders.

5.1.1. Training is done as a new hire, initially.

5.1.2. Retraining occurs if there is an incident or near miss.

5.1.3. All employees are retrained on a yearly basis.

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Applicable OSHA Standard: 29 CFR 1910.146, 1926.21(b) (6); 29 CFR 1926.1201-.1213

## 1. Purpose & Scope

- 1.1. This program contains requirements for practices and procedures for Cleveland Integrity Services to protect employees in general industry from the hazards of entry into permit-required confined spaces.
- 1.2. This standard sets forth requirements for practices and procedures to protect employees engaged in construction activities at a worksite with one or more confined spaces, subject to the following exceptions: construction work (excavations); underground construction; and diving operations.

## 2. Definitions

- 2.1. "Attendant" means an individual stationed outside a permit-required confined space who monitors the authorized entrants and who performs all attendants' duties assigned in the employer's permit-required confined space program.
- 2.2. "Authorized entrant" means an employee who is authorized by the Company to enter a permit space.
- 2.3. "Confined space" means a space that:
  - 2.3.1. Is large enough and so configured that an employee can bodily enter and perform assigned work; and
  - 2.3.2. 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
  - 2.3.3. Is not designed for continuous employee occupancy
  - 2.3.4. Or has inadequate ventilation
- 2.4. "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.
- 2.5. "Entry supervisor" means the person (such as the foreman, or crew chief) responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this Company.
- 2.6. "Isolation" means the process by which a permit space is removed from service and completely protected against the release of energy and material into the space by such means as: blanking or blinding; misaligning or removing sections of lines,

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pipes, or ducts; a double block and bleed system; lockout or tagout of all sources of energy; or blocking or disconnecting all mechanical linkages.

### 3. General Requirements

- 3.1. The Site Supervisor will evaluate the workplace to determine if any spaces are permit-required confined spaces. The client may provide a list when working at remote locations.
- 3.2. An employer may use alternate procedures for entering a permit space only under the following conditions of this section:
  - 3.2.1. The employer can demonstrate that all physical hazards in the space are eliminated or isolated through engineering controls so the only hazards posed by the space is an actual or potential hazardous atmosphere;
  - 3.2.2. The employer can demonstrate that continuous forced air ventilation alone is sufficient to maintain that permit space safe for entry, and that, in the event the ventilation systems stops working, entrants can exit the space safely;
  - 3.2.3. The space should have continuous monitoring, unless the employer has supporting data that demonstrated continuous monitoring is unnecessary.
- 3.3. If the workplace contains permit spaces, the Project Superintendent in conjunction with the Site Safety Supervisor/Representative and the client, will inform exposed employees, by posting danger signs or by any other equally effective means, of the existence and location of and the danger posed by the permit spaces.

NOTE: A sign reading DANGER -- PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER or using other similar language would satisfy the requirement for a sign.

- 3.4. If the Site Supervisor decides that Company employees will not enter permit spaces, effective measures are taken to prevent employees from entering the permit spaces.
- 3.5. If the Site Supervisor decides that Company employees will enter permit spaces, a site specific written permit space program will be developed and implemented in accordance and compliance with the Company's and client's confined space entry procedures. The written program is available for inspection by employees at the construction site.
- 3.6. When there are changes in the use or configuration of a non-permit confined space that might increase the hazards to entrants, the employer will reevaluate that space and, if necessary, reclassify it as a permit-required confined space.
- 3.7. A space classified by the employer as a permit-required confined space may be reclassified as a non-permit confined space under the following procedures:



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- 3.7.1. If the permit space poses no actual or potential atmospheric hazards and if all hazards within the space are eliminated without entry into the space, the permit space may be reclassified as a non-permit confined space for as long as the non-atmospheric hazards remain eliminated.
- 3.7.2. If it is necessary to enter the permit space to eliminate hazards, such entry is performed under requirements of this program. If testing and inspection during that entry demonstrate that the hazards within the permit space have been eliminated, the permit space may be reclassified as a non-permit confined space for as long as the hazards remain eliminated.
- 3.7.3. The employer will document the basis for determining that all hazards in a permit space have been eliminated, through a certification that contains the date, the location of the space, and the signature of the person making the determination. The certification is made available to each employee entering the space or to that employee's authorized representative.
- 3.7.4. If hazards arise within a permit space that has been declassified to a non-permit space, each employee in the space will exit the space. The employer will then reevaluate the space and determine whether it must be reclassified as a permit space, in accordance with other applicable provisions.
- 3.7.5. When entrance covers are removed, the opening will be promptly guarded by a railing, temporary cover, or other temporary barrier that will prevent an accidental fall through the opening and that will protect each employee working in the space from foreign objects entering the space.
- 3.7.6. If the Site Supervisor has reason to believe that the measures taken under the permit space program may not protect employees, the supervisor will revise the program to correct deficiencies found to exist before subsequent entries are authorized. The Company Safety Representative will be informed about any such action and assist the Site Supervisor as needed in the revisions.
- 3.8. Examples of circumstances requiring the review of the permit space program include:
  - 3.8.1. Any unauthorized entry of a permit space,
  - 3.8.2. The detection of a permit space hazard not covered by the permit,
  - 3.8.3. The detection of a condition prohibited by the permit,
  - 3.8.4. The occurrence of an injury or near-miss during entry,
  - 3.8.5. A change in the use or configuration of a permit space, and / or
  - 3.8.6. Employee complaints about the effectiveness of the program.

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On May 4, 2015, the United States Occupational Safety and Health Administration (OSHA) published a new final rule in the Federal Register intended to increase protection for construction workers in confined spaces. These new rules become effective on August 3, 2015 and is intended to match the rules currently in place in the general industry standards. There are five new requirements and several areas where OSHA clarified existing requirements.

The following is a summary of the new requirements for the construction industry:

1. OSHA added detailed provisions requiring coordinated activities when multiple employers are present at a worksite. OSHA intends this new rule will ensure hazards are not introduced into a confined space by workers performing tasks outside the space.
2. OSHA regulations will now require a competent person to evaluate the work site and identify confined spaces, including permit spaces, prior to commencing work.
3. The new regulations will require continuous atmospheric monitoring whenever possible.
4. Likewise, the new regulations will require continuous monitoring of engulfment hazards.
5. Also, permits may be suspended, instead of cancelled, in the event the entry conditions listed on the permit change or an unexpected event requiring evacuation of the space takes place. Before re-entry, however, the space must be returned to the entry conditions listed on the permit.

#### 4. **Site Specific Written Program**

- 4.1. Before entry into any confined space at any Cleveland Integrity Services controlled worksite, a site specific written program must be developed. The Site Supervisor develops the site specific written program. The written program will be approved by the Company Safety Representative.
- 4.2. The site specific written program will comply with OSHA 29 CFR 1910.146 and contain the following elements:
  - 4.2.1. Measures necessary to prevent unauthorized entry;
  - 4.2.2. Methods used to identify and evaluate the hazards of permit spaces before employees enter them;
  - 4.2.3. Specify acceptable entry conditions; Oxygen content 19.5% to 23.5% and flammable gas, mists, vapors should be 10% or less of the LFL (lower flammability limit.)
  - 4.2.4. Methods used in isolating the permit space;
  - 4.2.5. Purging, inerting, flushing, or ventilating the permit space as necessary to eliminate or control atmospheric hazards;

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- 4.2.6. Providing pedestrian, vehicle, or other barriers as necessary to protect entrants from external hazards;
- 4.2.7. Methods used to verify that conditions in the permit space are acceptable for entry throughout the duration of an authorized entry.
- 4.2.8. Identify testing and monitoring equipment needed to comply with the Company's written confined space entry safety program.
- 4.2.9. Identification of authorized entrants, attendants and entry supervisors.
- 4.2.10. Ventilating equipment needed to obtain acceptable entry conditions;
- 4.2.11. Communications equipment necessary.
- 4.2.12. Personal protective equipment insofar as feasible engineering and work practice controls do not adequately protect employees;
- 4.2.13. Lighting equipment needed to enable employees to see well enough to work safely and to exit the space quickly in an emergency;
- 4.2.14. Equipment, such as ladders, needed for safe ingress and egress by authorized entrants;
- 4.2.15. Rescue and emergency services provided.
- 4.2.16. Training provided to entry supervisors, authorized entrants and attendants.
- 4.3. Before entry operations begin, the controlling contractor must:
  - 4.3.1. Obtain the host employer's information about the permit space hazards and previous entry operations; and
  - 4.3.2. Provide the following information to each entity entering a permit space and any other entity at the worksite whose activities could foreseeably result in a hazard in the permit space:
    - 4.3.2.1. The information received from the host employer;
    - 4.3.2.2. Any additional information the controlling contractor has about the subjects listed in this section; and
    - 4.3.2.3. The precautions that the host employer, controlling contractor, or other entry employers implemented for the protection of employees in the permit spaces.
- 4.4. The controlling contractor and entry employer(s) must coordinate entry operations when:

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- 4.4.1. More than one entity performs permit space entry at the same time; or
- 4.4.2. Permit space entry is performed at the same time that any activities that could foreseeably result in a hazard in the permit space are performed.

## 5. Entry Procedure Guidelines

- 5.1. The following guidelines are provided to assist the Site Supervisor in preparing the site specific written program. Where a permit is not granted, but is required, alternate work procedures will be taken.
- 5.2. Any conditions making it unsafe to remove an entrance cover are eliminated before the cover is removed.
- 5.3. Lockout /Tag out procedures are followed during a permit-required confined space entry.
- 5.4. All entrants wear a safety harness with retrieval rope attached to the d-ring on the back of the harness.

Note: More often, it is the responsibility of the client to prepare a confined space for entry. Procedures must be developed to ensure that information concerning the preparation of confined spaces by the client is communicated to Company personnel.

- 5.5. When entrance covers are removed, the opening is promptly guarded by a railing, temporary cover, or other temporary barrier that will prevent an accidental fall through the opening and that will protect each employee working in the space from foreign objects entering the space.
- 5.6. Before an employee enters the space, the internal atmosphere is tested, with a calibrated direct-reading instrument, for the following conditions in the order given:
  - 5.6.1. Oxygen content,
  - 5.6.2. Flammable gases and vapors, and
  - 5.6.3. Potential toxic air contaminants.
- 5.7. The entry supervisor who performs monitoring of the confined space will notify entrants of the potential hazards and monitoring results. Entrants will be involved and participate in the process of reviewing the written permit and signing of the permit.
- 5.8. Employees or their representatives are entitled to request additional monitoring at any time during the confined space entry operation.
- 5.9. Individuals will not enter a confined space that is immediately hazardous to life or health. Initial testing to determine potential hazards that require entry will have an

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approved and documented Standard Operating Procedure with a two-level approval - one of which must be the Site Superintendent and the other the Company Safety Representative.

- 5.10. There will be no hazardous atmosphere within the space whenever any employee is inside the space.
- 5.11. An employee may not enter the space until the forced air ventilation has eliminated any hazardous atmosphere. The forced air ventilation is so directed as to ventilate the immediate areas where an employee is or will be present within the space and will continue until all employees have left the space. The air supply for the forced air ventilation is from a clean source and may not increase the hazards in the space.
- 5.12. The atmosphere within the space is continually tested to ensure that the continuous forced air ventilation is preventing the accumulation of a hazardous atmosphere and providing sufficient oxygen to the worker.
- 5.13. If a hazardous atmosphere is detected during entry, each employee will leave the space immediately. The space is then evaluated to determine how the hazardous atmosphere developed and measures will be implemented to protect employees from the hazardous atmosphere before any subsequent entry takes place.
- 5.14. The entry supervisor will verify that the space is safe for entry and that the pre-entry measures required by this Company program have been taken, through a written certification that contains the date, the location of the space, and the signature of the person providing the certification. The certification is made before entry and is available to each employee entering the space. This can be accomplished by means of an entry permit provided by the client.
- 5.15. The Site Supervisor will designate the persons who are to have active roles (as, for example, authorized entrants, attendants, entry supervisors, or persons who test or monitor the atmosphere in a permit space) in entry operations, identify the duties of each such employee, and provide each such employee with the training required by this Company program.
- 5.16. Cleveland Integrity Services will provide at least one attendant outside the permit space into which entry is authorized for the duration of entry operations.
- 5.17. If multiple spaces are to be monitored by a single attendant, include in the permit program the means and procedures to enable the attendant to respond to an emergency affecting one or more of the permit spaces being monitored without distraction from the attendant's responsibilities under this program;
- 5.18. The Site Superintendent in conjunction with the Company Safety Representative and the client will develop and implement procedures for summoning rescue and emergency services, for rescuing entrants from permit spaces, for providing necessary emergency services to rescued employees, and for preventing

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unauthorized personnel from attempting a rescue. Emergency equipment must be inspected prior to any entrance into the confined space.

- 5.19. If an entrant is in need of rescue, the attendant's sole responsibility is to sound the alarm to evacuate any other entrants and summon emergency personnel. Under no circumstance will an attendant enter the confined space by himself.
- 5.20. Before entry begins, the entry supervisor identified on the permit will sign the entry permit to authorize entry.
- 5.21. The completed permit is made available at the time of entry to all authorized entrants, by posting it at the entry portal or by any other equally effective means; so that the entrants can confirm that pre-entry preparations have been completed.
- 5.22. All entrants must be signed in and out by the attendant every time they enter or exit the confined space.
- 5.23. The duration of the permit may not exceed the time required to complete the assigned task or job identified on the permit.
- 5.24. The entry supervisor will terminate entry and cancel the entry permit when:
  - 5.24.1. The entry operations covered by the entry permit have been completed; or
  - 5.24.2. A condition that is not allowed under the entry permit arises in or near the permit space.
  - 5.24.3. The work area emergency system is activated
- 5.25. When the Company arranges to have employees of another employer (contractor) perform work that involves permit space entry, the Company will:
  - 5.25.1. Inform the contractor that the workplace contains permit spaces and that permit space entry is allowed only through compliance with a permit space program meeting the requirements of this Company program;
  - 5.25.2. Apprise the contractor of the elements, including the hazards identified and the Company's experience with the space, that makes the space in question a permit space;
  - 5.25.3. Apprise the contractor of any precautions or procedures that the Company has implemented for the protection of employees in or near permit spaces where contractor personnel will be working;
  - 5.25.4. Coordinate entry operations with the contractor, when both Company personnel and contractor personnel will be working in or near permit spaces; and

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- 5.25.5. Debrief the contractor at the conclusion of the entry operations regarding the permit space program followed and regarding any hazards confronted or created in permit spaces during entry operations.

## 6. Training

- 6.1. Cleveland Integrity Services provides training so that all employees whose work is regulated by Company and OSHA safety requirements for entering and working in confined spaces will acquire the understanding, knowledge, and skills necessary for the safe performance of the duties assigned under this section.
- 6.2. The training will establish employee proficiency in the duties required by this section and will introduce new or revised procedures, as necessary, for compliance with this program.
- 6.3. The employer will certify that the training required by this program has been accomplished. The certification will contain each employee's name, the signatures or initials of the trainers, and the dates of training. The certification is available for inspection by employees and their authorized representatives.
- 6.4. Training is provided to each affected employee:
  - 6.4.1. Before the employee is first assigned duties under this Company program;
  - 6.4.2. Before there is a change in assigned duties;
  - 6.4.3. Whenever there is a change in permit space operations that presents a hazard about which an employee has not previously been trained;
  - 6.4.4. Whenever the Site Supervisor has reason to believe either that there are deviations from the permit space entry procedures required by this Company program or that there are inadequacies in the employee's knowledge or use of these procedures; and
  - 6.4.5. At least annually thereafter.
- 6.5. The training will establish employee proficiency in the duties required by this Company program and will introduce new or revised procedures, as necessary, for compliance with this section.
- 6.6. The Site Supervisor will certify that the training required by this Company program has been accomplished. The certification will contain each employee's name, the signatures or initials of the trainers, and the dates of training. The certification is available for inspection by employees.
- 6.7. The training will include the following:
  - 6.7.1. Duties of authorized entrants:

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- 6.7.1.1. Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;
- 6.7.1.2. Properly use equipment as required by the permit.
- 6.7.1.3. Communication method used with the attendant as necessary to enable the attendant to monitor entrant status and to enable the attendant to alert entrants of the need to evacuate the space.
- 6.7.1.4. Alert the attendant whenever the entrant recognizes any warning sign or symptom of exposure to a dangerous situation, or the entrant detects a prohibited condition;
- 6.7.1.5. Exit from the permit space as quickly as possible whenever an order to evacuate is given by the attendant or the entry supervisor, the entrant recognizes any warning sign or symptom of exposure to a dangerous situation, the entrant detects a prohibited condition, or an evacuation alarm is activated.

6.7.2. Duties of attendants:

- 6.7.2.1. Knows the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;
- 6.7.2.2. Is aware of possible behavioral effects of hazard exposure in authorized entrants;
- 6.7.2.3. Continuously maintains an accurate count of authorized entrants in the permit space and ensures that the means used to identify authorized entrants who are in the permit space is accurate;
- 6.7.2.4. Remains outside the permit space during entry operations until relieved by another attendant;
- 6.7.2.5. Communicates with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate the space.
- 6.7.2.6. Monitors activities inside and outside the space to determine if it is safe for entrants to remain in the space and orders the authorized entrants to evacuate the permit space immediately under any of the following conditions:
  - 6.7.2.6.1. If the attendant detects a prohibited condition;
  - 6.7.2.6.2. If the attendant detects the behavioral effects of hazard exposure in an authorized entrant;



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- 6.7.2.6.3. If the attendant detects a situation outside the space that could endanger the authorized entrants; or
- 6.7.2.6.4. If the attendant cannot effectively and safely perform all the duties required under this Company program.
- 6.7.2.6.5. Summon rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards;
- 6.7.2.6.6. Takes the following actions when unauthorized persons approach or enter a permit space while entry is underway:
  - 6.7.2.6.6.1. Warn the unauthorized persons that they must stay away from the permit space;
  - 6.7.2.6.6.2. Advise the unauthorized persons that they must exit immediately if they have entered the permit space;
  - 6.7.2.6.6.3. Inform the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space;
  - 6.7.2.6.6.4. Performs non-entry rescues as specified by the site specific written program rescue procedure; and
  - 6.7.2.6.6.5. Performs no duties that might interfere with the attendant's primary duty to monitor and protect the authorized entrants.

6.7.3. Duties of entry supervisors:

- 6.7.3.1. Knows the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;
- 6.7.3.2. Verifies, by checking that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin;
- 6.7.3.3. Terminates the entry and cancels the permit as required;
- 6.7.3.4. Verifies that rescue services are available and that the means for summoning them are operable;
- 6.7.3.5. Removes unauthorized individuals who enter or who attempt to enter the permit space during entry operations; and

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- 6.7.3.6. Determines, whenever responsibility for a permit space entry operation is transferred and at intervals dictated by the hazards and operations performed within the space that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.

## **7. Emergency Response & Rescue**

- 7.1. The Site Supervisor will confirm in advance the availability of rescue and emergency services for immediate danger to life and health situations (IDLH) and have phone numbers available at the work location.
- 7.2. The Site Supervisor will also ensure that there is a reliable method of communication available at the work location (land-line telephone, cellular telephone, two-way radio) for summoning rescue and emergency services should they be needed.
- 7.3. If rescue and emergency personnel are not able to respond to a call for assistance in a timely manner, the Site Supervisor will obtain competent confined space rescue personnel to standby at the work location while confined space operations are being performed under IDLH conditions.
- 7.4. Rescue personnel are trained, properly equipped and authorized by the Site Supervisor to perform this service. Unauthorized personnel are prohibited from attempting a rescue.
- 7.5. When third-party rescue services are utilized for standby at the work location, service personnel will survey the confined space work location, select and obtain specialized equipment as required, and decline the standby assignment if that is their choice.
- 7.6. When rescue and emergency services are being provided by the host employer, this is stipulated and specified in the written contract that the host employer has accepted and signed.
- 7.7. All personal protective equipment required when authorized and qualified employees perform rescue and emergency services is provided by the Company at no cost to the individual employees assigned to this duty.
- 7.8. When authorized and qualified Company employees provide rescue and emergency services at confined space entry work locations, these individuals are provided with training and hands-on practice rescues at least annually.

## **8. Written Program Review**

- 8.1. The Company Safety Representative will review the permit space program annually, using the canceled permits retained within one year after each entry and revise the program as necessary, to ensure that employees participating in entry operations are protected from permit space hazards.

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## 9. Following Entry to a Confined Space

- 9.1. The controlling contractor must debrief each entity that entered a permit space regarding the permit space program followed and any hazards confronted or created in the permit space(s) during entry operations;
- 9.2. The entry employer must inform the controlling contractor in a timely manner of the permit space program followed and of any hazards confronted or created in the permit space(s) during entry operations; and
- 9.3. The controlling contractor must apprise the host employer of the information exchanged with the entry entities pursuant to this subparagraph.

Note: Unless a host employer or controlling contractor has or will have employees in a confined space, it is not required to enter any confined space to collect the information specified in this program.

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## 1. Role of Disciplinary System in The Workplace

- 1.1. Cleveland Integrity Services disciplinary system in support of safety does not exist to punish employees. Its purpose is to help control the work environment so that workers are protected, and accidents are prevented. The disciplinary system helps ensure workplace safety and health by letting the company's employees know what is expected of them. It provides workers with opportunities to correct their behavior before an accident happens.
- 1.2. The disciplinary system is one of the keys to successfully implementing the company's safety and health program. It ensures that the company's rules and safe working practices are taken seriously by employees and are actually followed. It lets employees know how the company expects them to operate in relation to the goals of the company's safety and health program. And it lays out the actions the company will take if individuals do not meet the company's expectations. The employees' supervisor and all members of management are responsible for the enforcement of this disciplinary program.
- 1.3. A disciplinary system cannot work in a vacuum. Before the company can hold employees accountable for their actions, the company first has established its safety and health policy and disciplinary rules.

## 2. Policy Statement for Enforcement of Safety

- 2.1. Employees need to know the company's position on safety and health and what the company expects of them. They need a clear understanding of the rules and the consequences of breaking those rules. This is true in all areas of work, but it is especially important for worker safety and health.
- 2.2. As part of the policy statement, and in the employee safety handbook, Cleveland Integrity Services has a written statement setting forth the company's disciplinary policy.
- 2.3. The company Safety Coordinator, company managers and supervisors will always be on the lookout for safety violations and will conscientiously and vigorously enforce the company's commitment to safety. On a company job site, the Site Supervisor has specific responsibility for enforcing company safety rules, policies and safe work procedures.

## 3. Employee Information and Training

- 3.1. It is important that employees understand the system and have a reference to turn to if they have any questions. Therefore, in addition to issuing a written statement of the company's disciplinary policy, the company has drawn up a list of what it considers major violations of company policy and less serious violations. This list specifies the disciplinary actions that will be taken for first, second, or repeated offenses. The company will use the *5 Step Disciplinary System* listed in Appendix B to correct minor "General Offenses."

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- 3.2. Disciplinary violations that are grounds for immediate suspension and penalties up to and including termination of employment specifically include:
  - 3.2.1. Fighting, provoking or engaging in an act of violence against another person on company property;
  - 3.2.2. Failure to follow written or verbal safe work procedures, company safety rules or authorized posted safety instructions;
  - 3.2.3. Willful damage to property;
  - 3.2.4. Failure to wear personal protective equipment (eye protection, hearing protection, safety helmets, etc.);
  - 3.2.5. Not using safety harnesses and lanyards when fall protection is required;
  - 3.2.6. Removing and/or making inoperative safety guards on tools and equipment;
  - 3.2.7. Tampering with machine safeguards or removing machine tags or locks;
  - 3.2.8. Removing barriers and/or guardrails and not replacing them;
  - 3.2.9. Failure to follow recognized industry practices;
  - 3.2.10. Failure to follow rules regarding the use of company equipment or materials;
  - 3.2.11. Major traffic violations while using a company vehicle;
  - 3.2.12. Engaging in dangerous horseplay;
  - 3.2.13. Failure to notify the company of a hazardous situation;
  - 3.2.14. Theft;
  - 3.2.15. Violation of company policies regarding alcohol, non-prescription and illegal drugs; and
  - 3.2.16. Other major violations of company rules or policies.
- 3.3. Company supervisors, managers and personnel who have specific responsibilities for implementation and management of safety are expected to know, understand, support, implement and enforce the company's policies, procedures, posted instructions and work practices relating to safety.
- 3.4. In the event that the company determines through direct observations, inspections, reviews of documentation and training or by other objective means that a supervisor, manager or authorized person has not performed his or her safety responsibilities, this shall be considered a disciplinary violation, punishable in the same way that misbehaviors explained in 3 b) are punishable.
- 3.5. Company officials must conduct periodic inspections of work areas to ensure compliance with safety rules and policies.

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#### **4. Training**

- 4.1. Training can reduce the need for disciplinary action. Cleveland Integrity Services shall instruct employees in the importance of workplace safety and health, the need to develop safety habits, the company's operations, safe work practices, and the hazards they control, and the standards of behavior that the company expects.
- 4.2. The company's employees must understand the disciplinary system and the consequences of any deliberate, unacceptable behavior.

#### **5. Supervision**

- 5.1. Supervision includes both training and corrective action.
- 5.2. Ongoing monitoring of the company's employees' work and safety habits gives the company's supervisors the opportunity to correct any problems before serious situations develop. In most cases, effective supervision means correcting a problem before issuing any punishment.
- 5.3. Where the relationship between employees and their supervisors is open and interactive, problems are discussed and solutions are mutually agreed upon. This type of relationship fosters a work environment where the need for disciplinary action is reduced. When such action is needed, the parties are more likely to perceive it as corrective action rather than punitive.

#### **6. Employee Involvement**

- 6.1. Employees are encouraged to help informally in the enforcement of rules and practices. The intent here is not to turn employees into spies and informers, but to encourage them to be their "brother's keeper" and to watch out for the safety and health of their colleagues.
- 6.2. Many employers successfully have encouraged an atmosphere -- a company "culture" -- where employees readily speak up when they see an easily corrected problem, for example, a coworker who needs reminding to put on safety goggles.
- 6.3. Unless the safety violation is so serious that it requires immediate suspension and review for termination, the company's employees deserve the opportunity to correct their own behavior problems.
- 6.4. An effective disciplinary system is a 2-way process. Once a problem is spotted, discuss it with the employee, who is then given at least 1 or 2 opportunities to change the behavior or correct the problem.
- 6.5. Only after these discussions (and possibly some retraining) should disciplinary action be taken.

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## **7. Appropriate Control Measures**

- 7.1. Disciplinary actions need to be proportionate to the seriousness of the offense and the frequency of its occurrence. It is certainly inappropriate to fire someone for occasional tardiness. It is equally inappropriate to issue only oral warnings to an employee who repeatedly removes a machine guard. Appendix B provides an example of disciplinary actions in a five-step disciplinary system.
- 7.2. Disciplinary procedures should not be instituted without explanation. The company will provide feedback to the employee on what behavior is unacceptable, why the corrective action is necessary, and how the employee can prevent future violations and disciplinary action.
- 7.3. In addition, supervisors should take time to recognize an employee who improves or corrects his/her behavior.

## **8. Consistent Enforcement**

- 8.1. Workers must realize that safe work practices are a requirement of employment and that unsafe practices will not be tolerated. It is necessary, therefore, that the employer has a disciplinary system that is implemented fairly and consistently.
- 8.2. If the company's disciplinary system is to work well and be accepted by the company's workforce, the system applies equally to everyone. This includes subjecting managers and supervisors to similar rules and similar or even more stringent disciplinary procedures.
- 8.3. For minor violations, supervisors shall meet with the employee to discuss the infraction and inform the employee of the rule or procedure that was violated AND describe the corrective action needed to remedy the situation.

## **9. Documentation**

- 9.1. One key to ensuring fairness and consistency in a disciplinary system is keeping good records. It is in the best interest of both the company and the employee to have written rules and disciplinary procedures.
- 9.2. It is just as important to document instances of good or poor safety and health behavior, including discussions with the employee, and to place relevant information in the employee's personnel file.
- 9.3. The Safety Hazard Citation format below is used to document infractions.
- 9.4. Documentation serves a variety of purposes. It helps the company to track the development of a problem, corrective actions, and the impact of measures taken. It provides information so the company can keep employees informed of problems that need correction.

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- 9.5. When the company is evaluating the managerial and supervisory skills of a supervisor, it provides a useful record of how they handled problems.
- 9.6. If warnings, retraining, and other corrective actions fail to achieve the desired effect, and if the company decides to discharge an employee, then documentation becomes even more critical. Conversely, the company will conduct an annual clearing of the personnel files of employees whose good overall safety records are marred by minor warnings.
- 9.7. Minor safety violations are documented in a manner comparable to the example below, and a copy of the form will become part of the employee's personnel record. Three citations can be grounds for termination.

## 10. Positive Reinforcement

- 10.1. Each supervisor should provide frequent reinforcement of work practices training.
- 10.2. Informal observation serves not only to gauge training effectiveness, but also to reinforce the desired behavior.
- 10.3. Supervisors should also provide special recognition for the use of safe work practices. For examples, supervisors may hand out "Thank you for working safely" cards that can be redeemed for a free cup of coffee or soft drink when they observe a positive safety behavior.
- 10.4. When a supervisor periodically observes individual workers at their tasks, he or she should give oral and/or written feedback on what was done safely.
- 10.5. OSHA recommends award systems that recognize positive activities rather than absence of injuries. Supervisors and safety managers should be aware that award programs with prizes for hours worked without injury may have the unintended consequence of putting heavy peer pressure on workers NOT to report injuries.



APPENDIX A

# Tracking of Individual Safety Disciplinary Actions

Employee \_\_\_\_\_

TRACKING	First Offense Date & Response	Second Offense Date & Response	Repeated Violations Date & Response
Unsafe Work Habits			
Refusal to Follow Safety Instructions			

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**APPENDIX B**

## **Five-Step Discipline System**

- First violation: Instruction/discussion concerning violation, proper procedures, and the hazards they control; notation for the supervisor's file.
- Second violation: Re-instruction with notation in the employee's personnel file.
- Third violation: Written warning describing the violation and actions that will be taken if it recurs.
- Fourth violation: Final warning; may include suspension.
- Fifth violation: Discharge.

It is company philosophy that all employees be trained in proper safety procedures and employees are expected to follow and adhere to all aspects of company Safety Program. The close observance of all Federal, local and client rules and regulations will be monitored at all times.

If there is an infraction of these rules and regulations the following disciplinary action will be taken:

- Minor Infraction      Definition: Any infraction of government, corporate or client rules that does not have the immediate potential of causing serious damage or injury.
  - 1st offense – verbal warning from supervisor or management
  - 2nd offense – written notice with notice placed on file
  - 3rd offense – written notice + time off without pay
  - 4th offense – termination of employment
  
- Major Infraction      Definition: Any infraction of government, corporate or client rules that does have the potential to cause immediate serious damage or injury.
  - 1st offense – time off without pay; or termination
  - 2nd offense – termination of employment.

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Applicable OSHA Standards: Supplemental and supportive of general safety and compliance

## 1. Purpose

- 1.1. Driving is among the most hazardous tasks performed by company employees, both on and off the job. Collisions can result in death or disabling injuries to the driver or passengers. This policy includes requirements for the prevention of driving-related incidents, reporting of incidents, and requirements for employees to report citations.

## 2. Qualifications and Requirements for Authorized Drivers

- 2.1. Only company-authorized employees will drive a motor vehicle in the course and scope of work, or operate a company-owned vehicle.
- 2.2. All employees who are authorized and required to drive in order to perform their job duties must be at least 18 years of age and possess a valid driver's license from their state of residency or provide an alternate means of transportation which is approved by their supervisor.
- 2.3. Under no circumstances will an employee be granted a grace period to obtain a license from their current state of residency.
- 2.4. When required, the license must have the appropriate commercial endorsement. DMV records checks are conducted as a condition of employment for employees who are required to drive as part of their job.
- 2.5. Employees who are required to drive in order to perform their job duties will have an acceptable driving record. Examples of offenses that may render a driving record unacceptable include but are not limited to:
  - 2.5.1. A major traffic offense in the last 24 months. This can include reckless driving, driving under the influence of intoxicants, failing to perform the duties of a driver, criminal driving while suspended or revoked, fleeing or attempt to elude a police officer;
  - 2.5.2. A felony revocation of driving privileges or felony or misdemeanor driver license suspension within the last 24 months;
  - 2.5.3. Three or more moving traffic violations in the last 12 months;
  - 2.5.4. A careless driving conviction or Class A moving traffic infraction in the last 12 months; and
  - 2.5.5. Failure to use a seat belt while driving during work, or at any time while operating a company-owned vehicle; or failure to ensure that all passengers in a company-owned vehicle or while driving during work.

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- 2.5.6. Failure to maintain an acceptable driving record will result in the company revoking an employee's authorization to drive on company business or to drive a company-owned vehicle.
- 2.5.7. A supervisor will not permit an employee to drive either a rental or privately-owned vehicle on company business, or while traveling on a company work assignment, prior to a review and approval of the DMV record by company management in accordance with established procedures.
- 2.5.8. Authorized drivers will notify their supervisor in writing within 24 hours of any conviction, on or off the job, for a traffic citation.
- 2.5.9. Authorized drivers will notify their supervisor in writing within 24 hours of a suspension or revocation of a state-issued driver's license. In the event of license suspension or revocation, an authorized driver will not drive a vehicle in the course and scope of work, nor operate any company-owned vehicle on a public street, road or highway.
- 2.5.10. Failure to notify their supervisor of a conviction in accordance with 2.5.8 or driving with a suspended or revoked license (see 2.5.9) will be cause for disciplinary action up to and including termination of employment.
- 2.6. Annually, supervisors will require employees who are authorized drivers to self-certify that they have a valid driving license.
- 2.7. Driving convictions received in the course of company business may be considered grounds for disciplinary action up to and including dismissal.
- 2.8. There will be a review of driving records of any company-authorized employee who will drive in the course and scope of company business:
  - 2.8.1. Upon hire / assignment;
  - 2.8.2. Following a collision;
  - 2.8.3. Upon notification of a citation; and
  - 2.8.4. Upon receipt of a second citizen complaint relating to operation of the motor vehicle.

### **3. Driver Responsibilities for Safe Condition of Vehicle Prior to Use**

- 3.1. An authorized driver shall not operate any vehicle that is unsafe.
- 3.2. Company-owned or rental vehicles will receive a safety check prior to the vehicle's first use on each shift or work period. Authorized drivers will be instructed by their supervisor on the process for reporting defects with company-owned or rental vehicles.

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- 3.3. Authorized drivers will report any collision or near-collision; vehicle breakdown, flat tire, call for road service; vandalism or other damage to the vehicle occurring while they are driving a company-owned or rented vehicle, or driving a private vehicle on company business.
- 3.4. Supervisors will promptly investigate and report any incidents as explained in 3.3, citizen complaints, citations, driver's license suspensions or revocations to the corporate Safety Manager.
- 3.5. Authorized drivers will complete the company's Driver Safety Orientation or attend a defensive driving course upon initial assignment.
- 3.6. All loads will be secured. Manufacturer's specifications for the legal limits of the vehicle will be followed.
- 3.7. The vehicle must be of the correct size and must be of intended use for the job.

#### **4. Safe Driving Behaviors & Procedures**

- 4.1. Authorized drivers will follow safe driving practices. These include steps to ensure the driver's total concentration and safe operation of vehicles, such as, but not limited to:
  - 4.1.1. Determining clear directions before departing;
  - 4.1.2. Not manipulating radios, personal data assistants or other equipment while the vehicle is moving;
  - 4.1.3. Not talking on a cell phone while the vehicle is moving (see also the company's *Cell Phone Use & Distracted Driving* program);
  - 4.1.4. Not reaching for objects if you have to take your eyes off the road; and
  - 4.1.5. Not operating a vehicle when the driver's ability to react is impaired.
- 4.2. Drivers are expected to follow defensive driving principles and laws and regulations to prevent accidents in spite of unsafe driving by others and/or adverse driving conditions.
- 4.3. Drivers and passengers are required to properly use seat belts. The driver will ensure that any passenger is legally restrained.
- 4.4. Headlights will be on at all times while operating a company-owned or rental vehicle which is not equipped with daytime running lights.

#### **5. Defensive Driving Basics**

- 5.1. Defensive driving can save lives. Follow these guidelines:

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- 5.1.1. Always wear your safety belt when driving and insist that your passengers wear a safety belt, too. Wearing a safety belt is required by law in every state, except New Hampshire. In some states, passengers also are required by law to wear a safety belt.
- 5.1.2. Do not drive while under the influence of alcohol or drugs. Alcohol slows your reaction time, blurs and distorts vision, and impairs your judgment about distance. Never use illegal drugs. Read the labels on all prescription medications for warnings; consult your physician about how your medications or over-the-counter drugs could affect your driving.
- 5.1.3. Never exceed the posted speed limit. Weather conditions permitting, always maintain the legal speed limit.
- 5.1.4. To maintain a safe distance between you and the car ahead, keep a following distance of at least two seconds. Add one second for each adverse driving condition such as bad weather.
- 5.1.5. Expect other drivers to make mistakes at intersections. Four preventative rules to follow are:
  - 5.1.5.1. When approaching a green light, be prepared for it to turn red. It may have been green for a long time.
  - 5.1.5.2. When stopped at a red light and it turns green, proceed slowly. Look left and right before you drive through the intersection.
  - 5.1.5.3. Yellow lights mean proceed with caution, not speed up to get through the intersection before the light turns red.
  - 5.1.5.4. Turning right at a red light is not permitted in every state. Even in states where it is permitted, turning right is not allowed in some intersections. Watch for signs at the intersection.
- 5.1.6. If you are going to pass a car, follow these rules:
  - 5.1.6.1. Make sure you are in a passing zone.
  - 5.1.6.2. Be certain that there is no oncoming traffic.
  - 5.1.6.3. Look at all mirrors carefully before you make a lane change.
  - 5.1.6.4. Look behind you for any vehicles that might be trying to pass you.
  - 5.1.6.5. Be aware of any blind spots. Once the lane is clear, signal your move.

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- 5.1.6.6. Move into the passing lane, and accelerate to pass the car in front of you.
- 5.1.6.7. Never look directly at an approaching car's headlights. Use the right edge of the pavement as a lane guide until the other car has passed.
- 5.1.7. Be aware of any potential road hazards. Watch for cars that suddenly swerve from their lanes to avoid pot holes, construction barriers, or stalled vehicles.
- 5.1.8. Bad weather such as rain, snow, or fog can make driving difficult. Always watch for difficult conditions and be prepared to take defensive action. Follow these bad weather tips:
  - 5.1.8.1. The tires on your car can lose traction on wet roads. Slow down if the roads are wet.
  - 5.1.8.2. Snow and ice can make roads slippery. If your car goes into a skid, do not push down hard on the brakes. Take your foot off the accelerator and turn the steering wheel in the direction you want to go. Do not turn sharply. Use moderate turns of the wheel until you come out of the skid.
  - 5.1.8.3. Slow down as you approach shaded areas, bridges, and overpasses in winter. These areas freeze first and stay frozen longer.
- 5.1.9. When driving on a highway, always be prepared for drivers to change lanes suddenly in order to exit.
- 5.1.10. Do not let your emotions dominate your driving.
- 5.2. Do not drive when you are tired. If you feel tired, pull off the road for some exercise and fresh air or a cup of coffee. Fatigue has a huge impact on your driving and can affect your ability to drive safely, similar to the effect of drink driving. Research shows that being awake for 17 hours has the same effect on your driving ability as a BAC (blood alcohol concentration) of 0.05. The only way to address fatigue is by sleeping. Make a choice not to drive when tired or follow these guidelines to prevent fatigue:
  - 5.2.1. Get a good night's sleep before heading off on a long trip
  - 5.2.2. Don't travel for more than eight to ten hours a day. Take regular breaks – at least every two hours. Share the driving wherever possible
  - 5.2.3. Don't drink alcohol before your trip. Even a small amount can significantly contribute to driver fatigue

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5.2.4. Don't travel at times when you'd usually be sleeping

5.2.5. Take a 15-minute powernap if you feel yourself becoming drowsy

## **6. Vehicle Pre-Use Inspection**

6.1. Drive a well-maintained vehicle.

6.2. Motor vehicles parts and accessories must in safe operating condition at all times. Federal Motor Carrier Safety Administration (FMCSA) as prescribed by the U.S. Department of Transportation Federal Highway Administration parts 393 and 396.

6.3. Reject the vehicle if parts and accessories covered in FMCSR part 393 and 396 are not in safe and proper operating conditions at all times. These include, but are not limited to the parts and accessories listed below:

6.3.1. Gauges and lights

6.3.2. Seat belts

6.3.3. Glass and mirrors

6.3.4. Wipers and horn

6.3.5. Fuel system

6.3.6. Steering

6.3.7. Brakes

6.3.8. Suspension systems

6.3.9. Exhaust

6.3.10. Frame

6.3.11. Tires and wheels

6.3.12. Emergency equipment

6.3.13. Legally licensed to operate a commercial motor vehicle

## **7. Securing Cargo**

7.1. The new regulations require each tiedown to be attached and secured in a manner that prevents it from becoming loose, unfastening, opening or releasing while the vehicle is in transit.



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- 7.2. All tiedowns and other components of a cargo securement system used to secure loads on a trailer equipped with rub rails must be located inboard of the rub rails whenever practicable.
  
- 7.3. Edge protection must be used whenever a tiedown would be subject to abrasion or cutting at the point where it touches an article of cargo. The edge protection must resist abrasion, cutting and crushing.

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Applicable OSHA Standard: 29 CFR 1910.332-333

## 1. Purpose

- 1.1. Cleveland Integrity Services has designed and adopted this electrical safety program to prevent electrically related injuries to personnel resulting from either direct or indirect electrical contacts, or damage to company property and client facilities when work is performed near or on equipment or circuits which are or may be energized.
- 1.2. This program also provides for proper training of site supervisors to ensure they have the required knowledge and understanding of electrical work practices and procedures. Employees are trained in and familiar with the safety-related work practices that pertain to their respective job assignments.
- 1.3. Only employees who are qualified to perform electrical work, knowledgeable about this program, and authorized by the company are allowed to repair or replace electrical components or electrically powered tools or equipment.
- 1.4. Electricity has long been recognized as a serious workplace hazard, exposing employees to such dangers as electric shock, electrocution, fires and explosions. References: NFPA 70E, Electrical Safety Requirements for Employee Workplaces, National Electrical Code (NEC) and OSHA Standard (Electrical Safety) 29 CFR 1910 Subpart S - Electrical.
- 1.5. Safe work practices regarding electricity are followed by employees as they relate to specific job assignments. Specific safety-related work practices are consistent with the nature and extent of the associated electrical hazards.

## 2. Responsibilities

- 2.1. Electrical equipment shall not be used unless the manufacturer's name, trademark or other descriptive marking by which the organization responsible for the product may be identified is placed on the equipment and unless other markings are provided giving voltage, current, wattage or other ratings as necessary. The marking will be of sufficient durability to withstand the environment involved.
- 2.2. Management
  - 2.2.1. Provide training for qualified and unqualified employees
  - 2.2.2. Conduct inspections to identify electrical safety deficiencies in facilities and at job sites
  - 2.2.3. Guard and correct all electrical deficiencies promptly
  - 2.2.4. Ensure electrical equipment is free from recognized hazards that are likely to cause death or serious physical harm to employees.

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### 2.3. Employees

- 2.3.1. Report electrical deficiencies immediately
- 2.3.2. DO NOT work on electrical equipment unless authorized and trained
- 2.3.3. Properly inspect all electrical equipment prior to use

## 3. Training

### 3.1. Unqualified persons

- 3.1.1. Employees who face a risk of electric shock that is not reduced to a safe level by electrical installation requirements and who are not qualified persons shall also be trained in and be familiar with any electrically related safety practices that are necessary for their safety.

### 3.2. Qualified persons

- 3.2.1. Qualified persons (i.e. those permitted to work on or near exposed energized parts) shall, at a minimum, be trained in and familiar with the following:
  - 3.2.1.1. The skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment.
  - 3.2.1.2. The skills and techniques necessary to determine the nominal voltage of exposed live parts, and
  - 3.2.1.3. The clearance distances specified in 1910.333(c) and the corresponding voltages to which the qualified person will be exposed.
- 3.2.2. An employee must have successfully completed the training required in this program for a qualified person in order to be so considered.
- 3.2.3. Qualified persons whose work on energized equipment involves either direct contact or contact by means of tools or materials will be trained to make them capable of working safely on energized circuits and shall be familiar with the proper use of special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools.
- 3.2.4. The required training is of the classroom or on-the-job type. The degree of training provided is determined by the risk to the employee.
- 3.2.5. For purposes of general comparison, typical occupational employee categories that face a higher than normal risk of electrical accident include blue collar supervisors; electrical and electronic engineers; electrical and electronic equipment assemblers; electrical and electronic technicians; electricians; industrial machine operators; material handling equipment

operators; mechanics and repairers; painters; riggers and roustabouts; stationary engineers; and welders.

- 3.3. Workers in these groups or with comparable job assignments do not need to be trained if their work or the work of those they supervise does not bring them or the employees they supervise close enough to exposed parts of electric circuits operating at 50 volts or more to ground for a hazard to exist.

#### **4. De-Energized Parts**

- 4.1. If an employee is exposed to “live” energized parts or components, these shall be de-energized before the employee begins work on or near them. An exception will be if it can be demonstrated that de-energizing these parts or components will present additional or increased hazards, or if de-energizing is not feasible due to equipment design or operational limitations.
- 4.2. Live parts that operate at less than 50 volts to ground need not be de-energized if there will be no increased exposure to electrical burns or to explosion due to electric arcs.
- 4.3. Examples of increased or additional hazards include tasks such as deactivation of emergency alarm systems, shutdown of hazardous location ventilation equipment, or removal of illumination for an area.
- 4.4. Examples of work that may be performed on or near energized circuit parts because of infeasibility due to equipment design or operational limitations include:
- 4.5. Testing of electric circuits that can only be performed with the circuit energized, and
- 4.6. Work on circuits that form an integral part of a continuous industrial process in a chemical plant that would otherwise need to be completely shut down in order to permit work on one circuit or piece of equipment.

#### **5. Energized Parts**

- 5.1. If the exposed “live” parts or components are not de-energized for reasons of increased or additional hazards or infeasibility, other safety-related work practices are used to protect employees who may be exposed to the electrical hazards involved.
- 5.2. Such work practices protect employees against direct contact with energized circuit parts with any part of their body, or indirectly through some other conductive object.
- 5.3. When normally enclosed live parts are exposed for inspection or servicing, the working space shall be guarded. Working spaces are not used for storage.
- 5.4. Sufficient access and working space will be provided and maintained about all electric equipment to permit ready and safe operation and maintenance of such equipment.

- 5.5. The work practices that are used are 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.

## **6. Working On or Near Exposed De-Energized Parts**

- 6.1. This paragraph applies to work on exposed de-energized parts or near enough to them to expose the employee to any electrical hazard they present.
- 6.2. Conductors and parts of electric equipment that have been de-energized but have not been locked out or tagged in accordance with paragraph (b) of this section shall be treated as energized parts, and paragraph (c) of this section applies to work on or near them.

## **7. Lockout and Tagout**

- 7.1. While any employee is exposed to contact with parts of fixed electric equipment or circuits which have been de-energized, the circuits energizing the parts are locked out or tagged or both in accordance with the company's written safety procedures for the control of hazardous energy.
- 7.2. For the purposes of this safety policy, "fixed equipment" refers to equipment fastened in place or connected by permanent wiring methods.
- 7.3. The company shall maintain a copy of the written procedures for control of hazardous energy (lockout and tagout procedures). These are made available for inspection by employees and by the Assistant Secretary of Labor and the Assistant Secretary's authorized representatives.

## **8. De-Energizing Equipment**

- 8.1. Safe procedures for de-energizing circuits and equipment shall be determined before circuits or equipment is de-energized. These procedures are machine-specific, system-specific or circuit-specific, in accordance with the company's procedures for control of hazardous energy (lockout and tagout program procedures).
- 8.2. The circuits and equipment to be worked on shall be disconnected from all electric energy sources. Control circuit devices, such as push buttons, selector switches, and interlocks, may not be used as the sole means for de-energizing circuits or equipment. Interlocks for electric equipment may not be used as a substitute for lockout and tagging procedures.
- 8.3. Stored electric energy which might endanger personnel shall be released.
- 8.4. Capacitors shall be discharged and high capacitance elements shall be short-circuited and grounded, if the stored electric energy might endanger personnel. If the capacitors or associated equipment are handled in meeting this requirement, they are treated as being energized.

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- 8.5. Stored non-electrical energy in devices that could re-energize electric circuit parts are blocked or relieved to the extent that the circuit parts could not be accidentally energized by the device.

## **9. Application of Locks and Tags**

- 9.1. A lock and a tag is placed on each disconnecting means used to de-energize circuits and equipment on which work is to be performed. For purposes of Cleveland Integrity Services' program, lockout only and tagout only shall not be permitted as a safe work procedure, except in accordance with the company's written program for the control of hazardous energy for when a lock cannot be applied.
- 9.2. Locks are attached so as to prevent persons from operating the disconnecting means unless they resort to undue force or the use of tools.
- 9.3. Each tag contains a statement prohibiting unauthorized operation of the disconnecting means and removal of the tag.
- 9.4. Selection and use of locks and tags is in accordance with the company's written program for the control of hazardous energy.
- 9.5. If a lock cannot be applied, work shall not continue until a specific safe work procedure for the situation at hand is agreed upon between the employee and his or her on-site supervisor with approval prior to continuance of work from the company's Safety Coordinator.
- 9.6. When a lock cannot be applied, the on-site supervisor and company Safety Coordinator may allow use of a tagout only when tagout is supplemented by at least one additional safety measure that provides a level of safety equivalent to that obtained by use of a lock. Examples of additional safety measures include the removal of an isolating circuit element, blocking of a controlling switch, or opening of an extra disconnecting device.

## **10. Verification of De-Energized Condition**

- 10.1. The requirements of this section shall be met before any circuits or equipment can be considered and worked upon as being de-energized.
- 10.2. A qualified person shall operate the equipment operating controls or otherwise verify that the equipment cannot be restarted.
- 10.3. A qualified person shall use test equipment to test the circuit elements and electrical parts of equipment to which employees will be exposed and shall verify that the circuit elements and equipment parts are de-energized.
- 10.4. The test shall also determine if any energized condition exists as a result of inadvertently induced voltage or unrelated voltage back feed even though specific parts of the circuit have been de-energized and presumed to be safe.

- 10.5. If the circuit to be tested is more than 600 volts, nominal, the test equipment is checked for proper operation immediately after this test.

## 11. Re-Energizing Equipment

- 11.1. These requirements shall be met, in the order given, before circuits or equipment are re-energized, even temporarily.
- 11.2. A qualified person conducts tests and visual inspections, as necessary, to verify that all tools, electrical jumpers, shorts, grounds, and other such devices have been removed, so that the circuits and equipment can be safely energized.
- 11.3. Employees exposed to the hazards associated with reenergizing the circuit or equipment are warned to stay clear of circuits and equipment.
- 11.4. Each lock and tag is removed by the employee who applied it or under his or her direct supervision. However, if this employee is absent from the workplace, then the lock or tag may be removed by a qualified person designated to perform this task provided that:
- 11.4.1. The on-duty supervisor ensures that the employee who applied the lock or tag is not available at the workplace, and
- 11.4.2. The employer ensures that the employee is aware that the lock or tag has been removed before he or she resumes work at that workplace.
- 11.5. There shall be a visual determination that all employees are clear of the circuits and equipment.
- 11.6. All of the above procedures for reenergizing are done in compliance with the company's written program for the control of hazardous energy.

## 12. Working On or Near Exposed Energized Parts

- 12.1. This section applies to work performed on exposed live parts (involving either direct contact or by means of tools or materials), or work performed near enough so that employees are exposed to these hazards and potential exposures. Entrances to rooms or guarded locations will be marked with conspicuous warning signs forbidding unqualified persons to enter.
- 12.2. Regarding work on energized equipment, only qualified persons may work on electric circuit parts or equipment that have not been de-energized under the procedures explained in this program. Such qualified persons shall be capable of working safely on energized circuits and shall be familiar with the proper use of special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools.
- 12.3. If work is to be performed near overhead lines, the lines are de-energized and grounded, or other protective measures are provided before work is started. If the lines

are to be de-energized, arrangements are made with the person or organization that operates or controls the electric circuits involved to de-energize 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.

12.4. Live parts of electric 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:

12.4.1. Locating in a room, vault or similar enclosure that is accessible only to qualified persons;

12.4.2. By partitions or screens where only qualified persons have access to the space. Such separations will be designed to prevent accidental contact; or

12.4.3. By elevation of 8 feet or more above the floor to other working surface and so installed as to exclude unqualified persons.

12.5. Unqualified persons are specifically prohibited from performing this type of work.

### 13. Unqualified Persons

13.1. When an unqualified person is working in an elevated position near overhead lines, the location is 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 following distances:

13.1.1. For voltages to ground 50kV or below - 10 feet (305 cm);

13.1.2. For voltages to ground over 50kV - 10 feet (305 cm) plus 4 inches (10 cm) for every 10kV over 50kV.

13.2. When an unqualified person is working on the ground in the vicinity of overhead lines, the person may not bring any conductive object closer to unguarded, energized overhead lines than the distances given in this section.

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

### 14. Qualified Persons

14.1. When a qualified person is working in the vicinity of overhead lines, whether in an elevated position or on the ground, the person may not approach or take any conductive object without an approved insulating handle closer to exposed energized parts than shown in the table Approach Distances for Qualified Employees - Alternating Current contained in this section unless:



- 14.1.1. 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
- 14.1.2. The energized part is insulated both from all other conductive objects at a different potential and from the person, or
- 14.1.3. The person is insulated from all conductive objects at a potential different from that of the energized part.

**Approach distances for qualified employees -- alternating current**

<b>Voltage range (phase to phase)</b>	<b>Minimum approach distance</b>
300V and less	Avoid Contact
Over 300V, not over 750V	1 ft. 0 in. (30.5 cm).
Over 750V, not over 2kV	1 ft. 6 in. (46 cm).
Over 2kV, not over 15kV	2 ft. 0 in. (61 cm).
Over 15kV, not over 37kV	3 ft. 0 in. (91 cm).
Over 37kV, not over 87.5kV	3 ft. 6 in. (107 cm).
Over 87.5kV, not over 121kV	4 ft. 0 in. (122 cm).
Over 121kV, not over 140kV	4 ft. 6 in. (137 cm).

**15. Vehicular and Mechanical Equipment**

- 15.1. Any vehicle or mechanical equipment capable of having parts of its structure elevated near energized overhead lines shall be operated so that a clearance of 10 ft. (305 cm) is maintained. If the voltage is higher than 50kV, the clearance shall be increased 4 in. (10 cm) for every 10kV over that voltage. However, under any of the following conditions, the clearance may be reduced:
  - 15.2. If the vehicle is in transit with its structure lowered, the clearance may be reduced to 4 ft. (122 cm). If the voltage is higher than 50kV, the clearance is increased 4 in. (10 cm) for every 10 kV over that voltage.
  - 15.3. If insulating barriers 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, the clearance may be reduced to a distance within the designed working dimensions of the insulating barrier.
  - 15.4. 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 un-insulated portion of the aerial lift and the power line) may be reduced to the distance given in table Approach Distances for Qualified Employees - Alternating Current.
  - 15.5. Employees standing on the ground may not contact the vehicle or mechanical equipment or any of its attachments, unless:
    - 15.5.1. The employee is using protective equipment rated for the voltage; or

15.5.2. The equipment is located so that no un-insulated 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 under this section.

15.6. 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 may 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, are taken to protect employees from hazardous ground potentials, depending on earth resistance and fault currents, which can develop within the first few feet or more outward from the grounding point.

## **16. Illumination**

16.1. Employees may not enter spaces containing exposed energized parts, unless illumination is provided that enables the employees to perform the work safely.

16.2. Where lack of illumination or an obstruction precludes observation of the work to be performed, employees may not perform tasks near exposed energized parts.

16.3. Employees may not reach blindly into areas that may contain energized parts.

## **17. Confined or Enclosed Work Spaces**

17.1. When an employee works in a confined or enclosed space (such as a manhole or vault) that contains exposed energized parts, the employer shall provide, and the employee shall use, protective shields, protective barriers, or insulating materials as necessary to avoid inadvertent contact with these parts. Doors, hinged panels, and the like shall be secured to prevent their swinging into an employee and causing the employee to contact exposed energized parts.

## **18. Conductive Materials and Equipment**

18.1. Conductive materials and equipment that are in contact with any part of an employee's body are handled in a manner that will prevent them from contacting exposed energized conductors or circuit parts. If an employee must handle long dimensional conductive objects (such as ducts and pipes) in areas with exposed live parts, the employer shall institute work practices (such as the use of insulation, guarding, and material handling techniques) to minimize the hazards.

## **19. Portable Ladders**

19.1. Portable ladders shall have nonconductive side rails if they are used where the employee or the ladder could contact exposed energized parts. Use of portable ladders shall comply with the company's written safety procedures for working with ladders.

## **20. Conductive Apparel**

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20.1. Conductive articles of jewelry and clothing (such a watch bands, bracelets, rings, key chains, necklaces, metalized aprons, cloth with conductive thread, or metal headgear) may 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.

## **21. Housekeeping Duties**

21.1. Where live parts present an electrical contact hazard, employees may 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) may not be used in proximity to energized parts unless procedures are followed which will prevent electrical contact.

## **22. Interlocks**

22.1. Only a qualified person, who is following established safe work procedures in accordance with OSHA requirements, may defeat an electrical safety interlock, and then only temporarily while he or she is working on the equipment. The interlock system is returned to its operable condition when this work is completed.

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Applicable Standard: 1910.38 Emergency Action Plans

## 1 Overview and responsibilities

- 1.1 Cleveland Integrity Services has established this program for developing emergency action plans that are specific to Company workplaces and project locations.
- 1.2 This program applies to all Company employees, as well as subcontractor personnel performing work under Company supervision at a project location or other workplace.
- 1.3 The Company Safety Coordinator is responsible for development and managing of this program so that it is effective in providing emergency action plans as specified here.

## 2 Requirement for a site-specific plan

- 2.1 A site-specific written emergency action plan will be developed for each Company workplace and/or project location prior to beginning work.
- 2.2 When the Company is working at a host employer's or general contractor's location, development of the Company's site-specific emergency action plan will be done in coordination with the host's designated safety and emergency response representatives.
- 2.3 A copy of the project's written emergency action plan will be maintained in the Company workplace, available for review by employees.
- 2.4 In addition to having the written plan available to employees, it will be communicated orally through an orientation to Company employees and subcontractor personnel prior to their beginning work at the project location.

## 3 Components of the emergency action plan

- 3.1 The site-specific emergency action plan will include at least the following:
  - 3.1.1 Phone numbers for local fire and emergency medical services. Numbers to immediately report, chemical release, weather-related or another emergency should be posted for any employee to use;(911)
  - 3.1.2 Emergency evacuation procedures for the type(s) of evacuations anticipated for the specific work location, with identification of primary (main entrance) and secondary exit routes (Nearest road way); designated assembly areas; and instructions for evacuated personnel to remain at the location until released in accordance with plan instructions;
  - 3.1.3 Special procedures for employees who must remain at their station to perform critical operations prior to evacuation;

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- 3.1.4 When applicable to the emergency or workplace situation, procedures to *shelter in place* inside of a building, structure, vehicle or facility for a greater level of protection from weather, chemical release or emergency conditions;
- 3.1.5 Roll call will be conducted at the assembly area (closet safe area) to ensure that all employees are accounted for after evacuation. So, the proper authorities can notify responding emergency personnel about anyone who is not accounted for;
- 3.1.6 Specific procedures for employees who are designated as first responders, or who will perform rescue, emergency medical, firefighting and/or hazardous materials response duties; and
- 3.1.7 Contact the supervisor of the project or the safety department if more information about the plan, or an explanation of duties under the plan is required.
- 3.1.8 The name or job title of every employee who may be contacted by employees who need more information about the plan or an explanation of their duties under the plan
- 3.2 The Company Safety Coordinator will review and approve each site-specific emergency response plan prior to its implementation.
- 3.3 Regarding 3.1.3, routine assignments for Company employees do not require that they remain at their stations to perform critical duties during an emergency evacuation. If such a contingency is identified during emergency planning, the procedures for standing by to perform critical duties will be reviewed and authorized by the Company Safety Coordinator prior to implementation.
- 3.4 Regarding 3.1.6, outside emergency services generally will be called and utilized for response in these circumstances.

Routine assignments for Company employees do not require that they serve as designated first responders, rescue, and emergency medical or firefighting personnel. In most routine assignments, Company employees will not serve in hazardous materials response roles that require specific training and certification.

In the event that Company employees are required to perform any of the duties stated in 3.1.6, this will be done only with authorization of the Company Safety Coordinator, and then only after they have successfully completed all required training and received certification(s) as may be required for such assignments.

**4 Methods of alarm and emergency notification**

- 4.1 An air horn will be used for sounding the emergency alarm. At least one air horn maintained at each Company work location.

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4.2 The emergency alarm signal will be distinctive in that it is able to communicate the different types of emergencies, as well as an all-clear signal. Selection, installation, use and testing of the alarm will comply with 1910.165 *Employee Alarm Systems*.

**5 Initial training & communicating changes in the plan**

5.1 Employees at the project or workplace will be designated and trained about the site-specific emergency action plan, as well as how to help others make a safe, orderly evacuation to a designated assembly area or shelter-in-place location.

5.2 The site supervisor, superintendent or manager will communicate and review the emergency action plan with each affected employee before they start work at the location.

5.3 When a new emergency action plan is implemented at a work location, the site supervisor, superintendent or manager will communicate and review the emergency action plan with each Company employee and subcontractor at the job site.

5.4 When the plan is changed, or employee responsibilities under the plan change, this will be communicated and reviewed with each employee at the job site.

5.5 Communication and review of the emergency action plan with individual employees and subcontractors will be documented in writing with the date and time of presentation; printed name and signature of the individual employee or subcontractor worker; and the name and signature of the Company representative who gives the presentation.

5.6 Documentations of initial orientation and subsequent training or notification of change in the emergency action plan will be maintained in the project safety file by the project superintendent, supervisor or manager.

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Applicable OSHA Standards: 29 CFR 1926.500

## 1. Purpose & Scope

- 1.1. This policy sets forth requirements and criteria for fall protection in construction workplaces covered under 29 CFR part 1926. Exception: The provisions of this policy do not apply when employees are making an inspection, investigation, or assessment of workplace conditions prior to the actual start of construction work or after all construction work has been completed.
- 1.2. This policy applies to all employees and subcontractors working within Cleveland Integrity Services controlled job sites.
- 1.3. Where 'Fall Protection Plans' are utilized, the site-specific plans shall be prepared, or modified by a 'Qualified Person', and maintained at the job site. The plan shall be under the supervision of a 'Competent Person', and the plan shall address why the use of conventional fall protection is infeasible, or why their use would cause a greater hazard.

## 2. Definitions

- 2.1. "Anchorage" means a secure point of attachment for lifelines, lanyards or deceleration devices.
- 2.2. "Body belt (safety belt)" means a strap with means both for securing it about the waist and for attaching it to a lanyard, lifeline, or deceleration device.
- 2.3. "Body harness" means straps which may be secured about the employee in a manner that will distribute the fall arrest forces over at least the thighs, pelvis, waist, chest and shoulders with means for attaching it to other components of a personal fall arrest system.
- 2.4. "Buckle" means any device for holding the body belt or body harness closed around the employee's body.
- 2.5. "Connector" means a device which is used to couple (connect) parts of the personal fall arrest system and positioning device systems together. It may be an independent component of the system, such as a carabineer, or it may be an integral component of part of the system (such as a buckle or Dee-ring sewn into a body belt or body harness, or a snap-hook spliced or sewn to a lanyard or self-retracting lanyard).
- 2.6. "Controlled access zone (CAZ)" means an area in which certain work (e.g., overhand bricklaying) may take place without the use of guardrail systems, personal fall arrest systems, or safety net systems and access to the zone is controlled.
- 2.7. "Dangerous equipment" means equipment (such as pickling or galvanizing tanks, degreasing units, machinery, electrical equipment, and other units) which, as a result



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of form or function, may be hazardous to employees who fall onto or into such equipment.

- 2.8. "Deceleration device" means any mechanism, such as a rope grab, rip-stitch lanyard, specially-woven lanyard, tearing or deforming lanyards, automatic self-retracting lifelines/lanyards, etc., which serves to dissipate a substantial amount of energy during a fall arrest, or otherwise limit the energy imposed on an employee during fall arrest.
- 2.9. "Deceleration distance" means the additional vertical distance a falling employee travels, excluding lifeline elongation and free fall distance, before stopping, from the point at which the deceleration device begins to operate. It is measured as the distance between the location of an employee's body belt or body harness attachment point at the moment of activation (at the onset of fall arrest forces) of the deceleration device during a fall, and the location of that attachment point after the employee comes to a full stop.
- 2.10. "Equivalent" means alternative designs, materials, or methods to protect against a hazard which the employer can demonstrate will provide an equal or greater degree of safety for employees than the methods, materials or designs specified in the standard.
- 2.11. "Failure" means load refusal, breakage, or separation of component parts. Load refusal is the point where the ultimate strength is exceeded.
- 2.12. "Free fall" means the act of falling before a personal fall arrest system begins to apply force to arrest the fall.
- 2.13. "Free fall distance" means the vertical displacement of the fall arrest attachment point on the employee's body belt or body harness between onset of the fall and just before the system begins to apply force to arrest the fall. This distance excludes deceleration distance, and lifeline/lanyard elongation, but includes any deceleration device slide distance or self-retracting lifeline/lanyard extension before they operate and fall arrest forces occur.
- 2.14. "Guardrail system" means a barrier erected to prevent employees from falling to lower levels.
- 2.15. "Hole" means a gap or void 2 inches (5.1 cm) or more in its least dimension, in a floor, roof, or other walking/working surface.
- 2.16. "Infeasible" means that it is impossible to perform the construction work using a conventional fall protection system (i.e., guardrail system, safety net system, or personal fall arrest system) or that it is technologically impossible to use any one of these systems to provide fall protection.
- 2.17. "Lanyard" means a flexible line of rope, wire rope, or strap which generally has a connector at each end for connecting the body belt or body harness to a deceleration device, lifeline, or anchorage.

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- 2.18. "Leading edge" means the edge of a floor, roof, or formwork for a floor or other walking/working surface (such as the deck) which changes location as additional floor, roof, decking, or formwork sections are placed, formed, or constructed. A leading edge is considered to be an "unprotected side and edge" during periods when it is not actively and continuously under construction.
- 2.19. "Lifeline" means a component consisting of a flexible line for connection to an anchorage at one end to hang vertically (vertical lifeline), or for connection to anchorages at both ends to stretch horizontally (horizontal lifeline), and which serves as a means for connecting other components of a personal fall arrest system to the anchorage.
- 2.20. "Low-slope roof" means a roof having a slope less than or equal to 4 in 12 (vertical to horizontal).
- 2.21. "Lower levels" means those areas or surfaces to which an employee can fall. Such areas or surfaces include, but are not limited to, ground levels, floors, platforms, ramps, runways, excavations, pits, tanks, material, water, equipment, structures, or portions thereof.
- 2.22. "Mechanical equipment" means all motor or human propelled wheeled equipment used for roofing work, except wheelbarrows and mop carts.
- 2.23. "Opening" means a gap or voids 30 inches (76 cm) or more high and 18 inches (48 cm) or more wide, in a wall or partition, through which employees can fall to a lower level.
- 2.24. "Personal fall arrest system" means a system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, a body belt or body harness and may include a lanyard, deceleration device, lifeline, or suitable combinations of these. As of January 1, 1998, the use of a body belt for fall arrest is prohibited.
- 2.25. "Positioning device system" means a body belt or body harness system rigged to allow an employee to be supported on an elevated vertical surface, such as a wall, and work with both hands free while leaning.
- 2.26. "Rope grab" means a deceleration device which travels on a lifeline and automatically, by friction, engages the lifeline and locks so as to arrest the fall of an employee. A rope grab usually employs the principle of inertial locking, cam/level locking, or both.
- 2.27. "Roof" means the exterior surface on the top of a building. This does not include floors or formwork which, because a building has not been completed, temporarily becomes the top surface of a building.
- 2.28. "Roofing work" means the hoisting, storage, application, and removal of roofing materials and equipment, including related insulation, sheet metal, and vapor barrier work, but not including the construction of the roof deck.

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- 2.29. "Safety-monitoring system" means a safety system in which a competent person is responsible for recognizing and warning employees of fall hazards.
- 2.30. "Self-retracting lifeline/lanyard" means a deceleration device containing a drum-wound line which can be slowly extracted from, or retracted onto, the drum under slight tension during normal employee movement, and which, after onset of a fall, automatically locks the drum and arrests the fall.
- 2.31. "Snap hook" means a connector comprised of a hook-shaped member with a normally closed keeper, or similar arrangement, which may be opened to permit the hook to receive an object and, when released, automatically closes to retain the object. Snap hooks are generally one of two types:
- 2.31.1. The locking type with a self-closing, self-locking keeper which remains closed and locked until unlocked and pressed open for connection or disconnection; or
- 2.31.1.1. The non-locking type with a self-closing keeper which remains closed until pressed open for connection or disconnection. As of January 1, 1998, the use of a non-locking snap hook as part of personal fall arrest systems and positioning device systems is prohibited.
- 2.32. "Steep roof" means a roof having a slope greater than 4 in 12 (vertical to horizontal).
- 2.33. "Toe board" means a low protective barrier that will prevent the fall of materials and equipment to lower levels and provide protection from falls for personnel.
- 2.34. "Unprotected sides and edges" means any side or edge (except at entrances to points of access) of a walking/working surface, e.g., floor, roof, ramp, or runway where there is no wall or guardrail system at least 39 inches (1.0 m) high.
- 2.35. "Walking/working surface" means any surface, whether horizontal or vertical on which an employee walks or works, including, but not limited to, floors, roofs, ramps, bridges, runways, formwork and concrete reinforcing steel but not including ladders, vehicles, or trailers, on which employees must be located in order to perform their job duties.
- 2.36. "Warning line system" means a barrier erected on a roof to warn employees that they are approaching an unprotected roof side or edge, and which designates an area in which roofing work may take place without the use of guardrail, body belt, or safety net systems to protect employees in the area.
- 2.37. "Work area" means that portion of a walking/working surface where job duties are being performed.

### 3. General

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- 3.1. Fall protection is required whenever employees of Cleveland Integrity Services are potentially exposed to falls from heights of 4 feet or greater to lower levels. This includes work near and around excavations.
- 3.2. Use of guard rails, safety net, or personal fall arrest systems are used as methods of fall protection when standard methods are not feasible or a greater hazard would be created by use of standard methods. Determination of employee exposure to fall hazards is made without regard for the use of personal protective equipment.
- 3.3. Scaffolds, ladders or vehicle mounted work platforms may be utilized at a work location so long as employees have been sufficiently trained in the safe use of these devices and are authorized by the Site Supervisor for such work. Use of vehicle-mounted work platforms and scaffolding requires specific training for individual in charge of the work and users.
- 3.4. The Site Supervisor, in conjunction with the Company's Safety Representative, determine if the walking or working surfaces on which employees are to work have the strength and structural integrity to support employees safely. Employees are allowed to work on those surfaces only when the surfaces have the requisite strength and structural integrity.
- 3.5. Each employee on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge which is 4 feet (1.2 m) or more above a lower level is protected from falling by the use of guardrail systems, safety net systems, or personal fall arrest systems.
- 3.6. Each employee who is constructing a leading edge 4 feet (1.2 m) or more above lower levels is protected from falling by guardrail systems, safety net systems, or personal fall arrest systems. Exception: When the Site Supervisor can demonstrate that it is infeasible or creates a greater hazard to use these systems, the Site Supervisor, in conjunction with the Company's Safety Representative, will develop and implement a fall protection plan which meets the requirements of paragraph (k) of 1926.502.
- 3.7. Each employee on a walking/working surface 4 feet (1.2 m) or more above a lower level where leading edges are under construction, but who is not engaged in the leading edge work, is protected from falling by a guardrail system, safety net system, or personal fall arrest system. If a guardrail system is chosen to provide the fall protection, and a controlled access zone has already been established for leading edge work, the control line may be used in lieu of a guardrail along the edge that parallels the leading edge.
- 3.8. Each employee in a hoist area is protected from falling 4 feet (1.2 m) or more to lower levels by guardrail systems or personal fall arrest systems. If guardrail systems, [or chain, gate, or guardrail] or portions thereof, are removed to facilitate the hoisting operation (e.g., during landing of materials), and an employee must lean through the access opening or out over the edge of the access opening (to receive or guide equipment and materials, for example), that employee is protected from fall hazards by a personal fall arrest system.

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- 3.9. Each employee on walking/working surfaces are protected from falling through holes (including skylights) more than 4 feet (1.2 m) above lower levels, by personal fall arrest systems, covers, or guardrail systems erected around such holes.
- 3.10. Each employee on a walking/working surface is protected from tripping in or stepping into or through holes (including skylights) by covers.
- 3.11. Each employee on a walking/working surface is protected from objects falling through holes (including skylights) by covers.
- 3.12. Each employee on the face of formwork or reinforcing steel is protected from falling 4 feet (1.2 m) or more to lower levels by personal fall arrest systems, safety net systems, or positioning device systems.
- 3.13. Each employee on ramps, runways, and other walkways is protected from falling 4 feet (1.2 m) or more to lower levels by guardrail systems.
- 3.14. Each employee at the edge of an excavation 4 feet (1.2 m) or more in depth is protected from falling by guardrail systems, fences, or barricades when the excavations are not readily seen because of plant growth or other vision barrier.
- 3.15. Each employee at the edge of a well, pit, shaft, and similar excavation 4 feet (1.2m) or more in depth is protected from falling by guardrail systems, fences, barricades, or covers.
- 3.16. Each employee less than 4 feet (1.2 m) above dangerous equipment is protected from falling into or onto the dangerous equipment by guardrail systems or by equipment guards.
- 3.17. Each employee 4 feet (1.2 m) or more above dangerous equipment is protected from fall hazards by guardrail systems, personal fall arrest systems, or safety net systems.
- 3.18. Each employee reaching more than 10 inches (25 cm) below the level of the walking/working surface on which they are working is protected from falling by a guardrail system, safety net system, or personal fall arrest system.
- 3.19. Each employee engaged in roofing activities on low-slope roofs, with unprotected sides and edges 4 feet (1.2 m) or more above lower levels will be protected from falling by guardrail systems, safety net systems, personal fall arrest systems, or a combination of warning line system and guardrail system, warning line system and safety net system, or warning line system and personal fall arrest system, or warning line system and safety monitoring system. Or, on roofs 50-feet (15.25 m) or less in width the use of a safety monitoring system alone [i.e. without the warning line system] is permitted.
- 3.20. Each employee on a steep roof with unprotected sides and edges 4 feet (1.2 m) or more above lower levels is protected from falling by guardrail systems with toe boards, safety net systems, or personal fall arrest systems.

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- 3.21. Each employee engaged in the erection of pre-cast concrete members (including, but not limited to the erection of wall panels, columns, beams, and floor and roof "tees") and related operations such as grouting of pre-cast concrete members, who is 4 feet (1.2 m) or more above lower levels is protected from falling by guardrail systems, safety net systems, or personal fall arrest systems.
- 3.22. Each employee working on, at, above, or near wall openings (including those with chutes attached) where the outside bottom edge of the wall opening is 4 feet (1.2 m) or more above lower levels and the inside bottom edge of the wall opening is less than 39 inches (1.0 m) above the walking/working surface, is protected from falling by the use of a guardrail system, a safety net system, or a personal fall arrest system.
- 3.23. When an employee is exposed to falling objects, each employee wears a hard hat and the Site Supervisor implements one of the following measures:
  - 3.23.1. Erect toe boards, screens, or guardrail systems to prevent objects from falling from higher levels; or,
  - 3.23.2. Erect a canopy structure and keep potential fall objects far enough from the edge of the higher level so that those objects would not go over the edge if they were accidentally displaced; or,
  - 3.23.3. Barricade the area to which objects could fall, prohibit employees from entering the barricaded area, and keep objects that may fall far enough away from the edge of a higher level so that those objects would not go over the edge if they were accidentally displaced.
- 3.24. When fall protection is required for the protection of employees, a fall protection plan is prepared by a qualified person and developed specifically for the site where the work is being performed. The plan must be maintained and kept up to date.
- 3.25. When fall protection is required, a competent person is assigned to: recognize fall hazards; warn employees if they are unaware of a fall hazard or are acting in an unsafe manner; be on same working surface and in visual sight; stay close enough for verbal communication; and not have other assignments that would distract the monitor's attention from the monitoring responsibilities.
- 3.26. When purchasing equipment and raw materials for use in fall protection systems applicable ANSI and ASTM requirements will be met.

#### **4. Guardrail Systems**

- 4.1. Top edge height of top rails, or equivalent guardrail system members, will be 42 inches (1.1 m) plus or minus 3 inches (8 cm) above the walking/working level. When conditions warrant, the height of the top edge may exceed the 45-inch height, provided the guardrail system meets all other criteria of this paragraph.

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- 4.2. Midrails, screens, mesh, intermediate vertical members, or equivalent intermediate structural members are installed between the top edge of the guardrail system and the walking/working surface when there is no wall or parapet wall at least 21 inches (53 cm) high.
- 4.3. Midrails, when used, are installed at a height midway between the top edge of the guardrail system and the walking/working level.
- 4.4. Screens and mesh, when used, extend from the top rail to the walking/working level and along the entire opening between top rail supports.
- 4.5. Intermediate members (such as balusters), when used between posts, will not be more than 19 inches (48 cm) apart. Other structural members (such as additional midrails and architectural panels) are installed so that there are no openings in the guardrail system that are more than 19 inches (.5 m) wide.
- 4.6. Guardrail systems are capable of withstanding, without failure, a force of at least 200 pounds (890 N) applied within 2 inches (5.1 cm) of the top edge, in any outward or downward direction, at any point along the top edge.
- 4.7. Midrails, screens, mesh, intermediate vertical members, solid panels, and equivalent structural members are capable of withstanding, without failure, a force of at least 150 pounds (666 N) applied in any downward or outward direction at any point along the mid-rail or other member.
- 4.8. Guardrail systems are so surfaced as to prevent injury to an employee from punctures or lacerations, and to prevent snagging of clothing.
- 4.9. The ends of all top rails and midrails do not overhang the terminal posts, except where such overhang does not constitute a projection hazard.
- 4.10. Steel banding and plastic banding will not be used as top rails or midrails.
- 4.11. Top rails and midrails are at least one-quarter inch (0.6 cm) nominal diameter or thickness to prevent cuts and lacerations. If wire rope is used for top rails, it is flagged at not more than 6-foot intervals with high-visibility material.
- 4.12. When guardrail systems are used at hoisting areas, a chain, gate or removable guardrail section is placed across the access opening between guardrail sections when hoisting operations are not taking place.
- 4.13. When guardrail systems are used at holes, they are erected on all unprotected sides or edges of the hole.
- 4.14. When guardrail systems are used around holes used for the passage of materials, the hole does not have more than two sides provided with removable guardrail sections to allow the passage of materials. When the hole is not in use, it is closed over with a cover, or a guardrail system is provided along all unprotected sides or edges.

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- 4.15. When guardrail systems are used around holes which are used as points of access (such as ladder ways), they are provided with a gate, or be so offset that a person cannot walk directly into the hole.
- 4.16. Guardrail systems used on ramps and runways are erected along each unprotected side or edge.
- 4.17. Manila, plastic or synthetic rope being used for top rails or midrails are inspected as frequently as necessary to ensure that it continues to meet the strength requirements of paragraph 3.6 of this section.
- 4.18. Safety nets may be used only after approval by the Company Safety Representative.

## **5. Personal Fall Arrest Systems**

- 5.1. Connectors are drop forged, pressed or formed steel, or made of equivalent materials.
- 5.2. Connectors have a corrosion-resistant finish, and all surfaces and edges are smooth to prevent damage to interfacing parts of the system.
- 5.3. D-rings and snap hooks have a minimum tensile strength of 5,000 pounds (22.2 kN).
- 5.4. Snap hooks are sized to be compatible with the member to which they are connected to prevent unintentional disengagement of the snap hook by depression of the snap hook keeper by the connected member, or are a locking type snap hook designed and used to prevent disengagement of the snap hook by the contact of the snap hook keeper by the connected member. Effective January 1, 1998, only locking type snap hooks will be used.
- 5.5. Unless the snap hook is a locking type and designed for the following connections, snap hooks are not engaged:
  - 5.5.1. Directly to webbing, rope or wire rope;
  - 5.5.2. To each other;
  - 5.5.3. To a d-ring to which another snap hook or other connector is attached;
  - 5.5.4. To a horizontal lifeline; or
  - 5.5.5. To any object which is incompatibly shaped or dimensioned in relation to the snap hook such that unintentional disengagement could occur by the connected object being able to depress the snap hook keeper and release itself.
- 5.6. On suspended scaffolds or similar work platforms with horizontal lifelines which may become vertical lifelines, the devices used to connect to a horizontal lifeline are capable of locking in both directions on the lifeline.



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- 5.7. Horizontal lifelines will be designed, installed, and used, under the supervision of a qualified person, as part of a complete personal fall arrest system, which maintains a safety factor of at least two.
- 5.8. Lanyards and vertical lifelines have a minimum breaking strength of 5,000 pounds (22.2 kN).
- 5.9. Lifelines are protected against being cut or abraded.
- 5.10. Self-retracting lifelines and lanyards which automatically limit free fall distance to 2 feet (0.61 m) or less are capable of sustaining a minimum tensile load of 3,000 pounds (13.3 kN) applied to the device with the lifeline or lanyard in the fully extended position.
- 5.11. Self-retracting lifelines and lanyards which do not limit free fall distance to 2 feet (0.61 m) or less, rip stitch lanyards, and tearing and deforming lanyards are capable of sustaining a minimum tensile load of 5,000 pounds (22.2 kN) applied to the device with the lifeline or lanyard in the fully extended position.
- 5.12. Ropes and straps (webbing) used in lanyards, lifelines, and strength components of body belts and body harnesses are made from synthetic fibers.
- 5.13. Anchorages used for attachment of personal fall arrest equipment are independent of any anchorage being used to support or suspend platforms and capable of supporting at least 5,000 pounds (22.2 kN) per employee attached, or are designed, installed, and used as follows:
  - 5.13.1. As part of a complete personal fall arrest system which maintains a safety factor of at least two; and
  - 5.13.2. Under the supervision of a qualified person.
- 5.14. The attachment point of the body belt is located in the center of the wearer's back. The attachment point of the body harness is located in the center of the wearer's back near shoulder level, or above the wearer's head.
- 5.15. Harnesses and components are used only for employee protection (as part of a personal fall arrest system or positioning device system) and not to hoist materials.
- 5.16. Personal fall arrest systems and components subjected to impact loading are immediately removed from service and will not be used again for employee protection until inspected and determined by the Company's Safety Representative to be undamaged and suitable for reuse.
- 5.17. Personal fall arrest systems are inspected prior to each use for wear, damage and other deterioration, and defective components are removed from service.
- 5.18. Personal fall arrest systems are not attached to guardrail systems, nor are they attached to hoists.

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## 6. Positioning Device Systems

- 6.1. Positioning devices are rigged so that an employee cannot free fall more than 2 feet (.9 m).
- 6.2. Positioning devices are secured to an anchorage capable of supporting at least twice the potential impact load of an employee's fall or 3,000 pounds (13.3 kN), whichever is greater.
- 6.3. Positioning device systems are inspected prior to each use for wear, damage, and other deterioration and defective components are removed from service.

## 7. Warning Line Systems

- 7.1. Warning line systems are used only after approval by the Company Safety Representative.

## 8. Controlled Access Zones

- 8.1. The fall protection plan identifies each location where conventional fall protection methods cannot be used. These locations are then classified as controlled access zones.
- 8.2. When used to control access to areas where leading edge and other operations are taking place, the controlled access zone is defined by a control line or by any other means that restricts access.
- 8.3. When control lines are used, they are erected not less than 6 feet (1.8 m) nor more than 25 feet (7.7 m) from the unprotected or leading edge.
- 8.4. The control line extends along the entire length of the unprotected or leading edge and is approximately parallel to the unprotected or leading edge.
- 8.5. The control line is connected on each side to a guardrail system or wall.
- 8.6. Each line is flagged or otherwise clearly marked at not more than 6-foot (1.8 m) intervals with high-visibility material.
- 8.7. Each line is rigged and supported in such a way that its lowest point (including sag) is not less than 39 inches (1 m) from the walking/working surface and its highest point is not more than 45 inches (1.3 m) [50 inches (1.3 m) when overhand bricklaying operations are being performed] from the walking/working surface.
- 8.8. Each line has a minimum breaking strength of 200 pounds (.88 kN).
- 8.9. Controlled access zones may be used only after approval by the Company Safety Representative.

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8.10. Each employee who is designated to work in a controlled access zone must be identified by name, job designation and work to be completed. This information will be tracked and maintained by the company. No other employees may enter controlled access zones.

## 9. **Safety Monitoring Systems**

9.1. Where no other alternative measure has been implemented, the employer will implement a safety monitoring system in conformance with 1926.502(h).

9.2. Safety monitoring systems and their use will comply with the following provisions:

9.2.1. The Company has designated a competent person to monitor the safety of other employees and the employer ensures that the safety monitor complies with the following requirements:

9.2.2. The safety monitor is competent to recognize fall hazards;

9.2.3. The safety monitor warns the employee when it appears that the employee is unaware of a fall hazard or is acting in an unsafe manner;

9.2.4. The safety monitor is on the same walking/working surface and within visual sighting distance of the employee being monitored;

9.2.5. The safety monitor is close enough to communicate orally with the employee; and

9.2.6. The safety monitor does not have other responsibilities which could take the monitor's attention from the monitoring function.

9.3. Mechanical equipment is not used or stored in areas where safety monitoring systems are being used to monitor employees engaged in roofing operations on low-slope roofs.

9.4. No employee, other than an employee engaged in roofing work [on low-sloped roofs] or an employee covered by a fall protection plan, is allowed in an area where an employee is being protected by a safety monitoring system.

9.5. Each employee working in a controlled access zone is directed to comply promptly with fall hazard warnings from safety monitors.

9.6. Safety monitoring systems are used only after approval by the Company Safety Representative.

## 10. **Covers**

10.1. Covers for holes in floors, roofs, and other walking/working surfaces meet the following requirements:

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- 10.1.1. Covers located in roadways and vehicular aisles are capable of supporting, without failure, at least twice the maximum axle load of the largest vehicle expected to cross over the cover.
- 10.1.2. All other covers are capable of supporting, without failure, at least twice the weight of employees, equipment, and materials that may be imposed on the cover at any one time.
- 10.1.3. All covers are secured when installed so as to prevent accidental displacement by the wind, equipment, or employees.
- 10.1.4. All covers are color coded or they are marked with the word "HOLE" or "COVER" to provide warning of the hazard.

## 11. Training

- 11.1. Cleveland Integrity Services provides a training program for each employee who might be exposed to fall hazards. Training will enable each employee to recognize the hazards of falling and will train each employee in the procedures to follow to minimize these hazards.
- 11.2. Training is documented with written certification records showing the name of the person trained, time and date(s) of training, and the signature of the trainer. Record will also be made of the date on which the Company determined training was adequate.
- 11.3. Re-training is conducted when deficiencies in training are noted, or procedures in the work change, and / or when fall protection systems or equipment modifications and changes render previous training obsolete.
- 11.4. The Site Supervisor can assure that a training program is in place for each employee who might be exposed to fall hazards. The program enables each employee to recognize the hazards of falling and will train each employee in the procedures to be followed in order to minimize these hazards.
- 11.5. The Site Supervisor can assure that each employee has been trained, as necessary, by a competent person qualified in the following areas:
  - 11.5.1. The nature of fall hazards in the work area;
  - 11.5.2. The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used;
  - 11.5.3. The use and operation of guardrail systems, personal fall arrest systems, safety net systems, warning line systems, safety monitoring systems, controlled access zones, and other protection to be used;
  - 11.5.4. The role of each employee in the safety monitoring system when this system is used;

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- 11.5.5. The limitations on the use of mechanical equipment during the performance of roofing work on low-sloped roofs;
  - 11.5.6. The correct procedures for the handling and storage of equipment and materials and the erection of overhead protection;
  - 11.5.7. The role of employees in fall protection plans; and
  - 11.5.8. The standards contained in 29 CFR 1926 Subpart M.
- 11.6. The Site Supervisor can verify compliance by preparing a written certification record. The written certification record contains the name or other identity of the employee trained, the date(s) of the training, and the signature of the person who conducted the training.
- 11.7. When the Site Supervisor has reason to believe that any affected employee who has already been trained does not have the understanding and skill required by this policy, the Site Supervisor will ensure that each such employee is retrained.

## **12. Rescue Following A Fall**

- 12.1. The Site Supervisor assesses the fall protection methods and equipment to be utilized, workplace situations and access to emergency responders, and develop a plan with site-specific procedures to provide for prompt rescue of employees in the event of a fall.
- 12.2. This process includes provisions to allow employees to rescue themselves when they are able.
- 12.3. Medical attention is required when an employee experiences any fall while using personal fall arrest system (PFAS) no matter the distance.

## **13. Accident Investigation**

- 13.1. In the event an employee falls, or some other related, serious incident occurs, (e.g., a near miss) the employer will investigate the circumstances of the fall or other incident to determine if the fall protection plan needs to be changed (e.g. new practices, procedures, or training) and will implement those changes to prevent similar types of falls or incidents.

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## 1. Purpose

- 1.1. This program is to help prevent injuries and accidents due to fatigue for Cleveland Integrity Services and contractor personnel in a Company workplace.
- 1.2. This program also stresses that fatigue in the workplace can be controlled by information and training of employers and employees.
- 1.3. Goal objectives include:
  - 1.3.1. Awareness of risk factors associated with long work hours
  - 3.3.2. Site-specific evaluation of risk factors
  - 3.3.3. Identify control measures

## 2. What is fatigue?

- 2.1. Fatigue – the inability of a human to perform reasonable and necessary physical or mental activity.
- 2.2. Muscular Fatigue – a buildup of Carbon Dioxide and Lactic Acid in muscle tissue due to overexertion and producing discomfort, pain and loss of strength.
- 2.3. Mental Fatigue – a condition in which activity in the brain is depressed resulting in diminished neurophysiologic performance.

## 3. Symptoms of fatigue

- 3.1. Irritability
- 3.2. Complex decision making suffers
- 3.3. Vigilance decreases
- 3.4. Tolerance for errors and risk increases
- 3.5. Task fixation
- 3.6. Reaction time increases
- 3.7. Inattentiveness
- 3.8. Communication is impaired
- 3.9. Motivation reduction
- 3.10. Short term memory deteriorates
- 3.11. Mood deteriorates
- 3.12. Microsleeps occur

## 4. Why should we worry?

- 4.1. Fatigued people are less able to respond to unusual or emergency conditions. They are also more likely to take risks.
- 4.2. The Baker Commission investigating the BP Texas City disaster recommended to BP the development of a Fatigue Management Plan.
- 4.3. There have been several high-profile accidents where fatigue was identified as either a causal or contributing factor. e.g. Three Mile Island, Chernoble and Exxon Valdez.

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It was also cited as a component of the flawed decision-making that contributed to the Challenger Disaster.

## **5. Contributing factor to illness, injury or death**

- 5.1. Employee #1 was working on a highway bridge seismic retrofit project. He was moving a gas welding cart to another location in the closed #1 lane, near the center line of the open lane, when he was struck by a north-bound automobile. Employee #1 suffered a dislocated hip and fractured leg. The cause of the accident was fatigue from working a double shift, which impaired employee #1's judgment as to the proximity of the danger zone.
- 5.2. Heat stress
- 5.3. Pre-existing health conditions that manifest themselves at work.
- 5.4. Ergonomics

## **6. Studies on alertness**

- 6.1. Rotating shift workers
- 6.2. get the least sleep of all people who shift work.
- 6.3. significantly lower cognitive performance
- 6.4. slower speed on tasks
- 6.5. poorer memory recall.
- 6.6. Effects of fatigue on employees include:
  - 6.6.1. Employee turnover
  - 6.6.2. Absenteeism
  - 6.6.3. Impaired decision making
  - 6.6.4. Worksite accidents
  - 6.6.5. Injuries to others
  - 6.6.6. Liability and lost productivity through errors and omissions- rework and damaged goods
  - 6.6.7. Healthcare quality
  - 6.6.8. Mental health: depression and anxiety.

## **7. Responsibility of Employees and Employers**

- 7.1. Employee responsibilities
  - 7.1.1. Report problems with fatigue and lack of mental acuity to supervision
  - 7.1.2. Recognize and report fatigue symptoms
  - 7.1.3. Help establish reporting systems
  - 7.1.4. Help assess fatigue risks
  - 7.1.5. Help design control measures
  - 7.1.6. Cooperate with control measures

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7.1.7. Help manage individual factors which affect fatigue e.g., ensuring adequate rest between shifts

7.2. Employer responsibilities

- 7.2.1. Must ensure that employees are informed about fatigue risks
- 7.2.2. Work tasks to control fatigue must be analyzed and evaluated periodically.
- 7.2.3. Inform employees how to participate in controlling risks
- 7.2.4. Identify risks associated with fatigue
- 7.2.4 Monitor system for fatigue hazard identification
- 7.2.5 Assess the fatigue risk
- 7.2.6 Develop control measures

**8. Assess fatigue risks**

- 8.1. Are too many consecutive night shifts worked?
- 8.2. Is more than 8 hours required over night shift?
- 8.3. Are difficult tasks undertaken on the night shift?
- 8.4. Do night shift workers have difficulty getting undisturbed sleep during the day?
- 8.5. Does one shift involve more than 12 hours in a day?
- 8.6. Do work hours exceed 50 hours in any 7 days?
- 8.7. Do unplanned schedules result from call-outs?
- 8.8. Is there enough time between shifts for adequate sleep?
- 8.9. Is the break between shifts less than 10 hours?
- 8.10. Are breaks between shifts long enough for rest, refreshment and nourishment?
- 8.11. Do shifts start or finish between midnight and 6 am?
- 8.12. Are there split shifts?
- 8.13. Are difficult tasks required at the start or end of split shifts?
- 8.14. Do workers get sufficient notice of schedule changes?
- 8.15. Is Fatigue Management taken into account on schedule changes?
- 8.16. Do jobs involve repetitive or monotonous work?
- 8.17. Is the work physically demanding?
- 8.18. Is there time pressure due to a heavy workload?
- 8.19. Is the work fast paced or intensive?
- 8.20. Can workers vary work pace or work tasks? Do workers have input on work design?
- 8.21. Is high vigilance or concentration required?
- 8.22. Is significant travel to and from work necessary each day so that time for adequate sleep is reduced?



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8.23. Are long distance commutes necessary at the beginning of a work cycle?

## 9. Tips for employees

### 9.1. Exercise

9.1.1. Provide exercise opportunities – especially toward end of shift

9.1.1.1. We know exercise should be avoided before falling asleep because it keeps us awake

9.1.1.2. Advice used to advantage

### 9.2. Breaks

9.2.1. Allow frequent, short breaks (at least every 2 hours) for rotating shift workers.

9.2.2. Chairs will be provided for workers to sit periodically, and will provide periodic rest breaks for personnel.

9.2.3. Brief rest periods

9.2.3.1. May reduce/control fatigue and increase mental fitness

9.2.3.2. Output actually not reduced

9.2.3.3. May increase output

9.2.3.4. Increases job satisfaction

### 9.3. Environment

9.3.1. Keep the workplace well-lighted and the temperature cool

9.3.2. Use anti fatigue mats for improved workstation conditions.

9.3.3. Use lift assist devices for repetitive lifting.

9.3.3.1. Shown to increase the alertness at work

### 9.4. The ride home

9.4.1. Much research available on drowsy driving

9.4.2. High risk for fatal crashes after night shift work

9.4.2.1. Cab rides

9.4.2.2. Reward car pooling

9.4.2.3. Other transportation services

### 9.5. Education of employees

9.5.1. Part of safety meetings

9.5.2. Handout for employees

9.5.3. Supervisor awareness

## 10. Minimizing Ergonomic Risk Factors

10.1. Ergonomics is the Science of designing the job to fit the worker, rather than physically forcing the workers body to fit the job. Adapting tasks, work situations, tools, and equipment to fit the worker can help reduce physical

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stress on the worker's body and eliminate many potentially serious, disabling work-related musculoskeletal disorders (MDS's).

- 10.1.1. Tools Should be Light-weight and handles designed to allow a relaxed grip, so wrists can remain straight.
- 10.1.2. Tools should be designed for the use with either hand and be of various sizes, so they are appropriate for all workers.
- 10.1.3. Tool handles should be shaped so that they contact the largest possible surface of the inner hand and fingers. Avoid tool handles with sharp edges and corners.
- 10.1.4. Use power tools to reduce the amount of human force and repetition required.
- 10.1.5. Purchase low vibration tools to reduce tool vibration.

## **11. Fatigue control measures**

- 11.1. Hierarchy of Controls:
  - 11.1.1. Engineering, Substitution, Elimination
  - 11.1.2. Work Practice-Administrative Controls
- 11.2. Scheduling Work Activity
  - 11.2.1. Scheduling Shifts
  - 11.2.2. Scheduling Breaks-Rest Periods
    - 11.2.2.1. Training
- 11.3. Engineering, Substitution, Elimination
  - 11.3.1. Eliminate or limit night work
  - 11.3.2. Eliminate night shifts for particular jobs
  - 11.3.3. Eliminate the use of extended hours
  - 11.3.4. Eliminate repetitive, boring jobs
  - 11.3.5. Increase outsourcing
  - 11.3.6. Use alarms and monitors for those working alone
  - 11.3.7. Use heating and cooling to control ambient temperatures to support alertness
- 11.4. Work practices: scheduling work activities
  - 11.4.1. Move as much activity as possible to day shift
  - 11.4.2. Schedule complex tasks for daytime
  - 11.4.3. Minimize administrative tasks done on night shifts
  - 11.4.4. Improve the order, speed, duration and the length of shift cycle rotation
  - 11.4.5. Minimize work that has to be done between midnight and 6 am.
- 11.5. Scheduling shifts

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- 11.5.1. Limit the number of consecutive night shifts
- 11.5.2. Ensure adequate time off after night shifts
- 11.5.3. Reduce working hours
- 11.5.4. Control the lengths of shifts
- 11.5.5. Limit the use of overtime, especially unscheduled overtime
- 11.5.6. Monitor hours of work
- 11.5.7. Reduce working hours
- 11.5.8. Reduce the number of consecutive day shifts
- 11.5.9. Limit the use of standby and on-call duties
- 11.5.10. Keep shift changes from causing excessive hours
- 11.5.11. Schedule enough employees during peak times and demands
- 11.5.12. Provide adequate resources to cover breaks
- 11.5.13. Reduce the use of split shifts
- 11.5.14. Don't start or finish between midnight and 6 am
- 11.6. Administrative: breaks and rest
  - 11.6.1. Allow time for naps during night shifts
  - 11.6.2. Increase the length of breaks between shifts
  - 11.6.3. EXERCISE – move around frequently during shift
  - 11.6.4. Allow for recovery between work periods
  - 11.6.5. Provide rest days
  - 11.6.6. Allow for family and social commitments between shifts and shift cycles
  - 11.6.7. Start work at long distance commutes on the day AFTER arrival and start travel home on the day AFTER the shift cycle is finished
  - 11.6.8. Provide more and longer breaks within work periods
- 11.7. Training
  - 11.7.1. Provide training to allow multi-tasking and effective job rotation
  - 11.7.2. Make supervisors aware and allow supervisors to reschedule tasks if fatigue becomes a problem
  - 11.7.3. Ensure safe and efficient shift hand-over
  - 11.7.4. Improve job control and other risk factors associated with stress
  - 11.7.5. Employee's off duty time & sleep habits
  - 11.7.6. Improve communications
  - 11.7.7. Training will be provided on initial hire and annually thereafter.

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**12. Employee awareness – responsibility**

- 12.1. Arrive to work fit for duty
  - 12.1.1. Do not use over the counter medications or caffeine to stay alert and awake, this dulls the senses
  - 12.1.2. Inform your supervisor if you are taking prescription medication which may dull the senses
  - 12.1.3. Employees should be discouraged from taking any substance known to increase fatigue, including any effects that set in after the drug has worn off
- 12.2. Get adequate rest during off duty hours
- 12.3. Be aware of fatigue while driving home from your shift, as drowsy driving may cause an accident

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Applicable OSHA Standards: 29 CFR 1926.24, .150-.155

## 1. Purpose & Scope

- 1.1. The purpose of this Cleveland Integrity Services policy is to outline prevention and protective measures which are taken to ensure protection of personnel, property, and the environment from a fire incident.
- 1.2. This program applies to all company-controlled worksites where an employee or a subcontract worker may be occupationally exposed to fire hazards.

## 2. Fire Prevention

- 2.1. Electrical wiring and equipment for light, heat or power purposes must be installed in accordance with the national electric code. The proper type and size of fuses is used at all times. All equipment and portable tools are grounded. Explosion proof fixtures are required in hazardous classified locations.
- 2.2. Housekeeping -- trash is removed daily from the work areas and from the work site. Use trash drums to reduce extra handling. Put rags in closed containers. Rags used for solvent cleaning should be kept in a closed metal container until properly disposed of.
- 2.3. Paper and other combustible materials are not allowed to accumulate. Weeds or other rank vegetation are controlled in or around meter stations, pipe yard, buildings, storage tanks and other structures.
- 2.4. Compressed Gas Cylinder -- Separate the full cylinders from "empty" cylinders in storage. Keep oxygen cylinders separate from fuel cylinders by 20 feet, or by a fire resistant barrier. Tie cylinders in a vertical position. Keep oil and grease away from oxygen valves. Turn cylinders off when not in use. Protect cylinders from excess heat (sun, open flame, equipment exhausts, sparks slag, etc.) No cylinder storage inside buildings.
- 2.5. Gasoline and Diesel Pumps -- Service station type pumps require physical barriers to prevent damage to the pumps. "No Smoking or Open Flame" signs are also necessary. Dispensing nozzles will be of an approved type.
- 2.6. Internal Combustion Engines -- Turn off engine before refueling, and allow a minimum of fifteen (15) minutes for engine to cool off. Insulate exhaust stacks near combustible material. Keeps exhaust discharge away from flammable liquids (particularly truck exhausts).
- 2.7. Material Storage -- Storage areas containing combustible material (lumber, etc.), or non-combustible material in combustible containers (metal parts in wooden boxes) need to be separated from other material by at least 20 feet on all sides to help prevent the spread of fire and to allow fire equipment access. A single storage area cannot be

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larger than 50 by 150 feet. All weeds, dead grass, and combustible trash need to be kept out of the storage areas and out of access ways.

- 2.8. Combustible material such as oil-soaked rags, and waste and shavings are kept in approved metal containers with metal lids.
- 2.9. No Smoking or Open Flame Areas and Signs -- Areas where flammable liquids are stored or dispensed are clearly identified. "NO SMOKING OR OPEN FLAME" signs are posted no more than 25 feet away from the hazard. Areas containing large quantities of combustible materials are identified and marked with the same signs. Metal cigarette butt cans are used to help prevent careless disposal of smoking materials.
- 2.10. Open Flames -- Welding torches, matches, heaters, and other open flames have caused many unnecessary fires. Check the area for possible hazards before lighting up.
- 2.11. Sparks and Slag -- To avoid a fire, move flammable or combustible materials before starting to weld or burn. If material cannot be moved, cover it with fire retardant material.
- 2.12. Tarps and Plastic Coverings -- Tarps must be fire retardant. Plastic sheets are flame resistant if they are to be used with flame or high heat operations. Tie tarps and plastic securely so they cannot blow loose.
- 2.13. Temporary Heating Devices -- When temporary combustion type heating devices are used, adequate fresh air will be available. They will not be set directly on wood floors or other combustible materials, unless designed for that purpose and should be located at least 10 feet from the vicinity of combustible tarpaulins, canvas and other plastic coverings. They will be set horizontally and level, unless otherwise permitted by manufacturer's markings, and will be securely placed to prevent overturning and spillage of fuel. Propane heating units will have automatic fuel shut-off valves. Oil salamanders will be cool before being refilled or moved. All heaters will have good clearance or non-combustible insulation on all sides, top and bottom.
- 2.14. A temporary building will not be erected where it will adversely affect any means of exit.
- 2.15. There is no open burning of trash allowed at a work location or Company premises.
- 2.16. No combustible material is stored within 10 feet of a building or structure.
- 2.17. Roadways and access to storage areas is maintained to accommodate the widest vehicle that may be used for fire fighting purposes.
- 2.18. Material will not be stored within 36 inches of a fire door opening.

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- 2.19. Persons working in and around compressor stations, regulator stations, vaults, battery rooms, excavations, and other enclosed areas where there is a possibility of gas or vapor leakage are required to leave matches, lighters and smoking material in the car, truck, or in some remote area in which they are working.
- 2.20. Natural gas or other flammable gases will not be used to operate paint sprayers, impact tools, drills or sandblasting equipment.
- 2.21. A safe atmosphere will be confirmed by monitoring prior to working in restricted or hazardous areas where equipment is capable of creating sufficient heat to cause the ignition of combustible materials or gases.

### **3. Flammable And Combustible Liquid Storage**

- 3.1. Only approved containers and portable tanks will be used for storage and handling.
- 3.2. Flammable Liquids - All - Liquids with a flash point below 140 degrees F are referred to as "flammable liquids." Store in original containers until needed. All tanks, drums, containers, cans and cabinets are to be electrically grounded and labeled with the name of the material. Do not mix contents and labels. Handle small quantities (5 gallon maximum) in "safety cans." Two main features of a safety can are a spring-loaded cap and a flame arrester.
- 3.3. Flammable or Combustible Liquids are not stored in areas used for exits, stairways, or normally used for the safe passage of personnel.

### **4. Indoor Storage Of Flammable And Combustible Liquids**

- 4.1. Flammable liquids such as gasoline, naphtha, lacquer thinner, etc., are limited to five gallons in approved properly labeled containers except in buildings approved for their storage, or in an approved flammable liquid storage cabinet that is labeled "Flammable - Keep Fire Away."
- 4.2. No more than 60 gallons of flammable or 120 gallons of combustible liquids may be stored inside of a single storage cabinet inside a building. No more than 3 storage cabinets are allowed in a single building when containing the maximum amount allowed.
- 4.3. Quantities of flammable or combustible liquids stored inside a building which exceed the amount of three storage cabinets must be stored in an approved storage room which meets the applicable requirements of The National Fire Protection Association. An aisle space of three feet wide is maintained at all times in inside storage rooms.
- 4.4. Materials which react with water are not stored in the same location as flammable or combustible liquids. A separate storage area is provided for water reactive materials and they are conspicuously marked as such.

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- 4.5. Electrical wiring and equipment located in inside flammable and combustible liquid storage rooms is approved for hazardous locations.

## **5. Storage Of Flammable And Combustible Liquids Outside Of Buildings**

- 5.1. No more than 1,100 gallons of flammable or combustible liquids are stored in any one outside storage area unless separated by a minimum aisle space of 5 feet. Groups of containers are not nearer than 20 feet to a building. Each container or outside storage area must be accessible by a 12 foot wide access for a maximum distance of 200 feet. At least one portable fire extinguisher having a rating of not less than 20-B units is located not less than 25 feet, nor more than 75 feet, from any flammable liquid storage area located outside.

## **6. Handling Flammable And Combustible Liquids**

- 6.1. Dispensing of flammable or combustible liquids from one container to another are separated from other operations by a distance of not less than 25 feet.
- 6.2. When pouring or pumping flammable liquids such as gasoline, methanol, etc., from one container to another, metallic contact is maintained or an electrical bonding jumper connected between the containers.
- 6.3. Approved self-closing valves are used for dispensing of flammable or combustible liquids.
- 6.4. Flammable or combustible liquids are drawn or transferred by either gravity or pump only. Never transfer by means of air pressure on the container or portable tank.
- 6.5. Flammable liquids are kept in closed containers when not actually in use.
- 6.6. Precautions are taken to eliminate leakage or spillage of flammable and combustible liquids where necessary such as the use of funnels.
- 6.7. Leakage or spillage from flammable and combustible liquids must be promptly cleaned up and properly disposed of.
- 6.8. Flammable liquids are used only where there are no open flames or other sources of ignition within 50 feet of the operation, unless conditions warrant greater clearance.

## **7. Training**

- 7.1. Where Cleveland Integrity Services has provided portable fire extinguishers for employees use in the workplace, training is provided to educate and familiarize employees with the general principles of fire extinguisher use, the hazards involved in incipient stage fire fighting, and general safe use of the extinguisher.
- 7.2. Work environments, classified as hot work, sometimes require the use of a trained fire watch. Whenever personnel are assigned as fire watch they are properly trained. Fire



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watches are to be at the site prior to beginning hot work and thirty minutes after hot work is complete.

- 7.3. Fire extinguisher training is conducted when the employee is initially assigned and at least annually thereafter.

## **8. Fire Extinguishers -- Mounting And Access**

- 8.1. Fire protection equipment is properly located at all times and not obstructed or obscured from view. In large rooms and in some locations, signs will be conspicuously posted to show the location of such equipment. Also, proper fire extinguishers are located on company trucks, vans, and on other specific types of equipment if necessary.
- 8.2. Portable fire extinguishers shall be provided for employee use and selected and distributed based on the classes of anticipated workplace fires and on the size and degree of hazard which would affect their use.
- 8.3. Extinguishers are not to be left on the floor, or a scaffold, or on the ground. They are to be mounted on a wall, handrail, barricade, etc.
- 8.4. Extinguishers that have a total weight of more than 40 pounds are mounted with the top of the extinguisher no more than 42 inches above the floor. Extinguishers weighing 40 pounds or less may be mounted with the top as high as 5 feet above the floor. (Mounting all extinguishers at the 42 inch height is a good habit.)
- 8.5. Extinguishers are located where they can be easily seen. In cases where this is not practical, signs or red paint marking, need to be added to identify the location of the extinguisher.
- 8.6. Trash and stored material are kept away from extinguishers to prevent blockage of the access to the extinguisher.

## **9. Fire Extinguishers -- Inspection And Testing**

- 9.1. Cleveland Integrity Services ensures that portable fire extinguishers are visually inspected at least monthly and inspected annually as part of a thorough maintenance check of the integrity of the device.
- 9.2. Portable fire extinguishers are given an annual maintenance check to ensure integrity of the device. Stored pressure extinguishers do not require an internal examination. A written record is made of the annual maintenance date. This record is retained for one year after the last entry or the life of the shell, whichever is less. The record is available to the Assistant Secretary upon request.

9.3. Monthly Inspections

9.3.1. Every fire extinguisher is visually inspected at least once a month. The inspection is to include:

- 9.3.1.1. Proper location
- 9.3.1.2. Fully charged
- 9.3.1.3. Seal wire not broken
- 9.3.1.4. Free of any obvious defects or damage
- 9.3.1.5. Inspection tag is current

9.3.2. Annual inspections:

9.3.2.1. A through examination of each extinguisher is conducted annually by an individual trained to examine, repair, and recharge extinguishers. An inspection tag is then attached to each extinguisher showing the date of the annual examination, the date of the recharge, and the initials of the individual making the examination.

9.4. Hydrostatic Tests:

9.4.1. Hydrostatic testing of fire extinguishers used in the Company workplace is performed by qualified service personnel in accordance with Table L-1 in 1910.157(f)(2), as shown below.

Soda acid (stainless steel shell)	5
Cartridge operated water and/or antifreeze	5
Stored pressure water and/or antifreeze	5
Wetting agent	5
Foam (stainless steel shell)	5
Aqueous Film Forming foam (AFFF)	5
Loaded stream	5
Dry chemical with stainless steel	5
Carbon Dioxide	5
Dry chemical, stored pressure, with mild steel, brazed brass or aluminum shells	12
Dry chemical, cartridge or cylinder operated, with mild steel shells	12
Halon 1211	12
Halon 1301	12
Dry powder, cartridge or cylinder operated with mild steel shells	12

9.4.2. Stored pressure dry chemical fire extinguishers that require a 12-year hydrostatic test are emptied and subjected to applicable maintenance procedures every 6 years. Dry chemical extinguishers that have non-refillable disposable containers are exempt from this requirement.

9.4.3. When recharging or hydrostatic testing is performed, the 6-year requirement begins from that date.

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## 10. **EMERGENCY ACTION PLAN**

- 10.1. Company locations have written emergency action plans to cover employees to ensure safety from fire and other emergencies. These plans include the following:
  - 10.1.1. Emergency escape procedures and emergency route assignments.
  - 10.1.2. Procedures to be followed by employees who remain to operate critical operations before they evacuate.
  - 10.1.3. Procedures to account for all employees after emergency evacuation has been completed.
  - 10.1.4. Rescue and medical duties for those employees who are to perform them.
  - 10.1.5. The preferred means of reporting fires and other emergencies.
  - 10.1.6. Names or regular job titles of persons who can be contacted for further information or explanation of duties.
- 10.2. Employees are trained initially in the fire prevention and emergency plans.
- 10.3. As required, the plans are incorporated with the Company's or host employer's DOT Pipeline Emergency Plan and the Annual Review.

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Applicable OSHA Standard: 29 CFR 1926.50 Medical services and first aid

## 1. Purpose & Scope

- 1.1. Personal injury is not uncommon in the plant and pipeline services workplace. These injuries are usually minor cuts or burns but can be as severe as acute effects of chemical exposure or incidents such as heart attacks or strokes.
- 1.2. This written plan and policy, along with accompanying materials, are utilized by Site Supervisors and Company employees to ensure that medical services and first aid are available at each work location.
- 1.3. This policy applies to all employees and subcontractors at work locations that are controlled by Cleveland Integrity Services.

## 2. General Requirements

- 2.1. The Company ensures the availability of medical personnel for advice and consultation on matters of occupational health.
- 2.2. Provisions are made prior to commencement of the project for prompt medical attention in case of serious injury.
- 2.3. In the absence of medical care that is within 3–4 minutes of the worksite, a person who has a valid certificate in first aid training from the U.S. Bureau of Mines, the American Red Cross, or equivalent training that can be verified by documentary evidence, is available at the worksite to render first aid.
- 2.4. First aid supplies are easily accessible and readily available, when required.
- 2.5. The contents of the first aid kit are placed in a weatherproof container with individual sealed packages for each type of item, and are checked by the Company Safety Representative before being sent out on each job, and at least weekly on each job by the Site Supervisor to ensure that the expended items are replaced.
- 2.6. An example of the minimal contents of a generic first aid kit is described in American National Standard (ANSI) Z308.1-1978 "Minimum Requirements for Industrial Unit-Type First-aid Kits." The contents of the kit listed in the ANSI standard should be adequate for small worksites. When larger operations or multiple operations are being conducted at the same location, employers will determine the need for additional first aid kits at the worksite, additional types of first aid equipment and supplies and additional quantities and types of supplies and equipment in the first aid kits. For purposes of this program, the Company provides a first aid kit or station at the workplace that is in accordance with ANSI standards.
- 2.7. Work locations may have unique or changing first aid needs and may need to enhance the first aid kits maintained at these locations.

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- 2.8. In areas where 911 is not available, the telephone numbers of the physicians, hospitals, or ambulances are conspicuously posted by the Site Supervisor. See Emergency Phone List form at Appendix 1 of this section.
- 2.9. Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body is provided within the work area for immediate emergency use. Quick drenching may be accomplished by use of portable eyewash and body wash stations, or stations designed for this purpose that are plumbed into an appropriate water supply.

### **3. First Aid & Emergency Medical Response**

- 3.1. Proper equipment for prompt transportation of the injured person to a physician or hospital, or a communication system for contacting necessary ambulance service, are provided. The Site Supervisor is responsible for confirming the availability of emergency medical services assistance should they be needed, and confirming that arrangements are in place for transporting injured persons to a physician or hospital.
- 3.2. In most situations, communication to obtain emergency medical assistance is provided by land-line telephone, cellular telephone or two-way radio. The Site Supervisor ensures that such communications capabilities are available at the jobsite prior to commencing work.
- 3.3. The initial responsibility for first aid rests with the first person(s) at the scene, who should react quickly but in a calm and reassuring manner.
- 3.4. The person assuming responsibility should immediately summon medical help (be explicit in reporting suspected types of injury or illness, location of victim, and type of assistance required).
- 3.5. Send people to meet the emergency medical services (EMS) personnel at highway intersections, entrance roadways or as needed to help direct them to scene. The injured person should not be moved except where necessary to prevent further injury.
- 3.6. The names of persons on the jobsite who are trained in CPR and first aid should be posted by the telephone or other communications method when possible, or posted in a prominent place.
- 3.7. The number to call for medical emergencies (911) is also posted by your telephone.
- 3.8. All first aid, chemical exposures and medical emergencies are reported to the Site Supervisor so that immediate response can be made and proper accident reporting procedures followed.

### **4. General First Aid for Minor Injuries**

- 4.1. For purposes of this policy, general first aid is defined as any one-time treatment and any follow up visit for the purpose of observation, treatment of minor scratches, cuts, burns, splinters, and so forth, which do not ordinarily require medical care.

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- 4.2. Minor injuries should be initially treated with self-administered first aid unless assistance of another person is required. This limits the exposure of other persons to potential pathogens in the blood, body fluids and tissues of the injured person.
- 4.3. Minor injuries requiring general first aid are always reported to a supervisor and recorded on the First Aid Report form maintained at each work location at the first aid station. This is important because a minor injury may indicate a hazardous situation that should be corrected to prevent a serious future injury. It is also important to document a minor injury as having been "work related" if the injury later leads to serious complications, such as from an infected cut.

## 5. Personal Protection During First Aid

- 5.1. OSHA requires adherence to "Universal Precautions" when employees respond to emergencies which provide potential exposure to blood and other potentially infectious materials. "Universal Precautions" stresses that all patients should be assumed to be infectious for HIV and other bloodborne pathogens. NOTE: See the Company's written safety program on *Bloodborne Pathogens*.
- 5.2. Persons responding to a medical emergency are protected from exposure to blood and other potentially infectious materials. Protection can be achieved through adherence to work practices designed to minimize or eliminate exposure and through the use of personal protective equipment (i.e., gloves, masks, and protective clothing), which provide a barrier between the worker and the exposure source.
- 5.3. For most situations in which first aid is given, the following guidelines are adequate:
  - 5.3.1. For bleeding control with minimal bleeding and for handling and cleaning instruments with microbial contamination, disposable gloves alone should be sufficient.
  - 5.3.2. For bleeding control with spurting blood, disposable gloves, a gown, a mask, and protective eye wear are recommended.
  - 5.3.3. For measuring temperature or measuring blood pressure, no protection is required.
- 5.4. After emergency care has been administered, hands and other skin surfaces should be washed immediately and thoroughly with warm water and soap if contaminated with blood, other body fluids to which universal precautions apply, or potentially contaminated articles. Hands should always be washed after gloves are removed, even if the gloves appear to be intact.

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## 6. Requirement to Report Work-Related Injuries & Illnesses

- 6.1. All work-related injuries and illnesses are reported and treated as soon as possible after occurrence.
- 6.2. If a Company employee becomes injured or ill due to a work-related injury or illness and is in need of immediate medical assistance, this will be reported to the Site Supervisor.
- 6.3. Failure to report minor injuries or to receive medical treatment may result in serious infections or complications to the health of the employee.
- 6.4. A First Aid Station is located at each work location and jobsite. Each First Aid Station is stocked with basic supplies specified in the inventory on the next page. Each First Aid Station also contains First Aid Report forms.
- 6.5. When first aid is rendered, the supervisor will note treatment on the First Aid Report form. In the event the employee refuses first aid and/or examination by a doctor, this is noted in the First Aid Report.

**IMPORTANT:** If an employee declines first aid and/or medical treatment for a reported on-the-job injury after the Site Supervisor recommends it, the employee will NOT be allowed to continue work. Site Supervisors will discuss each such situation with the Company Safety Representative or the Personnel Department BEFORE allowing the employee to return to duty.

- 6.6. The Site Supervisor or someone designated by the Site Supervisor is responsible for checking and maintaining the First Aid Station(s) at the work location.

This person takes a regular inventory of supplies and make sure that the station or kit remains adequately stocked. The following first aid supplies checklist are used as a guide to ensure proper stocking of the station.

## 7. First Aid Supplies

- 7.1. Workplaces vary widely in their degree of hazard, location, size, amount of staff training and availability of professional medical service. Because of these significant variables, OSHA standards (1910.151 and 1926.50) do not require specific first aid kit contents.

However, because some employers may find it useful to refer to a list of basic first aid supplies, federal OSHA provided a reference to this type of information by adding non-mandatory Appendix A to the standard. Appendix A references ANSI Z308.1-1 978, "Minimum Requirements for Industrial Unit-Type First-aid Kits." This ANSI standard was revised in 1998 and re-titled: "Minimum Requirements for Workplace First Aid Kits."

First aid kits in compliance with this standard provide a basic range of products to deal with most types of injuries encountered in the workplace.

The assortment of required items was developed based on treatment for the following potential injuries: major wounds, minor wounds (cuts and abrasions), minor burns and eye injuries.

ANSI Z308.1-1 998 includes the following recommended basic contents of a first aid kit.

<b>ANSI Z308.1 -1998 – Minimum Requirements for Workplace First Aid Kits</b>	
<b>Basic kit – minimum contents</b> NOTE: * means recommended but not required	
Item	Minimum quantity
Absorbent compress, 32 sq. in. (81.3 sq. cm.) with no side smaller than 4 in. (10 cm.)	1
Adhesive bandages, 1 in. x 3 in. (2.5 cm. x 7.5 cm.)	16
Adhesive tape, 5 yd. (457.2 cm.) total	1
Antiseptic, 0.5g (0.14 fl. oz.) applications	10
Burn treatment, 0.5g (0.14 fl. oz.) applications	6
Medical exam gloves	2 pair
Sterile pads, 3 in. x 3 in. (7.5 x 7.5 cm.)	4
Triangular bandage, 40 in. x 40 in. x 56 in. (101 cm. x 101 cm. x 142 cm.)	1
Protective Rubber Gloves (Surgical Type) as PPE barrier against bloodborne pathogens*	2 pair *
Protective CPR Mask w/One-Way Valve*	1 each *
<b>Optional contents</b>	
Optional items and sizes should be added to the basic contents listed above to augment a first aid kit, based on the specific hazards existing in a particular work environment.	
Optional items addressed in ANSI Z308.1-1 998 (listed below) must meet the minimum requirements of Section 5.3 of that standard. Items not addressed by the ANSI standard must comply with standards or regulations, where applicable, established by the U.S. Food and Drug Administration (FDA), the current edition of the U.S. Pharmacopoeia/National Formulary (USP/NF) or other standards-writing body.	



Bandage compress –	2 in. x 2 in.	4
Bandage compress –	3 in. x 3 in.	2
Bandage compress –	4 in. x 4 in.	1
Eye covering with means of attachment		1
Eye wash –	1 fl. oz. (30 ml)	1
Cold pack –	4 in. x 5 in.	1
Roller bandage –	2 in. (5 cm)	2
Roller bandage –	4 in. (10 cm)	1

## 8. Heat-Related Illnesses

- 8.1. Heat is a serious hazard outdoors in hot weather and indoors when the work exposes personnel to unusually hot temperatures and high humidity. A person's body builds up heat when at work, and sweats to get rid of extra heat.
- 8.2. But there are times when this cannot happen as it should – for example outdoors in the summer, on a humid day and without shade in an area where heat radiates from the surroundings. This may be a time when the body simply cannot cool off fast enough.
- 8.3. Too much heat can make a person tired, hurt job performance, and increase the chance of injury. Overheating can cause skin rash on the minor side, and progress into a range of conditions that can be life-threatening. Effects of physical overheating include:
  - 8.3.1. Dehydration. When the body loses water, a person cannot cool off fast enough, but will feel thirsty and weak.
  - 8.3.2. Cramps. The heat can cause muscle cramps, even after a person leaves work.
  - 8.3.3. Heat exhaustion. The victim feels tired, nauseous, headachy, and giddy (dizzy and silly). The skin is damp and looks ruddy or flushed. Fainting may occur.
  - 8.3.4. Heat stroke. This is a life-threatening condition. The victim may have hot, dry skin and a high temperature. The skin dryness is because the body's ability to sweat is compromised or has shut down. Victims may feel confused, suffer convulsions or lose consciousness. Heat stroke can kill quickly and emergency medical assistance is urgently needed.

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- 8.4. A person's risk of developing heat stress depends on several factors. These include physical condition, the weather (temperature AND humidity), clothing worn, quickness of movement and how much physical demand is being placed on the body (lifting, heavy work), if there is air circulation over the body, whether the person is in direct sunlight, and whether they are taking medication. Evaluation of workplace conditions using the Wet-Bulb Globe Temperature Index is one precise way to estimate the risk of heat stress.
- 8.5. Types of Heat Sickness (in a progressing order of seriousness)
- 8.5.1. HEAT RASH is recognized by tiny, red, blister-like eruptions on the skin and by a prickly, itchy, burning sensation. First Aid: Bathe skin to prevent infection and put on dry clothes.
- 8.5.2. SUNBURN is caused by the exposure of unprotected skin to ultraviolet light. Symptoms of first degree sunburn are red, painful skin. Second degree sunburn causes blistering and/or peeling. First Aid: Skin lotions, topical anesthetics and staying in a shaded area.
- 8.5.3. HEAT CRAMPS bring painful muscle spasms. First Aid: Water and/or electrolyte replacement beverage. Get medical assistance.
- 8.5.4. HEAT EXHAUSTION results from loss of too much water or salt from the body. It causes cool, moist skin, obvious sweating and rapid pulse (more than 150 beats per minute). It may or may not cause fever. First Aid: Water and/or electrolyte replacement beverage.
- 8.5.5. HEAT STROKE (thermoregulatory failure) is characterized by hot, dry skin, a flushed face, body temperature of 105 degrees F (40.6" C) or higher, rapid pulse and brain disorders such as headaches, confusion, delirium or unconsciousness. Usually, there is an absence of sweating because the body's "cooling system" has shut down. There may also be difficulty breathing, constricted pupils, high blood pressure, strange behavior, weakness, nausea or vomiting. First Aid: This is a potentially LIFE-THREATENING condition. The victim must be removed from the heat source and the body temperature lowered as quickly as possible. Immerse in water (garden hose, shower, bath tub) or cover and massage the body with wet cool soaked towels or sheets. DO NOT give liquids to an unconscious person. Call for emergency medical assistance immediately.
- 8.6. Protective Measure To Avoid Heat Stress
- 8.6.1. These are tips that employees of Cleveland Integrity Services are given toward preventing heat-related illness:
- 8.6.1.1. Drink a lot of cool water all day before you feel thirsty. Every 15 minutes, you may need a cup of water (5 to 7 ounces).
- 8.6.1.2. Keep taking rest breaks. Rest in a cool, shady spot. Use fans.
- 8.6.1.3. Wear light-colored clothing, made of cotton.

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8.6.1.4. Do the heaviest work in the coolest time of the day.

8.6.1.5. Work in the shade.

8.6.1.6. For heavy work in hot areas, take turns with other workers, so some can rest.

8.6.1.7. If you travel to a warm area for a new job, you need time for your body to get used to the heat. Be extra careful the first two weeks on the job.

8.6.1.8. If you work in protective clothing, you need more rest breaks. You may also need to check your temperature and heart rate.

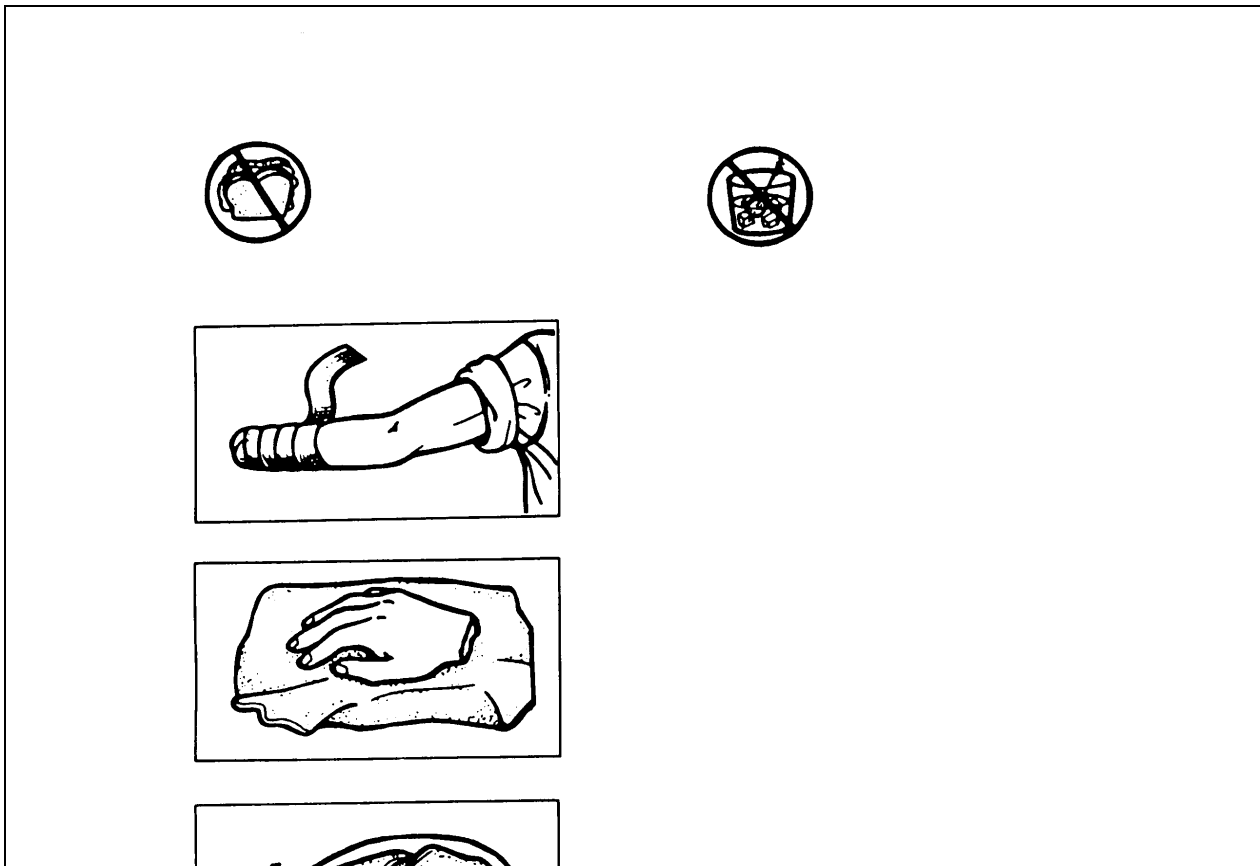
8.7. OSHA does not have a special rule for heat, but because heat stress is known as a serious hazard, workers are protected under the General Duty Clause of the Occupational Safety and Health Act.

The clause says "employers must provide employment free from recognized hazards causing or likely to cause physical harm."

## 9. Administrative And Work Practice Controls

9.1. Heat stress often can be reduced by rescheduling work. Sometimes, strenuous tasks are postponed until a cooler time of day or a cooler season. Heavy jobs are spread out over longer periods of time, allowing employees to pace themselves appropriately and to take work breaks as needed.

9.2. Employees are trained in the causes, symptoms, treatment and prevention of heat stress.



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**Emergency Procedure for a Severed Body Part** Call 9-1-1 for Emergency Medical Service immediately. Transport the Patient and the severed part to the health care facility as quickly as possible.

Keep the Patient from eating and drinking in case he is later placed under anesthesia.

Do not allow the Patient to drink alcohol to "deaden" the pain.

**DRESSING THE REMAINING PART OF THE LIMB.** Wrap the end of the limb in a compressive dressing so bleeding is stopped. Do not wrap it so tightly that blood flow is cut off to healthy tissue.

**CARING FOR THE SEVERED PART.** Wrap the severed part in a terrycloth towel, paper towel or piece of gauze.

**PLACE THE SEVERED PART** in a clean plastic bag or plastic container and seal it so that it is waterproof. Store plastic bag on ice.

**WHEN A LIMB OR DIGIT IS PARTIALLY SEVERED.** Wrap the injury with a compressive dressing tightly enough to stop blood flow.

**SPLINT THE INJURED AREA** by wrapping it securely to a piece of rigid material. Splints should only be used if you need to move a patient.

APPENDIX 1

## **Emergency Phone List**

<b>CALLING FROM</b>
<b>FIRE</b>
<b>POLICE</b>
<b>AMBULANCE</b>
<b>DOCTOR</b>
<b>HOSPITAL</b>
<b>COMPANY SAFETY COORDINATOR</b>
<b>HELICOPTER AMBULANCE</b>

<b>General Safety</b>	<b>Page 1</b>
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## 1. Purpose

- 1.1. This policy specifies general safety rules of the Company which are followed when working at all jobsites and assigned locations.
- 1.2. These basic safe work procedures are intended as a foundation upon which site-specific safety planning and programs will be developed, including safety plans addressing special or non-routine hazards.

## 2. Scope

- 2.1. This policy applies to all Employees and subcontractors working for Cleveland Integrity Services.

## 3. Safety Rules

- 3.1. All Company and subcontractor Employees are expected to comply with all specific safety instructions, posted signs, instructions given by the Site Supervisor and all rules listed in this program.
- 3.2. No Company Employee or subcontract worker works in surroundings or under working conditions that are unsafe, unsanitary, hazardous or dangerous to his or her health.
- 3.3. The Company conducts frequent and regular inspections of job sites and work locations, equipment, materials and the work environment to help confirm that the workplace is safe and does not endanger the health of Company Employees and subcontract personnel. Such inspections are performed by competent persons specifically designated by the Company.
- 3.4. The Company trains each Employee prior to assignment in how to recognize hazards and avoid unsafe conditions that are anticipated for the type or work or workplace environment. Training includes how to control or eliminate any hazards or other exposure to illness or injury.
- 3.5. Use a common-sense approach to any potentially hazardous job. Any questions or comments concerning safety practices or specific unsafe conditions are to be directed to the Site Supervisor. If conditions arise which make it unsafe to proceed with your assigned job, stop and immediately notify the Site Supervisor.
- 3.6. Know the location of fire extinguishers, safety showers, eye wash stations and other safety equipment in your work area. Check this equipment before you start work to ensure it is ready for use.
- 3.7. All at-work injuries and illnesses are promptly treated with first aid or medical assistance as required and reported to the Site Supervisor as soon as possible, and no later than by the end of the work shift. Failure to take appropriate first aid action; or to seek medical assistance as required for an on-the-job injury or illness; or to report

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an on-the-job injury or illness to the Site Superintendent as required, may lead to disciplinary action up to and including termination.

- 3.8. Employees and subcontractor personnel wear appropriate clothing and utilize all personal protective equipment that is required for the job, task or work assignment. Specific clothing and any additional PPE will be detailed in the site-specific work plan.
- 3.9. Hair worn below the collar is not recommended. Employees engaged in maintenance or construction work contain long hair under the hard hat in such a manner as not to interfere with the intended design of the suspension system and cannot be allowed to fall free when the hat is removed.
- 3.10. Only employees who have been trained by the Company about respiratory protection in accordance with the Company's written *Respiratory Protection Program* are allowed to wear a respirator while on the job.
- 3.11. Equipment, machinery or powered tools are operated only by individuals who have been trained and authorized by the Company as qualified to perform this work safely.
- 3.12. The use of any machinery, tool, material, or equipment which is not in compliance with any applicable requirement of this part is prohibited. Such machine, tool, material, or equipment shall either be identified as unsafe by tagging or locking the controls to render them inoperable or shall be physically removed from its place of operation.
- 3.13. Clean up your work area immediately after work is completed. No job is complete until the area is clear of parts, tools, spilled product and other debris.
- 3.14. Smoke only in designated smoking areas.
- 3.15. Compressed gas or air are not used to dust off hands, face, hair or clothing.
- 3.16. Water coolers are used for cooling and storing drinking water only.

### 3. **Employee Conduct**

- 3.1. Employees of Cleveland Integrity Services found engaging in unsafe acts are subject to reprimand or other disciplinary action, up and including termination.
- 3.2. Unsafe acts specifically include, but are not restricted to, the following:
  - 3.2.1. Being under the influence of intoxicating drink or illegal drugs or the possession of either on the jobsite;
  - 3.2.2. Possessing a firearm or ammunition on the jobsite;
  - 3.2.3. Fighting, horseplay or other disruptive actions;
  - 3.2.4. Willful or habitual violation of safety rules;

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- 3.2.5. Altering or bypassing safety devices, personal protective equipment or safety alarms;
- 3.2.6. Attempting to use equipment, tools, machines, vehicles or facilities that have been locked out and/or tagged out, or otherwise removed from service, unless you are the Company-authorized individual who placed the LOTO or out-of-service notice;
- 3.2.7. The use of safety equipment, tools, machines or chemicals for purposes other than their intended use;
- 3.2.8. Operating equipment, tools, machines, motor vehicles or mobile equipment without the required Company safety training and authorization; and
- 3.2.9. Operating equipment, tools, machines, motor vehicles or mobile equipment in a reckless or careless manner.



<b>General Waste Management</b>	<b>Page 1</b>
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## 1. **Scope of program**

- 1.1. Cleveland Integrity Services has established this General Waste Management program with regard to the following types of operations:
  - 1.1.1. Estimation of the amount and type of waste that will be produced on each job site prior to work;
  - 1.1.2. Coordination with project or site owner on disposal of waste;
  - 1.1.3. Assignment of responsibilities for proper waste disposal;
  - 1.1.4. Safe work practices;
  - 1.1.5. Classification of waste;
  - 1.1.6. Training

## 2. **Estimation of waste**

- 2.1. During the bid process Cleveland Integrity Services will consider production wastes, trash, scraps, solid waste, and non-hazardous and estimate the amount of waste that is to be generated so that available containers can be obtained for proper disposal.
- 2.2. Cleveland Integrity Services will coordinate with the project or site owner to determine if the waste can be disposed of onsite and containers are available.
- 2.3. Off-site waste disposal will be coordinated with project or site management to obtain proper permits for removal.
- 2.4. The responsibility of waste removal will be assigned to an employee of IMI Industrial Services, who will be on the jobsite for the duration of the work.
- 2.5. Training must be conducted for all employees who will be handling waste materials.
- 2.6. Employees must handle waste, scrap, and leftover materials properly according to procedures.
- 2.7. Containers for the waste will be made of a leak proof material with covers to prevent the accidental runoff from rain water and contamination of the environment.
- 2.8. Waste will be classified and separated by like materials for recycling. Metal, wood, general refuse and oily materials will be separated as according to the project or site management plan that is in place. All waste must be segregated.
- 2.9. Project related waste will be stored and maintained in an orderly fashion. Metal refuse will be stored in a way that sharp edges shall be guarded against accidental contact with employees.

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- 2.10. Employees of Cleveland Integrity Services will be instructed on the proper disposal method of waste. General instruction on disposal of non-hazardous waste, trash, or scrap metals. Employees must be informed of specific waste management procedures for each job. If waste is classified as hazardous then additional training is required.
  
- 2.11. Personal protective equipment such as leather gloves will be worn for protection.

<b>Ground Fault Protection (GFCI)</b>	<b>Page 1</b>
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Applicable OSHA Standards: 29 CFR 1926.404

## 1. Purpose & Scope

- 1.1. To establish methods, guidelines and responsibilities to protect Cleveland Integrity Services employees from electrical exposure while at a work location.
- 1.2. This program applies to all employees and subcontractors working within Company controlled job sites. This assured equipment grounding conductor program covers all cord sets, receptacles which are not a part of the building or structure, and equipment connected by cord and plug which are available for use or used by employees at a work location.

## 2. Introduction

- 2.1. All 120-volt, single-phase 15- and 20-ampere receptacle outlets on construction sites, which are not a part of the permanent wiring of the building or structure and which are in use by employees, will have approved ground-fault circuit interrupters for personnel protection. Receptacles on a two-wire, single-phase portable or vehicle-mounted generator rated not more than 5kV, where the circuit conductors of the generator are insulated from the generator frame and all other grounded surfaces, need not be protected with ground-fault circuit interrupters.

## 3. General Requirements

- 3.1. Employees who are exposed to electrical hazards at a work location will use either ground fault circuit interrupters or assured equipment grounding conductor program to protect them from these hazards. These requirements are in addition to any other specific requirements for equipment grounding conductors.
- 3.2. The Company has established and implemented an assured grounding conductor program at all work locations covering all cord sets, receptacles that are not part of the building or structure and equipment connected by cord and plug that are available for use or are in use by employees.
- 3.3. A written description of the program including the specific procedures adopted by Cleveland Integrity Services is available at each work location for inspection and copying by the Assistant Secretary and any affected employee.
- 3.4. The Company will designate one or more competent persons to implement the program at each work location. "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 authorization to take prompt corrective measures to eliminate them. At most work locations the competent person is the Site Supervisor.
- 3.5. Each cord set, attachment cap, plug and receptacle of cord sets, and any equipment connected by cord and plug, except cord sets and receptacles which are fixed and not

<b>Ground Fault Protection (GFCI)</b>	<b>Page 2</b>
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exposed to damage, is visually inspected before each day's use for external defects, such as deformed or missing pins or insulation damage, and for indications of possible internal damage. Equipment found damaged or defective will not be used until repaired.

- 3.6. Damaged items are tagged "DO NOT USE", removed from service until repaired and tested.
- 3.7. The following tests are performed on all cord sets, receptacles which are not a part of the permanent wiring of the building or structure, and cord- and plug-connected equipment required to be grounded:
- 3.8. All equipment grounding conductors are tested for continuity and will be electrically continuous.
- 3.9. Each receptacle and attachment cap or plug is tested for correct attachment of the equipment grounding conductor. The equipment grounding conductor will be connected to its proper terminal.
- 3.10. The Company will not make available or permit the use by employees of any equipment which has not met the requirements of this program.
- 3.11. Tests performed as required in this program are recorded. This test record will identify each receptacle, cord set, and cord- and plug-connected equipment that passed the test and will indicate the last date it was tested or the interval for which it was tested. This record will be kept by means of logs, color coding, or other effective means and is maintained until replaced by a more current record. The record is made available on the work location for inspection by the Assistant Secretary and any affected employee. A copy of this program is kept on each work location with the Site Supervisor.
- 3.12. The Site Supervisor is responsible for implementing and monitoring the GFCI and assured grounding program.
- 3.13. The GFCI is not a replacement for visually checking all cords, wires, and other electrical devices for defects on a daily basis.
- 3.14. All 120-volt, single phase, 15 and 20 ampere receptacles are of the grounding type and their contacts will be grounded by connection to the equipment grounding conductor of the circuit supplying the receptacles in accordance with applicable requirements of the National Electrical Code.
- 3.15. All 120-volt cord sets (extension cords) have an equipment grounding conductor which are connected to the grounding contacts of the connectors on each end of the cord. Extension cord sets used with portable electric tools and appliances are of the three-wire type and are designed for heavy or extra heavy-duty usage. Flexible cords used with temporary and portable lights will be designed for heavy or extra heavy-duty usage.

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- 3.16. The exposed noncurrent-carrying metal parts of 120 volt cord and plug connected tools or equipment that are likely to become energized will be grounded in accordance with the applicable requirements of the National Electrical Code.
- 3.17. Employees will visually inspect receptacles, flexible cord sets (extension cords), electrical equipment and electrical tools before each day's use for external defects such as:
  - 3.17.1. Deformed or missing pins;
  - 3.17.2. Insulation damage;
  - 3.17.3. Indication of possible internal damage.
- 3.18. Where there is evidence of damage the item is taken out of service until tests or any required repairs have been made.

#### **4. Testing**

- 4.1. All 120-volt, single-phase 15- and 20-ampere receptacle outlets on construction sites, which are not a part of the permanent wiring of the building or structure, 120 volt flexible cord sets and 120 volt cord and plug connected equipment which are in use by employees, will be tested.
- 4.2. A qualified person is designated by the Site Supervisor to be responsible for testing, tagging and documentation of testing of all equipment-grounding conductors.
- 4.3. All equipment-grounding conductors are tested for continuity and they will be electrically continuous. A continuity inspection device is used or a voltmeter that is specifically designed to test for continuity.
- 4.4. Each receptacle and attachment cap or plug is tested for correct attachment of the equipment-grounding conductor. The equipment-grounding conductor will be connected to the proper terminal.
- 4.5. All required test are performed:
  - 4.5.1. Before its first use;
  - 4.5.2. Before the equipment is returned to service following any repairs;
  - 4.5.3. Before the equipment is used after any incident that can be reasonably suspected to have caused damage (for example, when a cord is run over).
  - 4.5.4. At intervals not exceeding 3 months, except that cord sets and receptacles, which are fixed and not exposed to damage. Testing intervals will not exceed 6 months.

- 4.6. Test verification is by means of a color-coded marking tape on the receptacle, cord set or equipment to identify that it has passed the test and to indicate the quarter as illustrated in the following table:

Quarter	Month	Color Code	Number
1 <sup>st</sup>	January	White	1
1 <sup>st</sup>	February	White	2
1 <sup>st</sup>	March	White	3
2 <sup>nd</sup>	April	Green	1
2 <sup>nd</sup>	May	Green	2
2 <sup>nd</sup>	June	Green	3
3 <sup>rd</sup>	July	Red	1
3 <sup>rd</sup>	August	Red	2
3 <sup>rd</sup>	September	Red	3
4 <sup>th</sup>	October	Orange	1
4 <sup>th</sup>	November	Orange	2
4 <sup>th</sup>	December	Orange	3
	Repair Color	Brown	

## 5. Training & Testing

- 5.1. Training about the program is provided to all affected employees prior to work assignments involving exposure to electrical hazards. Training will primarily involve a thorough review of what the standard covers (29 CFR 1926.404), Company policy and work experiences relating to implementation of this program.
- 5.2. Personnel so trained are tested as a way to help confirm and document their understanding of information presented. A score of between 80% and 100% will require a review of missed questions, if any, and the score corrected to 100%. A score of below 80% will require complete retraining and testing.

<b>Hand &amp; Power Tool Safety</b>	<b>Page 1</b>
Cleveland Integrity Services Master Safety & Health Program	06/2023

Applicable OSHA Standards: 29 CFR 1910 Subpart P

## 1. Purpose

- 1.1. The purpose of this program is to provide direction and to establish the general requirements implemented by Cleveland Integrity Services when using hand or power tools.

## 2. Scope

- 2.1. The scope of this program applies to all Company job sites and work locations where tool operations are or may be conducted. The requirements, as set forth in this program, are implemented to the fullest extent possible and will be considered as the minimum requirements of this program.

## 3. Responsibilities

- 3.1. The primary responsibilities for the implementation of requirements of this program rest with the Site Supervisor.
- 3.2. The Company Safety Representative or designee is responsible for providing the monitoring of the work activities to assure compliance to the requirements of this program and to the host employer's safety requirements regarding tools being prohibited if they are not in compliance.
- 3.3. Company management is responsible for disciplinary action resulting from violation or failure of assigned persons to implement the requirements of this program.
- 3.4. All hand and power tools and similar equipment, whether furnished by the employer or the employee, shall be maintained in a safe condition.
- 3.5. Employees using hand and power tools and exposed to the hazard of falling, flying, abrasive and splashing objects, or exposed to harmful dust, fumes, mists, vapors or gases shall be provided with particular PPE necessary to protect them from the hazard.

## 4. Small Tools and Equipment

- 4.1. Many at-work accidents and/or injuries occur because of improper or unsafe use of tools, or the use of tools which are in poor condition. The few extra seconds required examining tools and to use them properly can reduce the number of accident/injuries.

NOTE: Condition of tools; all hand, power, and similar equipment, whether furnished by the employee or employer, are maintained in a safe working condition.

## 5. General Precautions

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- 5.1. The use of any machinery, tools, material or equipment which is not in compliance with any applicable requirement of this part is prohibited. Such machine, tool, material or equipment shall either be identified as unsafe by tagging or locking the controls to render them inoperable or shall be physically removed from its place of operation.
- 5.2. The operation of any tool guard or safety features are never removed or interfered with.
- 5.3. The right tool for the right job is always used.
- 5.4. Tools are kept clean and their condition checked prior to using. If heads or striking tools become mushroomed or burred, they are dressed. If handles of tools are splintered, broken, or loose, they are replaced.
- 5.5. Tools must always be returned to their proper storage place and not left where they create a hazard.
- 5.6. Do not carry tools in pockets. It is dangerous; especially if tools are sharp or pointed.
- 5.7. Do not use excessive pressure or force on any hand tool or the use of cheaters to apply more force.
- 5.8. Metal measuring tapes having metal strands woven into fabric, brassbound rules, wire or metal bound hose, or rope with wire core are not used when working on or near energized electrical circuits or equipment.
- 5.9. Tools are neither dropped nor thrown from place to place or from employee to employee.
- 5.10. Tools that must be raised or lowered from one elevation to another are placed in an approved tool bucket or firmly attached to hand-line (rope).

NOTE: Handmade or job made tools are not used. In the event a special tool is needed for a specific task for which no such manufactured tool exists, proper engineering design, specifications, and Company management approval are obtained prior to construction of such a tool.

## 6. Hand Tools

- 6.1. Cleveland Integrity Services employees inspect tools prior to use. Damaged or defective tools are tagged "Do not operate" and removed from service as soon as the defect or damage is discovered.
- 6.2. Wooden handles of tools, such as hammers, picks, etc. are not taped or covered in such a way as to hide damage or defects.
- 6.3. Cracked or damaged wooden handles of tools, such as hammers, are replaced immediately upon discovery of the damage.



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- 6.4. Hand tools are used only for the purpose for which they were intended.
- 6.5. Tools are not altered such as welding extensions on wrench handles or pad eyes on hammer wrenches.
- 6.6. Every tool is designed to do a certain job. Use it only for its intended purpose! Every tool requires care.
- 6.7. Keep your hand tools in peak condition, sharp, clean, oiled, and not abused.
- 6.8. Do not use tools for pry bars.
- 6.9. Do not use two wrenches to increase leverage capacity.

## **7. Screwdrivers**

- 7.1. Use the right size and type screwdriver for the job.
- 7.2. Do not hold the screwdriver tip in the palm of your hand. The screwdriver may slip causing injury.
- 7.3. Screwdrivers should be filed properly to prevent slipping.
- 7.4. Do not use a screwdriver as a pry bar.

## **8. Hammers**

- 8.1. Hammers must have a clear path for back swing and the target area must be free from obstructions.
- 8.2. Hammers with mushroomed heads are never used as they might glance off the target or the damaged head may splinter and send metal fragments flying.
- 8.3. Never hold, with you hands, any object to be struck with a hammer by another employee. Hold the object with pliers or another tong-type device.
- 8.4. Wooden handles are kept free of splinters or cracks and are kept tight in the tool.

## **9. Files**

- 9.1. Do not use a file for a pry or hammer as it is brittle and breaks easily.
- 9.2. Files are fitted with wooden handles to protect employees from the pointed file end.

## **10. Pry Bars**

- 10.1. Be sure bite of bar is secure under load by first applying a slight pressure.
- 10.2. Check your own balance before exerting full force.

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10.3. A cheater bar is not used on pry bars.

## 11. Wrenches

11.1. Wrenches are pushed away from the body, if possible, to reduce the chance of the wrench slipping and striking the user in the face or body.

11.2. Adjustable (crescent) and combination wrenches should be snug on bolts and nuts to avoid slipping.

11.3. Employees never use a wrench as a hammer or a hammer on a wrench that is not to be used as such.

11.4. Employees never use a cheater on a wrench or "double wrench" a nut. Use a hammer wrench or impact instead.

11.5. Wrenches are not used when jaws are sprung to the point that slippage occurs.

## 12. Drill Bits

12.1. Avoid unsafe defects; worn or battered heads, over tempered, and dull cutting edges.

12.2. Do not use drill as a reamer (get a larger bit), use proper bit for drilling steel or brass or copper without removing the lip, or change bits without unplugging cord.

## 13. Shovels, Pick Axes and Axes

13.1. Be aware of unsafe defects; rough, loose, cracked, or split handles; dull or nicked edges, over tempered surfaces.

13.2. Do not use a wedge, pry bar, or hammer.

## 14. Power Tools

14.1. All tools are inspected for defects or damage prior to use. Tools found to be damaged or defective are immediately tagged "Do Not Use" and removed from service.

14.2. Protective guards on power tools are not removed. Do not use tools without guards in place. When these tools are made to accommodate guard, they shall be equipped with guard when in use.

14.3. Tools are not dropped or allowed to strike another object in such a fashion that damage may occur.

14.4. The power source on tools are physically disconnected prior to attempting any repairs or attachment changes. Always double check to make sure no one has come along and plugged the cord back in.

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- 14.5. Employees avoid loose fitting clothing when operating power tools. Shirttails must be tucked in the trousers/pants while operating power tools.
- 14.6. Electrical tools are of the double insulated type with UL approval or be of the three wires grounded type.
- 14.7. All electrical tools and power cords are inspected per the Assured Grounding program guidelines and display the proper color-codes for the current inspection period.
- 14.8. All electrical tools and power cords are used with a Ground Fault Interrupter to protect against faulty ground.
- 14.9. Electrical tools are not hoisted or carried by their power cords.
- 14.10. Employees do not operate electrical tools while standing in water or wet locations.
- 14.11. Extension cords are of the three wires grounded type and be continuous without splice or repair. Extension cords will reflect the proper color code.
- 14.12. Extension cords are kept clear of traffic aisles and are not placed across vehicle traffic paths unless guarded to prevent damage. (Recommend to run cords 7' over head to prevent tripping hazards).
- 14.13. Extension cords are not placed through doorways unless stops or guards are put in place to prevent pinching of the cord by the door.
- 14.14. Extension cords are not suspended by wire or nails.
- 14.15. Do not operate power tools without instructions from your supervisor. (Note: Some activities will require permits before work begins).
- 14.16. Torque: The circular or rotating motion in tools such as drills, impact wrenches, saws, etc. which results in a strong twisting force. Be prepared in case of jamming.
- 14.17. Have good footing. Use two hands. Ask for help as necessary and be prepared to release the power switch or trigger.
- 14.18. Flying objects can result from operating almost any power tool, so you must always:
- 14.19. Warn people around you
- 14.20. Use proper personal protective equipment
- 14.21. Avoid contact with moving parts
- 14.22. Keep moving parts directed away from your body
- 14.23. Do not "swing around" with the tool running. Someone might be behind you

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- 14.24. Be sure replacement parts conform to correct specifications. For example, grinder wheels are approved for the maximum RPM of the machine, wood cutting bits are for woodwork only, etc.
- 14.25. Contact with rotating and fast moving parts. Poor housekeeping, broken bits and blades, and lack of concentration can lead to serious cuts or amputations.

## 15. Electrical Safety with Power Tools

- 15.1. The use of portable power tools can make a job go faster and easier. The misuse of portable power tools can cause electric shocks, burns, and cuts and puncture wounds, severed fingers and limbs, broken bones, loss of eyesight, and even death.
- 15.2. The slightest shock when using electrical equipment is an ominous warning of a potentially serious safety hazard.
- 15.3. A slight shock when using the equipment in one location might result in electrocution if the body makes a little better contact with the earth or a grounded object in another location.
- 15.4. Electrocution is the leading cause of fatal injury in construction related activities. Most such injuries result from the use of portable tools powered by 110-volt electricity.
- 15.5. Electrical shock can occur from improper grounding or from attempting to adjust, clean, or service the tool without disconnecting the power.
- 15.6. Fires can be caused by defective electrical cords, overheated motors, sparking, and working near flammable liquids or gases.

## 16. Ways to Protect Yourself

- 16.1. Choosing the right tool for the job will depend on the work to be done. Most commonly used power tools include drills, saws, sanders, routers, and grinders.
- 16.2. Cleveland Integrity Services employees know how to use their tools safely and properly by reading the owner's manual carefully before use, by getting training from an experienced tool user, and by practicing before actually doing the job.
- 16.3. Tools are repaired when needed. Worn or defective electrical tools should be taken out of service and repaired immediately. Every time you use an improperly grounded or unguarded power tool, you are playing "Russian Roulette".
- 16.4. Transport and store tools properly. Power tools are transported with extra care. Always hold the handle (not the cord) with your finger off the trigger. Place each tool in a safe storage area after use, preferably in a locked cabinet or toolbox.

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- 16.5. Keep your work area clean, dry, and orderly. Power tools should not be used when working on slippery floors, in poorly lighted work areas, or near flammable liquids or gases.
- 16.6. Electric cords also deserve attention. They may become frayed leading to electrical shock or fire. Light-duty extension cords may become overheated when improperly used. They can also present tripping hazards.

## **17. Ground Fault Current Interrupters**

- 17.1. GFCIs are used to protect people from shock hazards. The 12-volt lighting systems that may be utilized at some work locations do not require GFCIs.
- 17.2. GFCIs are required whenever a Company employee uses an extension cord or a receptacle that is not part of a permanent building or structure that exceeds 12 volts.
- 17.3. Prior to each use, Company employees visually inspect all cords, receptacles and attachment caps that have the potential to become damaged. Inspection is to confirm the safety of these components and to ensure that there are no defects such as deformed or missing grounding prongs on plugs, or damaged insulation that exposes interior wires.
- 17.4. GFCIs are used on all 120 volt, single phase, 15 and 20-ampere receptacle outlets, which are not part of the permanent wiring of the building or structure. Receptacles on a two wire, single phase portable or vehicle mounted generator rated not more than 5kw, where the circuit conductors of the generator are insulated from the generator frame and all other grounded surfaces, need not be protected with GFCIs.
- 17.5. NOTE: A job site that is close to electrical lines is pre-planned and written procedures developed before attempting to do the work. The Site Supervisor reviews and approves any procedures that involve working in an area that has any such electrical exposure.

## **18. Pneumatic Tools (Air) – General**

- 18.1. When gas or diesel compressors furnish the air source, keep them outside or vent them to the outside to prevent carbon monoxide poisoning.
- 18.2. If you are using a permanent source of air, make sure it is not oxygen. Oxygen mixed with the oil in your air hose and tool will or may cause an instant explosion and fire.
- 18.3. All hoses exceeding 1/2 inch inside diameter have a safety device at the source of supply or branch line to reduce pressure in case of hose failure.
- 18.4. Air hoses and connections are checked prior to each use for defects.
- 18.5. Air hoses should be protected from vehicle traffic, pedestrians and sharp objects.

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- 18.6. Attachments on air tools are secured by retainer pins and rings. The retainer rings should be taped to prevent accidental placement.
- 18.7. All crows foot type air connections are safety wired or pinned.
- 18.8. Disconnect source and "bleed" hose before breaking connection on any air tool. To ensure proper bleeding close the valve at the air source and ensure all valves and regulators between the source and the tool are in the open position before bleeding air from tool.
- 18.9. Never crimp hoses to stop air.
- 18.10. Do not let your hoses create tripping hazards. Keep out of traffic areas, walkways, stairs, etc.
- 18.11. Never point a pneumatic hammer at anyone. There is always a chance the retainer may fail.
- 18.12. The bit should be in contact with the work surface before pulling the trigger.
- 18.13. Governors require strict maintenance to prevent dangerous over-speeding of grinders, drills, wrenches, etc.
- 18.14. Always wear eye, face and ear protection when using air tools.
- 18.15. Air used for cleaning machines is regulated to 30 psi or less and chip guarding and personal protective is utilized.
- 18.16. When compressed air is used for cleaning purposes, a nozzle must be provided with a shut off valve at the outlet of the hose.
- 18.17. Compressed air cylinders are visually inspected, as prescribed by the Hazardous Materials regulations as applicable to the type of cylinder, prior to use to ensure that they are in safe working condition.
- 18.18. Every air receiver is equipped with an indicating pressure gauge that is readily visible and has one or more spring-loaded safety valves. The receiving pressure capacity of the valves shall prevent the pressure in the receiver from exceeding the maximum allowable working pressure of the receiver by more than 10 percent.
- 18.19. Drain valves on air receivers are opened and the receiver are drained frequently to ensure that the accumulation of excessive amounts of liquids in the receiver does not occur.
- 18.20. Safety valves are tested at regular intervals to ensure they are in good operating condition.
- 18.21. Safety valves and indicating/controlling devices are constructed, located and installed so that they cannot be rendered inoperable.

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- 18.22. Metatarsal and shin guards should be worn for complete foot protection when using ground tampers that leave the ground such as "pogo sticks". This is in addition to other PPE requirements.
- 18.23. Metatarsal guards and shin guards are worn together when using pavement breakers or jackhammers. This is in addition to other PPE requirements.
- 18.24. Extreme care is taken when working with compressed air. It should never be blown against clothing or any part of the body.
- 18.25. Storage and cleaning are very important with any tool. Keep tools clean and stored properly where they belong.
- 18.26. Air tools are not hoisted or carried by their air hoses.

## 19. Powder Activated Tools

- 19.1. Hilti and Ramset are just two common names of powder activated tools. Give these kinds of tools the same respect as a firearm.

SPECIAL NOTE: No employee is permitted to use any powder-activated tool unless he or she has a current operator's license issued by a licensed instructor by the manufacturer.

## 20. Chainfalls and Comealongs

- 20.1. Employees have to rely on special lifting and hoisting equipment. Most of our work requires moving equipment and materials that can seldom be lifted by hand alone.
- 20.2. These portable hand hoists are very useful. Knowledge of the following portable hoisting tools and their safe use can save you much time in performing work duties and make lifting and pulling bulky items an easier task.
- 20.3. Chainfalls and comealongs are designed to be operated by one employee only. If it takes two to raise or move a load, chances are the load is greater than the capacity of the lifting device or the device is malfunctioned. Never wrap the chain around the load.
- 20.4. Know the weight of the load and capacity of the lifting device. Do Not Exceed!
- 20.5. Periodic inspections, for instance monthly, or chainfalls and come along are required and must be documented.
- 20.6. Lifting chainfalls are low speed, geared for precision lifting, and have built-in, no-slip brakes. There are two lifting hooks; one swivel hook mounted on the housing and the other located at the end of the lifting chain. Chainfalls are available in a variety of weight capacities ranging from 1/4 ton to 10 tons with assorted pulling chain lengths for longer reaches to the work area.

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- 20.7. Chainfalls is designed primarily for vertical lifting. The lifting hooks on the housing and chain are tempered but can be or partially straightened and will therefore be provided with a safety clip latch to prevent hooks from being dislodged. Before making a lift with the chainfall, be sure the load is rigged properly and the lift area is barricaded and free of personnel. Make all lifts true vertically to prevent a shifting, swaying load and undo wear on the hoist. Never use a chainfall for a horizontal pull. The designed chain sprocket engagement will not be obtained.
- 20.8. Comealongs are compact hoists for use in close areas. Their size permits toolbox size storage and versatility in almost any lifting and pulling situation.
- 20.9. The comealong is most popular because of its heavy-duty construction and greater lifting ability. A ratchet lever moves the lifting chain or cable. The lever has three positions -- forward for lifting or pulling, neutral for free gear travel, and reverse for lowering or releasing tension.
- 20.10. A comealong will have one hook attached to the gear housing and one at the end of the lifting chain or cable. They are available in various lifting chain and cable lengths for longer reaching pulls and lifts. They range in capacities from 1/4 ton to 6 tons.
- 20.11. Considered the most versatile of the hand-operated hoists, the comealong can be used in vertical lifting (only in certain situation), pulling, and binding on any plane and in moving heavy objects. A ratchet movement of the hand lever, even under tension accomplishes pulling or releasing. Therefore, if it takes two employees to crank the hand lever, the hoist is overloaded for the job. Avoid using cable-type lever hoists if the cable is frayed or damaged. Never use a cheater bar on the handle of the comealong.

## **21. Pedestal, Bench, And Portable Grinders – General**

- 21.1. Each employee is responsible for inspection of the grinder he/she is using.
- 21.2. Wheel rating must exceed the maximum potential RPM of the grinder on which it is mounted.
- 21.3. No special adapters, arbors, or other improvisation are not permitted, nor may more than one wheel be mounted between a single set of flanges.
- 21.4. All abrasive wheels are mounted between flanges which are at least 1/3 the diameter of the wheel.
- 21.5. On all portable tools, the control switch is instant-pressure controlled without a locking pin.
- 21.6. Wheels should be stored in a dry place with constant temperature above freezing and protected from physical damage, which could cause cracking.
- 21.7. Guards are installed and maintained.



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- 21.8. The proper respiratory protection is used in the event dust hazards exist.
- 21.9. The proper eye/face, hand, and ear protection is used.
- 21.10. Guards, work rests, eye shields, and other permanent protection devices are not removed from any grinding or buffing wheels.
- 21.11. The tool room performs initial inspection and subsequent maintenance of all grinders. Inspections are made on an established schedule and records maintained by the Tool Room and filed with the Safety Department.
- 21.12. The using department is responsible for installing all wheels and determining that they are designed for the speed of the grinder. (Any questions, you should contact the Tool Room or Main Office).
- 21.13. The using department is responsible for maintaining the maximum distance between the work rest and the wheel -- 1/8" and tongue guard 1/4".
- 21.14. Grinding is not performed on the side of the wheel.

## 22. Live-line Tools

- 22.1. Design of tools. Live-line tool rods, tubes and poles are designed and constructed to withstand the following minimum tests:
  - 22.1.1. If the tool is made of fiberglass-reinforced plastic (FRP), it shall withstand 328,100 volts per meter (100,000 volts per foot) of length for 5 minutes.
  - 22.1.2. If the tool is made of wood, it shall withstand 246,100 volts per meter (75,000 volts per foot) of length for 3 minutes.
  - 22.1.3. The tool shall withstand other tests that the employer can demonstrate are equivalent.
- 22.2. Each live-line tool is wiped clean and visually inspected for defects before use each day.
- 22.3. If any defect or contamination that could adversely affect the insulating qualities or mechanical integrity of the live-line tool is present after wiping, the tool is removed from service and examined and tested according to paragraph (j)(2)(iii) of 29 CFR 1910.269 before being returned to service.
- 22.4. Live-line tools used for primary employee protection are removed from service every 2 years, and whenever required under paragraph (j)(2)(ii) of section 1910.269, for examination, cleaning, repair, and testing.
- 22.5. Each tool is thoroughly examined for defects.

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- 22.6. If a defect or contamination that could adversely affect the insulating qualities or mechanical integrity of the live-line tool is found, the tool is repaired and refinished or is permanently removed from service. If no such defect or contamination is found, the tool is cleaned and waxed.
- 22.7. The tool is tested in accordance with paragraphs (j)(2)(iii)(D) and (j)(2)(iii)(E) of section 1910.269 under the following conditions:
- 22.7.1. After the tool has been repaired or refinished; and
  - 22.7.2. After the examination if repair or refinishing is not performed, unless the tool is made of FRP rod or foam-filled FRP tube and the employer can demonstrate that the tool has no defects that could cause it to fail during use.
- 22.8. The test method used is designed to verify the tools integrity along its entire working length and, if the tool is made of fiberglass-reinforced plastic, its integrity under wet conditions.

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Applicable OSHA Standard: 29 CFR 1910.1200, 1926.59

## 1. Purpose & Scope

- 1.1 The purpose of this program is to ensure that the hazards of all chemicals produced or imported are evaluated, and that information concerning their hazards is transmitted to Cleveland Integrity Services and its employees.
- 1.2 This program applies to any chemical which is known to be present in any Cleveland Integrity Services workplace in such a manner that employees may be exposed under normal conditions of use or in a foreseeable emergency.

## 2. General Requirements

- 2.1 The following written Hazard Communication Program is to be implemented for employees of Cleveland Integrity Services. Information about this program, any hazardous chemicals at their work location and training about the program is provided to employees prior to work assignment.
- 2.2 The Company's Safety Representative is responsible for ensuring the program is current and enforced. The Site Supervisor is responsible for ensuring that the program is effectively implemented at the supervisor's work location.
- 2.3 A copy of this program is made available to an employee(s) upon hiring. Copies may also be obtained on written request from an employee or a designated representative. Requested copies are provided in a timely manner. This program will also be available to the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee, and the Director, National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designee.
- 2.4 The program is updated when new chemicals or hazards are introduced into the working environment; new processes or work assignments require changes or updating; and at least annually.
- 2.5 Safety Data Sheets are required at the time that any chemical product for use in the Company workplace is purchased and obtained upon receipt of the chemical product.
- 2.6 Specific operations in the Company workplace where hazardous chemicals are used include:
  - 2.6.1 Vehicle, tools and equipment operations requiring use of fuels and lubricants
  - 2.6.2 Surface preparation, painting and coating operations requiring the use of abrasive blasting chemical products, paints, solvents and other necessary chemical products welding and hot work where welding rods, solders and other chemical products are required for welding and hot work processes

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- 2.7 A Right To Know Station is established at each Company work location. The station is prominently displayed at a place where all employees in the area have immediate and ready access to station contents for information and in case of emergency.

A copy of the Company's written Hazard Communication Program, a Chemical Inventory List of all chemicals authorized by the Company for use at the work location, and current copies of the Safety Data Sheet (SDS) for each chemical product listed in the Chemical Inventory are maintained at the station.

A master Right To Know Station is also maintained at the corporate office and shop facility to employees, their designated representatives, the Assistant Secretary & the Director in accordance with the requirements of 29 CFR 1910.1020(e).

- 2.8 When employees are working at a remote job site or must travel between work locations, a copy of this program, written Chemical Inventory List and Safety Data Sheets of chemicals authorized for the work location will be sent with employees. Hazard communication information is readily available to employees at the work location. The Site Supervisor will be contacted when a copy of the program is needed.

- 2.9 Supervisors and other Company employees at a work location will be constantly aware of signs and indications of a potential spill or some other accidental release of chemical product in the workplace.

Generally, chemical spills and release are noticed visually by observation or because an odor suspected to be from a chemical is noticed. Any such suspicion is reported to the Site Supervisor immediately so that emergency response, containment and proper clean-up can be accomplished.

Industrial hygiene monitoring and monitoring devices operated by qualified personnel are also used as required to detect the presence of chemicals, fumes and vapors.

- 2.10 Supervisors and employees are aware of the physical and health hazards of chemicals present in the work location through review of the SDS.

- 2.11 SDS and container labeling is the primary reference information about: preventing exposures; safe work practices; proper selection and use of PPE for working with a chemical product; safe storage of chemical products; properties of the chemical product; emergency and containment/clean-up procedures in the event of a spill or release; and other types of information that is contained in an SDS.

### 3. Container Labeling

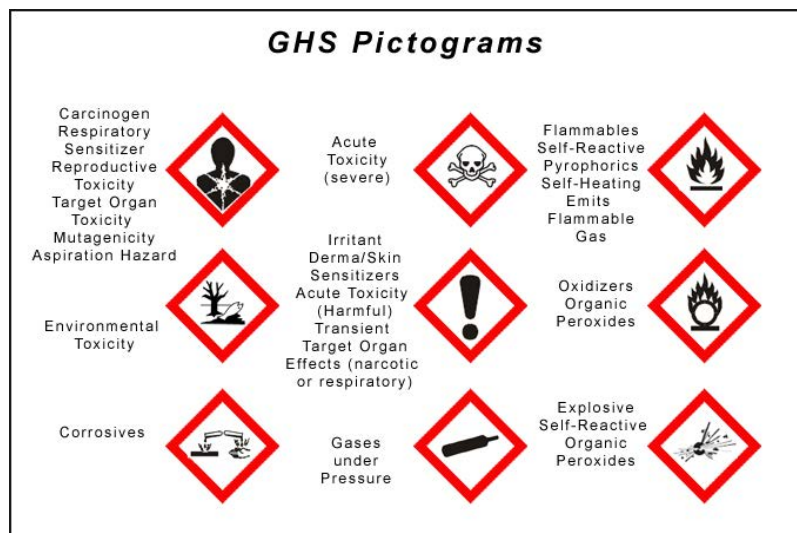
- 3.1 The Site Supervisor is responsible for all containers of hazardous chemicals entering the workplace and will assure that the chemical containers are properly labeled with:

3.1.1 Product identifier;

3.1.2 Signal word;

3.1.3 Name address and telephone number of the chemical manufacturer, importer, or responsible party;

- 3.1.4 Hazard statement(s);
- 3.1.5 Pictograms (see example below); and
- 3.1.6 Precautionary statement(s).



- 3.2 Chemical containers other than the original product container are checked and approved by the Site Supervisor or a competent person and the SDS reviewed to ensure the safety of the alternate container. The Site Supervisor ensures that the new container is properly labeled; i.e., that all secondary containers are labeled with an extra copy of the original manufacturer's label or with generic labels which have a block for identity and blocks for the hazard warning. For help with labeling, employees will contact the Site Supervisor and, if additional assistance is required, the Company's Safety Coordinator. The Safety Coordinator reviews the labeling system annually as part of the annual review of this Hazard Communication Program and update as required.
- 3.3 The Site Supervisor ensures that the contents of piping, gas and transmission lines are properly identified. The Site Supervisor also informs employees of the hazards associated with chemicals contained in piping within the work areas.
- 3.4 Company employees are not to remove or deface chemical product labeling.
- 3.5 Chemical product labeling is in English and prominently displayed on the container or readily available. Employers having employees who speak other languages may add the information in their language to the material presented, as long as the information is presented in English as well.

#### 4. Safety Data Sheets (SDS)

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- 4.1 The corporate office or Site Supervisor, whichever is in charge of purchasing a chemical product, is responsible for obtaining an SDS for each product. The Site Supervisor maintains the SDS system at the work location.

The Site Supervisor reviews incoming data sheets for new and significant health/safety information and ensures that the new information is given to the affected employees. Copies of all SDS's are kept by the Site Supervisor with copies displayed at the Right To Know Station at the location. The Site Supervisor and Safety Representative review each SDS annually for accuracy and completeness.

- 4.2 The SDS system includes:

4.2.1 Current master Chemical Inventory List of all SDS's, indexed alphabetically and by vendor;

4.2.2 The identity used on the SDS will be the same as used on the container label;

4.2.3 The chemical and common name of all ingredients determined to present a hazard appear on all SDS;

4.2.4 The SDS lists:

4.2.4.1 Section 1. Identification.;

4.2.4.2 Section 2. Hazard(s) identification;

4.2.4.3 Section 3. Composition/information on ingredients;

4.2.4.4 Section 4. First aid measures;

4.2.4.5 Section 5. Fire-fighting measures;

4.2.4.6 Section 6. Accidental release measures;

4.2.4.7 Section 7. Handling and storage;

4.2.4.8 Section 8. Exposure controls/personal protection;

4.2.4.9 Section 9. Physical and chemical properties;

4.2.4.10 Section 10. Stability and reactivity;

4.2.4.11 Section 11. Toxicology information;

4.2.4.12 Section 12. Ecological information;

4.2.4.13 Section 13. Disposal considerations;

4.2.4.14 Section 14. Transportation information;

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4.2.4.15 Section 15. Regulatory information; and

4.2.4.16 Section 16. Other information, including date of preparation or last revision

- 4.3 The SDS is available for use by employees. Each Site Supervisor will keep a current copy of the program on file and in the location's Right To Know Station. New chemicals are not used until a SDS has been obtained and reviewed for health hazards by the Site Supervisor.

## 5. Employee Training & Education

5.1 Before starting work, the respective Site Supervisor goes over with the new employee the hazard communication program and site-specific work plan, as well as each SDS applicable to their job. This orientation may be supported with handouts, video tapes, etc. Before any new chemical is used, all effected employees are informed of its use, are instructed on safe use, and are trained on hazards associated with the new chemical. All employees will attend additional training, as appropriate, to review the program and SDS. Appropriate reference material is also discussed during the training session(s).

5.2 The minimum orientation and training for a new employee is as follows:

5.2.1 An overview of the requirements contained in the Hazard Communication standard, 29 CFR 1926.59;

5.2.2 Chemicals present in their workplace operations;

5.2.3 Location and availability of the written program;

5.2.4 Location of SDS file and location of hazardous chemicals inventory list.

5.2.5 Physical and health effects of the hazardous chemicals listed on the inventory list of this program;

5.2.6 Accepted work practices, required PPE, spill and leak procedures, emergency procedures and other protective measures to be used for the chemicals authorized for the workplace;

5.2.7 Methods and observation techniques used to determine the presence or release of hazardous chemicals in the work area;

5.2.8 How to lessen or prevent exposure to these hazardous chemicals through usage of control/work practices and personal protective equipment;

5.2.9 Steps taken by the Company to lessen or prevent exposure to the chemicals listed on the inventory list; and

5.2.10 Emergency procedures to follow, if exposed to a chemical.

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- 5.3 Prior to a new chemical being introduced into any section of the workplace, each affected employee is given information and training as outlined above by the Site Supervisor. SDS is available prior to use.
- 5.4 After attending the training class, each employee signs a form to verify that he or she attended the training, that the written plan is made available for review, and that the employee understands the plan.
- 5.5 Before entering a job site, the Site Supervisor ascertains what chemical hazards employees may be exposed to and then takes appropriate action to protect the employees. If an employee has any question about what protection is needed, he or she should contact the Site Supervisor or site Safety Representative immediately.

## 6. Non-Routine Tasks

- 6.1 Before any non-routine task is performed, employees contact the Site Supervisor for special precautions to follow as required. Also, the supervisor informs any other personnel who could be exposed. Non-routine task situations include unlabeled pipes, gas and transmission lines at the work location.
- 6.2 In the event that a non-routine task is expected to present a chemical exposure, the Site Supervisor provides the following information as it relates to the task and the specific chemicals that may be encountered:
  - 6.2.1 Specific chemical name(s) and hazard(s);
  - 6.2.2 Protective equipment required and safety measures to be taken;
  - 6.2.3 Measures that have been taken to lessen the hazards (i.e. ventilation);
  - 6.2.4 Presence of other personnel in the area; and
  - 6.2.5 Emergency response procedures.

## 7. Multi-Employer Workplaces

- 7.1 If Company employees at the work location produce, use or store hazardous chemicals in such a way that the personnel of another employer may be exposed (i.e. other contractors working on-site) the Site Superintendent ensures that job-site hazard communication compliance includes the following:
  - 7.1.1 Methods for providing personnel of other employers with on-site access to SDS for each hazardous chemical that they may be exposed to while working;
  - 7.1.2 Methods used to inform personnel of other employers about any precautionary measures that need to be taken to protect themselves during normal workplace operations, as well as in the event of foreseeable emergencies; and,



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7.1.3 Methods used to inform personnel of other employers about the labeling system used in the workplace.

## 8. Obtaining SDS from Other Contractors

8.1 The Site Supervisor or Safety Representative will contact any other contractor working at a job site for information about chemicals they bring to the work location that may affect Company employees. SDS are obtained from the other contractor, as required, before Company employees begin work.

## APPENDIX A

The following chemicals are regulated by OSHA as carcinogens in substance-specific standards that include labeling requirements.

- Asbestos
- 4-Nitrobyphenyl
- Alpha-Naphthylamine
- Methyl Chloromethyl Ether
- 3,3 Dichlorobenzidine (and its salts)
- Bis-Chloromethyl Ether
- Beta-Naphthylamine
- Benzidine
- 4-Aminodiphenyl
- Ethyleneimine
- Beta-Propiolactone
- 2-Acetylaminofluorene
- 4-Dimethylaminoazobenzene
- N-Nitrosodimethylamine
- Vinyl Chloride (and poly-vinyl Chloride)
- Inorganic Arsenic
- 1,2 Dibromo-3-Chloropropane
- Acrylonitrile
- Ethylene Oxide
- Formaldehyde
- Benzene

<b>Heat-Related Illnesses - Cold Stress / Prevention &amp; Response</b>	<b>Page 1</b>
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## 1. Purpose & Scope

- 1.1. This program is established to control risks and effects of heat-related illnesses. The program applies to both indoor and outdoor places of employment.
- 1.2. Program components will be included in the Company's site-specific *Injury and Illness Program*.
- 1.3. Company policy and instruction are that no employee will be disciplined, suspended, discharged or discriminated against in any manner for exercising their legitimate rights under this or other provisions of Cal OSHA, federal OSHA or Company safety and health requirements offering occupational safety and health protection to employees.

## 2. Definitions & Requirements.

- 2.1. "*Acclimatization*" means temporary adaptation of the body to work in the heat that occurs gradually when a person is exposed to it. Acclimatization peaks in most people within four to 14 days of regular work, for at least two hours per day in the heat.
- 2.2. "*Heat Illness*" means a serious medical condition resulting from the body's inability to cope with a particular heat load, and includes heat cramps, heat exhaustion, heat syncope and heat stroke.
- 2.3. "*Environmental risk factors for heat illness*" means working conditions that create the possibility that heat illness could occur, including air temperature, relative humidity, radiant heat from the sun and other sources, conductive heat sources such as the ground, air movement, workload severity and duration, protective clothing and personal protective equipment worn by employees.
- 2.4. "*Personal risk factors for heat illness*" means factors such as an individual's age, degree of acclimatization, health, water consumption, alcohol consumption, caffeine consumption, and use of prescription medications that affect the body's water retention or other physiological responses to heat.
- 2.5. "*Preventative recovery period*" means a period of time to recover from the heat in order to prevent heat illness.
- 2.6. "*Shade*" means blockage of direct sunlight. Canopies, umbrellas and other temporary structures or devices may be used to provide shade. One indicator that blockage is sufficient is when objects do not cast a shadow in the area of blocked sunlight. Shade is not adequate when heat in the area of shade defeats the purpose of shade, which is to allow the body to cool. For example, a car sitting in the sun does not provide acceptable shade to a person inside it, unless the car is running with air conditioning.
- 2.7. *Provision of water.* Employees will have access to potable drinking water in accordance with Cal OSHA and Company safety requirements, as applicable. Where it is not plumbed or otherwise continuously supplied, it will be provided in sufficient

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quantity at the beginning of the work shift to supply one quart per employee per hour for drinking during the entire shift. Employers may begin the shift with smaller quantities of water if they have effective procedures for replenishment during the shift as needed to allow employees to drink one quart or more per hour. The frequent drinking of water, as described herein, will be encouraged.

- 2.8. *Access to shade.* Employees suffering from heat illness or believing a preventative recovery period is needed, will be provided access to an area with shade that is either open to the air or provided with ventilation or cooling for a period of no less than five minutes. Such access to shade will be permitted at all times. Except for employers in the agricultural industry, cooling measures other than shade (e.g., use of misting machines) may be provided in lieu of shade if the Company's supervisor at the work location can demonstrate that these measures are at least as effective as shade in allowing employees to cool.

### 3. Training.

- 3.1. Affected Company employees will be trained in the following topics relating to heat-related illnesses, prevention and response. Training will be given to all affected supervisory and non-supervisory employees about:
  - 3.1.1. The environmental and personal risk factors for heat-related illnesses;
  - 3.1.2. Company procedures for recognizing, preventing and responded to heat-related illnesses, including how the Company will comply with Cal OSHA requirements;
  - 3.1.3. The importance of frequent consumption of small quantities of water, up to four cups per hour, when the work environment is hot, humidity is high, and/or employees are likely to be sweating more than usual in the performance of their duties;
  - 3.1.4. The importance of acclimatization;
  - 3.1.5. The different types, common signs and symptoms of heat-related illnesses – specifically dehydration, cramps, heat rash, heat exhaustion and heat-stroke;
  - 3.1.6. Why heat stroke is a life-threatening condition requiring immediate response to cool the victim;
  - 3.1.7. Why employees are required to report to their on-site supervisor immediately any symptoms or signs of heat illness in themselves or their fellow workers;
  - 3.1.8. Company site-specific procedures for responding to symptoms of a possible heat-related illness, including how emergency medical services will be provided when required;

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- 3.1.9. Company site-specific procedures for contacting emergency medical services, and if necessary, for transporting employees to a location from where they can be reached by an emergency medical service provider;
  - 3.1.10. Company site-specific procedures for clearly and precisely communicating to emergency responders directions to the incident location, including designation of one or more individuals to intercept and “lead in” emergency responders to the victim’s exact location as required.
- 3.2. Supervisor training.
- 3.2.1. When employees will be working outdoors in the heat, or indoors where the environment may subject them to excessive heat and humid conditions, the supervisor(s) in charge of the work assignment will be trained prior to assignment in the following:
    - 3.2.1.1. Each item included in the training outline above (3.1.1 – 3.1.10);
    - 3.2.1.2. Specific procedures that the supervisor(s) will follow to effectively implement components of this program;
    - 3.2.1.3. Specific procedures that the supervisor(s) will follow if an employee exhibits signs or symptoms that may indicate a heat-related illness. This will include emergency response procedures and interim life-saving procedures to responding to possible heat-stroke.
    - 3.2.1.4. Supervisors will also be trained in the Employer’s heat illness procedures and emergency response procedures in the event of heat illness by an employee.
    - 3.2.1.5. Company procedures under this program, in writing, that will be available to employees and OSHA authorized representatives when requested.

#### **4. Overview of Heat-Related Illnesses, Prevention & Response**

- 4.1. Heat is a serious hazard outdoors in hot weather and indoors when the work exposes personnel to unusually hot temperatures and high humidity. A person’s body builds up heat when at work, and sweats to get rid of extra heat.

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- 4.2. But there are times when this cannot happen as it should – for example outdoors in the summer, on a humid day and without shade in an area where heat radiates from the surroundings. This may be a time when the body simply cannot cool off fast enough.
- 4.3. Too much heat can make a person tired, hurt job performance, and increase the chance of injury. Overheating can cause skin rash on the minor side, and progress into a range of conditions that can be life-threatening. Effects of physical overheating include:
- 4.3.1. *Dehydration.* When the body loses water, a person cannot cool off fast enough, but will feel thirsty and weak.
  - 4.3.2. *Cramps.* The heat can cause muscle cramps, even after a person leaves work.
  - 4.3.3. *Heat exhaustion.* The victim feels tired, nauseous, headachy, and giddy (dizzy and silly). The skin is damp and looks ruddy or flushed. Fainting may occur.
  - 4.3.4. *Heat stroke.* This is a life-threatening condition. The victim may have hot, dry skin and a high temperature. The skin dryness is because the body's ability to sweat is compromised or has shut down. Victims may feel confused, suffer convulsions or lose consciousness. Heat stroke can kill quickly and emergency medical assistance is urgently needed.
- 4.4. A person's risk of developing heat stress depends on several factors. These include physical condition, the weather (temperature AND humidity), clothing worn, quickness of movement and how much physical demand is being placed on the body (lifting, heavy work), if there is air circulation over the body, whether the person is in direct sunlight, and whether they are taking medication. Evaluation of workplace conditions using the Wet-Bulb Globe Temperature Index is one precise way to estimate the risk of heat stress.
- 4.5. Types of Heat Sickness (in a progressing order of seriousness)
- 4.5.1. *HEAT RASH* is recognized by tiny, red, blister-like eruptions on the skin and by a prickly, itchy, burning sensation. First Aid: Bathe skin to prevent infection and put on dry clothes.
  - 4.5.2. *SUNBURN* is caused by the exposure of unprotected skin to ultraviolet light. Symptoms of first degree sunburn are red, painful skin. Second degree sunburn causes blistering and/or peeling. First Aid: Skin lotions, topical anesthetics and staying in a shaded area.
  - 4.5.3. *HEAT CRAMPS* bring painful muscle spasms. First Aid: Water and/or electrolyte replacement beverage. Get medical assistance.

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- 4.5.4. *HEAT EXHAUSTION* results from loss of too much water or salt from the body. It causes cool, moist skin, obvious sweating and rapid pulse (more than 150 beats per minute). It may or may not cause fever. First Aid: Water and/or electrolyte replacement beverage.
- 4.5.5. *HEAT STROKE* (thermoregulatory failure) is characterized by hot, dry skin, a flushed face, body temperature of 105 degrees F (40.6° C) or higher, rapid pulse and brain disorders such as headaches, confusion, delirium or unconsciousness. Usually, there is an absence of sweating because the body's "cooling system" has shut down. There may also be difficulty breathing, constricted pupils, high blood pressure, strange behavior, weakness, nausea or vomiting. First Aid: This is a potentially LIFE-THREATENING condition. The victim must be removed from the heat source and the body temperature lowered as quickly as possible. Immerse in water (garden hose, shower, bath tub) or cover and massage the body with wet cool soaked towels or sheets. DO NOT give liquids to an unconscious person. Call for emergency medical assistance immediately.
- 4.6. Protective Measures to Avoid Heat Stress
  - 4.6.1. Here is advice that can be given toward preventing heat-related illness:
    - 4.6.1.1. Drink a lot of cool water all day before you feel thirsty. Every 15 minutes, you should drink a cup of water (8 ounces).
    - 4.6.1.2. Keep taking rest breaks. Rest in a cool, shady spot. Use fans.
    - 4.6.1.3. Wear light-colored clothing, made of cotton.
    - 4.6.1.4. Do the heaviest work in the coolest time of the day.
    - 4.6.1.5. Work in the shade.
    - 4.6.1.6. For heavy work in hot areas, take turns with other workers, so some can rest.
    - 4.6.1.7. If you travel to a warm area for a new job, you need time for your body to get used to the heat. Be extra careful the first two weeks on the job.
    - 4.6.1.8. If you work in protective clothing, you need more rest breaks. You may also need to check your temperature and heart rate.

## 5. Administrative and Work Practice Controls

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- 5.1. Heat stress often can be reduced by rescheduling work. Sometimes, strenuous tasks can be postponed until a cooler time of day or a cooler season. Heavy jobs will be spread out over longer periods of time, allowing employees to pace themselves appropriately and to take work breaks as needed.
- 5.2. Employees and supervisors will be trained in the causes, symptoms, treatment and prevention of heat stress in accordance with 3.1 and 3.2 above.

## 6. COLD STRESS

- 6.1. Cleveland Integrity Services will follow the following policies to avoid cold stress and hypothermia situations:
- 6.2. The program shall address jobs, tasks or employees who are at risk for cold exposure.

## 7. Types of Cold Stress

- 7.1. *HYPOTHERMIA* occurs when body heat is lost faster than it can be replaced and the normal body temperature 98.6°F drops less than 95°F. An employee may begin to shiver or stomp their feet to generate heat. As the condition worsens, employees may lose coordination and fumble with items in the hand, become confused and disoriented. Employees may also be unable to walk or stand, pupils become dilated, pulse and breathing become slowed, and loss of consciousness can occur. An employee could die if help is not received immediately. First Aid: move the person to a warm, dry area. Remove wet clothes and replace with dry clothes, cover the body with layers of blankets; and with a warm vapor barrier (e.g. tarp, garbage bag). Give the employee warm sweetened drinks if alert.
- 7.2. *FROSTIBITE* is an injury to the body that is caused by freezing of the skin and underlying tissues. While frostbite usually occurs when the temperatures are 30°F or lower, wind chill factors can allow frostbite to occur in above freezing temperatures. Frostbite typically affects the feet and hands. In severe cases, amputation may be necessary. Symptoms are reddened skin with grey/white patches, numbness to the affected part, feels firm or hard and blister may even occur. First Aid: loosely cover and protect the area from contact, do not try to rewarm the frostbitten area before getting medical help. Do not rub the affected area to warm it up, this could cause more tissue damage and do not apply snow/water. Do not break blisters.
- 7.3. *TRENCH FOOT* or immersion foot is caused by prolonged exposure to wet and cold temperatures. It can occur at temperatures as high as 60°F if the feet are constantly wet. Non-freezing injury occurs because wet feet lose heat 25 times faster than dry feet. To prevent heat loss, the body constricts the blood vessels to shut down circulation in the feet. The skin tissue begins to die because of lack of oxygen and nutrients due to the buildup of toxic products. Symptoms are redness of the skin, swelling, numbness and blisters. First Aid: remove shoes or boots and wet socks. Dry the feet. Call 911 or seek immediate medical attention.

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7.4. Other signs of cold stress that employees need to be aware of are:

7.4.1.1. Uncontrollable shivering;

7.4.1.2. Slowed speech;

7.4.1.3. Memory lapses;

7.4.1.4. Incoherence;

7.4.1.5. Drowsiness;

7.4.1.6. Changing color of skin;

7.4.1.7. Decreasing blood pressure, pulse rate or respiration.

## 8. Training

8.1. All workers exposed to cold will receive initial and annual training regarding the health effects of cold exposure.

8.2. The training will consist of the information contained in this program, recognition and first aid for frostbite and hypothermia, required protective clothing, proper use of warming shelters, the buddy system, vehicle breakdown procedures, and proper eating and drinking habits for working in the cold.

8.3. All employees who are required to perform work in cold conditions will be knowledgeable on how to administer first aid treatment on cold induced injuries or illnesses.

8.4. All employees should be informed of the dangers and destructive potential caused by unstable snow buildup, sharp icicles, and ice dams and know how to prevent accidents caused by them.

## 9. Overview & Protective Measures to Avoid Cold Stress

9.1. The work environment must be taken into consideration when planning work projects in winter months. Assessments will be conducted to identify the types of jobs and the employees who are at risk for cold exposure. Supervisors will be responsible for ensuring that the weather and employees are monitored throughout the day to make sure that no employee is being affected by the harsh weather conditions.

9.1.1. If an employee displays any signs that he/she is experiencing cold stress, the supervisor must be notified so that he/she can take appropriate action.

9.2. Protective Clothing is the most important way to avoid cold stress and is required when working in cold, wet and windy conditions. The following are recommendations for working in cold environments:



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- 9.2.1. Wear at least three layers of clothing.
  - 9.2.1.1. An inner layer of wool, silk or synthetic to keep moisture away from the body;
  - 9.2.1.2. A middle layer of wool or synthetic to provide insulation even when wet;
  - 9.2.1.3. An outer wind and rain protection layer that allows some ventilation to prevent overheating.
- 9.2.2. Wear a hat or hood. Up to 40% of body heat can be lost when the head is left exposed.
- 9.2.3. Wear insulated and waterproof boots or other footwear.
- 9.2.4. Keep a change of dry clothing available in case work clothes become wet.
- 9.2.5. Do not wear tight clothing. Loose clothing allows better ventilation of heat away from the body.
- 9.2.6. Do not underestimate the wetting effects of perspiration.
- 9.3. Employees must implement a "buddy system" to ensure that no one is working alone in cold environments. The buddy system is a procedure in which two people, the "buddies", operate together as a single unit so that they are able to monitor and help each other
- 9.4. Some preventive measures include: drinking plenty of liquids, avoiding caffeine and alcohol. It is easy to become dehydrated in cold weather. If possible, heavy work should be scheduled during the warmer parts of the day. Take breaks out of the cold. Try to work in pairs to keep an eye on each other and watch for signs of cold stress. Avoid fatigue since energy is needed to keep muscles warm. Take frequent breaks and consume warm, high calorie food such as pasta to maintain energy reserves.
- 9.5. Regularly used walkways and travel areas shall be sanded, salted, or cleared of snow and ice as soon as practicable.
- 9.6. Regular inspections on cold weather supplies (e.g. hand warmers, jackets, shovels, etc) should be carried out to ensure that supplies are always in stock.

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## 1. Purpose

- 1.1. Cleveland Integrity Services performs services for clients/customers in workplaces where there is a potential for exposure to hydrogen sulfide (H<sub>2</sub>S). Consequently, the Company has designed and adopted this Hydrogen Sulfide (H<sub>2</sub>S) Safety Program to prevent injuries and death due to exposure to H<sub>2</sub>S at work locations.
- 1.2. Exposure potentials occur when Company operations are near places and situations where there can be releases and accumulations of H<sub>2</sub>S. Such operations include pipeline maintenance or repair, and any work performed near wells, tanks and production facilities. Other H<sub>2</sub>S exposure situations include: work near drilling operations or with drilling mud; water from sour crude wells; wells blowouts; tank gauging at production, pipeline or refining points; and during field maintenance or battery work at wells.
- 1.3. This program provides for training site supervisors and employees who have a potential for H<sub>2</sub>S exposure at work, giving them the required knowledge about and qualification for H<sub>2</sub>S hazard recognition, safety practices, work procedures, and response to a H<sub>2</sub>S emergency.

## 2. Physical Characteristics

- 2.1. Hydrogen sulfide (H<sub>2</sub>S) refers to either the gaseous or liquid form of the compound. Under atmospheric conditions, it is a toxic, highly flammable and colorless gas.
- 2.2. Typically called "sour gas", hydrogen sulfide is soluble in water, crude oil or petroleum fractions, and is extremely corrosive. At low concentrations, it has the odor of rotten eggs.
- 2.3. The gas can cause severe stress cracking of steel and other metals.
- 2.4. Hydrogen sulfide burns with a blue flame to form sulfur dioxide which is also a toxic gas.
- 2.5. Hydrogen sulfide has a density 1.2 times greater than that of air and tends to settle in low lying areas.
- 2.6. The gas can be dispersed by wind movement or air currents. Additional characteristics are provided in Appendix I in this program.
- 2.7. It is important to understand that the concentration of hydrogen sulfide can be measured or expressed in two ways:
  - 2.7.1. Parts per million (ppm) of H<sub>2</sub>S in liquid, by weight ratio, and
  - 2.7.2. ppm of H<sub>2</sub>S in the air, by volume ratio.

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- 2.8. While both methods of measurement are utilized, there is a significant difference between a hydrogen sulfide concentration in air and that in liquid. The actual concentration measured in air (by volume ratio) is usually much higher, and can be 10 to 100 times higher than the same value measured in liquid by weight ratio.

For example, crude oil being discharged into a storage tank may contain only 70 ppm hydrogen sulfide in the liquid by weight. However, the concentration of hydrogen sulfide in the tank vapor space above the crude oil could exceed 7000 ppm hydrogen sulfide by volume. Unless otherwise specified, all following discussions refer to hydrogen sulfide concentrations based on ppm in air, by volume ratio.

### 3. Exposure Standards

- 3.1. The exposure standards provided are intended primarily for domestic operations. Where foreign operations are concerned, practices are in accordance with the respective foreign government's regulations.
- 3.2. OSHA General Industry standards (29 CFR 1910.1000 Z-2 Table) establish a Permissible Exposure Limit (PEL) of 20 ppm (ceiling), with one exception: If no other measurable exposure occurs during the 8-hour work shift, exposures may exceed 20 ppm, but not more than 50 ppm (peak), for a single time period up to 10 minutes.
- 3.3. OSHA Construction Industry standards (29 CFR 1926.55 Appendix A) establish a PEL of 10 ppm, 15 mg/m<sup>3</sup> TWA.
- 3.4. In addition to federal regulations and guidelines such as the Threshold Limit Values, some state governments such as California have enacted occupational health and safety legislation. In many cases, state regulations are a merging of the OSHA and ACGIH exposure limits.

For example, Cal-OSHA notes an 8-hour hydrogen sulfide exposure limit of 10 ppm. An excursion limit of 20 ppm may be experienced over one 20-minute period per 8 hours, and a ceiling limit of 50 ppm is not to be exceeded at any time.

Operations located in states having their own occupational health and safety regulations should reference the respective exposure limits with regard to exposure control and compliance.

- 3.5. The exposure limits for hydrogen sulfide are primarily based upon the irritant effects of the gas and resulting worker discomfort. The more significant concerns regarding the potential disabling or lethal capabilities of the gas at concentrations greater than 100 ppm are not primarily considered.

### 4. HEALTH EFFECTS FROM EXPOSURE

- 4.1. The effects associated with hydrogen sulfide exposure are primarily determined by the concentration of the gas in the individual's breathing zone, the length of the exposure period(s) and individual susceptibility to the contaminant.

- 4.2. Exposure effects at various hydrogen sulfide concentrations are provided in summary as Table I.
- 4.3. The health effects associated with hydrogen sulfide exposure are most often the result of sudden, excessive exposures experienced over a short time period. For example, a short-term exposure to hydrogen sulfide at a concentration of 600 ppm can result in death within minutes.
- 4.4. A most important characteristic of hydrogen sulfide gas is its ability to cause olfactory fatigue or a failure in the sense of smell. At concentrations approaching 100 ppm, exposure to hydrogen sulfide causes a loss of the sense of smell. This effect can result in an individual developing a false sense of security relative to the exposure conditions.

**HIGH CONCENTRATIONS OF HYDROGEN SULFIDE, ESPECIALLY THOSE CAPABLE OF CAUSING PHYSIOLOGICAL DAMAGE, CANNOT BE DETECTED BY THE SENSE OF SMELL.**

**Table I -- Potential Health Effects of Hydrogen Sulfide at Various Concentrations**

<u>H<sub>2</sub>S Concentration (ppm)*</u>	<u>Potential Effect</u>
10 to 20	eye irritation, especially in hyper-susceptible workers
20 to 100	inflammation, corneal blistering and the capacity of the eye, loss of the sense of smell, headache, cough, nausea
100 to 300	respiratory difficulty, pulmonary edema, respiratory depression and irritation (30 min - 8 hrs)
300 to 600	central and peripheral nervous system effects, e.g., tremors, weakness, numbness of extremities, unconsciousness and convulsions (several minutes to hours)
600 to 1000	rapid breaths, unconsciousness resulting in death if emergency aid is not promptly administered
1000 and greater	cessation of breathing (instantaneous) and death

**Note:** Effects described at a specific concentration usually occur with increasing severity at higher concentrations.

\* parts per million parts of air in breathing zone.

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## 5. Work Practices

5.1. Cleveland Integrity Services incorporates the specific work practices discussed below into routine operation and maintenance activities to help prevent overexposure to hydrogen sulfide, as applicable. These work practices have proven effective in controlling hydrogen sulfide exposure in various Company operations.

### 5.1.1. *Ventilation*

5.1.1.1. When the potential for hydrogen sulfide exposure occurs during routine operation and maintenance activities, ventilation of the worker's breathing zone is extremely important. Hydrogen sulfide gas is 1.2 times heavier than air and does not readily dissipate. The gas accumulates in low lying and confined spaces and may remain for an extended time. Adequate ventilation, whether provided by natural winds, powered air or local exhaust, can prevent hazardous concentrations of hydrogen sulfide from accumulating.

5.1.1.2. Outdoor tasks involving potential exposure to hydrogen sulfide are not conducted on calm days, when it is not practical to do so. Wind direction should be verified by a wind sock, streamer, or vane, prior to initiating work. If possible, workers should always remain upwind from the source of the gas during tasks. Wind conditions cannot be relied upon as a single means of controlling exposure.

5.1.1.3. Inside work, where hydrogen sulfide exposure may occur, is conducted under a properly functioning laboratory hood or with local exhaust ventilation placed at the source of emission. Laboratory hoods should provide a minimum average face velocity of 125 linear feet per minute (fpm). Ventilation requirements for confined spaces are discussed separately.

### 5.1.2. *Monitoring*

5.1.2.1. Fixed or portable monitors are used to detect the presence of H<sub>2</sub>S. Alarms are preset to signal at the appropriate permissible exposure limit of 20 ppm when work being performed is regulated under OSHA General Industry 1910 standards; or 10 ppm when work being performed is regulated under OSHA 1926 Construction Safety standards.

5.1.2.2. Upon the sounding of an area or personal H<sub>2</sub>S monitor, evacuation of the area begins immediately to a safe area upwind from the location. The evacuated area will not be re-entered except by trained and authorized personnel utilizing appropriate respiratory protection; or until the "all clear" is sounded by personnel in charge of the work site and it is safe to re-enter the area.

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- 5.1.2.3. Representative employees are selected to wear personal monitors when such group tasks are to be performed. Portable monitors can be substituted for the personal type as long as it adequately samples the work area used by all employees with a potential for exposure.
- 5.1.2.4. Monitors are utilized for the complete duration of work activity. If the alarm sounds, indicating a concentration at/or above this level, workers should immediately leave the area.
- 5.1.2.5. Workers withdraw upwind to a position that is considered to be a safe distance from the source of the gas. The alarm will continue to sound until the detector-sensor is cleared of hydrogen sulfide.
- 5.1.2.6. Allowing workers to re-enter, and work in the area should be permitted only if they are wearing a full-face pressure-demand airline respirator with escape bottle, or an approved self-contained breathing apparatus (SCBA).
- 5.1.2.7. This procedure is followed until it has been established that the area is safe from hydrogen sulfide. Depending on the type of monitor and the concentration of the gas, this can take several minutes, even though the monitor is removed to a hydrogen sulfide free atmosphere.
- 5.1.2.8. Continuous fixed area monitors can be permanently installed in locations where the sudden release of hydrogen sulfide is possible. The monitor sensors should be placed in proximity to potential sources of a hydrogen sulfide release. Several sensors may be necessary at points of possible gas emission, and should be connected to a central monitor. The monitor's warning device, audible and visual, should be located so that the alarm can be easily recognized throughout the facility. Employees are instructed to follow established response procedures in the event an alarm is activated.
- 5.1.2.9. Both personal and area monitors must be routinely calibrated and properly maintained. Procedures are established to carry out these functions. The individual or group responsible for this activity should be identified and will keep a log book for recording calibration and maintenance.

## 6. Respiratory Protection

- 6.1. Supplied-air (airline or SCBA) respiratory protection against hydrogen sulfide exposure is required in the following situations:
  - 6.1.1. When routine or maintenance work tasks involves exposure to H<sub>2</sub>S

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concentrations of 20 ppm or greater.

- 6.1.2. When a fixed monitor alarms, and re-entry to the work area is required to complete a job.
- 6.1.3. When confined spaces are to be entered without knowledge of H<sub>2</sub>S levels present, or if initial measurements are to be taken of H<sub>2</sub>S levels.
- 6.1.4. During rescue of employees suspected of H<sub>2</sub>S overexposure.
- 6.1.5. For specific tasks identified with significant exposure potential and outlined in local program guidelines.
- 6.2. All respiratory equipment for hydrogen sulfide must be of the supplied-air type, equipped with pressure-demand regulators and operated in the pressure-demand mode only. This is the only type of respiratory protection recommended for hydrogen sulfide application. Equipment should be approved by NIOSH/MSHA or other recognized national authority as required. If airline units are used, a five-minute egress bottle should also be carried.
- 6.3. Gas masks or other air-purifying respirators *MUST NEVER BE USED FOR HYDROGEN SULFIDE* due to the poor warning properties of the gas.
- 6.4. Use of respiratory protection should be accompanied by a written respiratory protection program.

## 7. Confined Space

- 7.1. Work conducted in low lying areas and confined spaces where hydrogen sulfide may be present require specific precautions beyond those described above. These conditions may be encountered during excavation and line repair or tank (vessel) maintenance and inspection. The company should have a full written confined space program for these situations and train employees under 29 CFR 1910.146(g).
- 7.2. Prior to beginning work, these tasks require that the excavated area or vessel be thoroughly tested with a direct reading hydrogen sulfide instrument, as well as tested for sufficient oxygen and the absence of flammable atmospheres. These measurements are included as an integral part of an entry procedure. Furthermore, where entry permits are required, these measured levels should be noted on the permit.
- 7.3. Combination hydrogen sulfide detectors which also measure combustible gas and oxygen are available. **CARE IS TAKEN TO DETERMINE THE HYDROGEN SULFIDE CONCENTRATION THROUGHOUT THE COMPLETE AREA.** Particular attention is given to measuring hydrogen sulfide in the bottom of tanks, vessels, or open pits, and on the top of floating roof tanks, where the gas is likely to concentrate. **IF ENTRY IS REQUIRED ON THE TOP OF FLOATING ROOF TANKS TO PERFORM THIS INITIAL TEST, THEN RESPIRATORY PROTECTION, AS DESCRIBED PREVI-**

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***OUSLY, IS WORN BY THE TESTER.***

- 7.4. If hydrogen sulfide levels are determined to be above 20 ppm, entry into a confined space should require respiratory protection. Efforts are made to ventilate the confined space prior to scheduled entry. When concentrations of hydrogen sulfide remain above 20 ppm, additional forced air venting is recommended before entry, when time permits.
- 7.5. If entry is necessary under the above condition, respiratory protection consists of a pressure-demand airline respirator with an egress bottle or an SCBA. A standby person, also equipped with proper respiratory protection, should be outside the vessel and in constant audio or visual contact with the worker inside. This precaution is necessary to ensure that rapid rescue of the worker inside can be accomplished.

**8. Location Controls and Warning Signs**

8.1. Wind Indicators

- 8.1.1. Wind direction should be determined prior to performing outdoor tasks-where hydrogen sulfide may be encountered.
- 8.1.2. Work tasks which can be performed upwind from a hydrogen sulfide source can greatly reduce the potential for gas in the worker's breathing zone.
- 8.1.3. Wind socks, streamers, or vanes provide an indication of wind direction.
- 8.1.4. These wind indicators are placed at a location and height to enable free movement and should accurately indicate wind direction.
- 8.1.5. The wind indicator is easily visible from normal entrances to the work area and from all work locations.

8.2. Warning Signs

- 8.2.1. Consistent with Hazard Communication requirements, warning signs for hydrogen sulfide should be posted to remind employees of the potential hazard at each specific location.
- 8.2.2. Additionally, signs indicate the need for monitors or respiratory protection in areas where such equipment is required.
- 8.2.3. Where applicable, warning signs are posted at producing well sites, tank batteries, refinery units, and chemical facilities, etc.
- 8.2.4. In effect, signs are posted on all units where the potential for a dangerous release of hydrogen sulfide exists.
- 8.2.5. Signs are large enough to be easily visible.



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- 8.2.6. Warning signs such as the following are recommended although variations in the wording may be used:

**WARNING HAZARDOUS AREA  
HYDROGEN SULFIDE  
HEALTH HAZARD  
POTENTIALLY FATAL OR HARMFUL IF INHALED**

## 9. Automatic Tank Gauges

- 9.1. Automatic Tank Gauging instruments have been used successfully in some operations to control potential hydrogen sulfide exposures. These devices can be installed on crude, produced (RECOVERED) water, and chemical product storage tanks to reduce the need for conventional manual tank gauging and the subsequent potential for gauge exposure. They enable measurement of storage tank volume and require only occasional manual gauging to check for proper operation.
- 9.2. When tanks equipped with automatic gauges require manual gauging and contain hazardous concentrations of hydrogen sulfide, the tank gauge should use pressure demand supplied air respiratory protection.
- 9.3. Respiratory protection is utilized until the hydrogen sulfide concentration is determined to be within acceptable levels as measured by appropriate monitoring equipment.

## 10. Emergency Procedures

- 10.1. The prompt performance of specific rescue and emergency first aid procedures can very often result in the full recovery of victims overcome by hydrogen sulfide. These victims should be immediately removed from the contaminated atmosphere by a rescuer wearing full-face pressure-demand supplied air respiratory protection, e.g., SCBA or supplied air with egress unit.
- 10.2. ***RESCUE IS NEVER ATTEMPTED WITHOUT APPROPRIATE RESPIRATORY PROTECTION!*** Many such attempts have resulted in the rescuer also becoming a victim.
- 10.3. Respiratory protection equipment is located on-site for rescue purposes and/or carried on Company vehicles, depending on practicality and need. Full-face, pressure-demand self-contained breathing apparatus (SCBA) is most appropriate for rescue.
- 10.4. Respiratory protection designed specifically for safe egress may be appropriate for some limited locations. Egress equipment differs significantly in design and application from standard SCBA and airline respiratory equipment. This equipment can be placed at visible and easily reached points or carried by employees in areas where the sudden release of hydrogen sulfide is possible.
- 10.5. Egress equipment is primarily suited for areas where exit is restricted and either personal or area monitors are in use. Egress equipment should provide full-face

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protection and 5 to 15 minutes of air supply. The number of such devices should be determined according to the number of workers commonly in the area. **EGRESS EQUIPMENT IS DESIGNED FOR ESCAPE ONLY AND IS NOT INTENDED FOR RESCUE OR ROUTINE RESPIRATORY PROTECTION PURPOSES!**

**11. Emergency Aid**

- 11.1. Once the victim is safely removed from the contaminated atmosphere, the rescuer should begin artificial respiration or administer oxygen if breathing has ceased. **FRESH AIR SUPPLIED TO THE VICTIM'S LUNGS THROUGH ONE OF THESE METHODS IS THE MOST IMMEDIATE NEED.** Back pressure artificial respiration may be applied initially to clear the victim's lungs of the toxic gas before mouth-to-mouth artificial respiration is administered. NOTE: Follow the Company's first aid procedures.
- 11.2. Caution should be taken during the application of artificial respiration not to inhale air directly from the victim's lungs. This could also result in the rescuer being overcome. Depending on the length of exposure and concentration of hydrogen sulfide, heart failure may occur within 4 to 6 minutes should the exposure be major. If the victim's heart has stopped, cardiopulmonary resuscitation (CPR) must be started immediately. **RECOVERY FROM OVEREXPOSURE TO HYDROGEN SULFIDE IS USUALLY COMPLETE IF THIS AID IS ADMINISTERED PROMPTLY.**
- 11.3. If the victim does not respond to emergency aid, emergency medical aid is summoned to the scene, and the individual is taken, as soon as possible, to a hospital for further treatment. **REGARDLESS OF APPARENT CONDITION, OVEREXPOSURE VICTIMS RECEIVE APPROPRIATE MEDICAL ATTENTION AS SOON AS POSSIBLE.**
- 11.4. Plans for obtaining emergency medical care and transportation of victims is prearranged such as with contingency plans. Notification lists or contingency plans are prominently posted or available to individual employees. This list includes the names and phone numbers of local medical facilities, ambulance services, and Company supervisory personnel to be contacted. Local medical facilities should be prepared to handle victims of hydrogen sulfide exposure. Therefore, they must be notified so they can make necessary arrangements to be able to handle such incidents.

**12. Contingency Plans**

- 12.1. Another part of the contingency plans is developed for evacuation of employees and local residents where the potential exists for a significant and hazardous hydrogen sulfide release. Employees should be familiar with these plans and with their specific responsibilities in the event that the plan is activated. The plans should be developed in accordance with local, state, and federal environmental and public safety agency requirements.

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### 13. Training

- 13.1. All employees who may encounter H<sub>2</sub>S at or above OEL or PEL as part of routine or maintenance work should receive instructor led classroom training for a minimum of 3.5 hours on the hazards associated with hydrogen sulfide. An Instructor led classroom training for a minimum of 3.5 refresher training is conducted annually.
- 13.2. The training includes:
  - 13.2.1. The hazards of hydrogen sulfide;
  - 13.2.2. Proper work practices to reduce the potential for exposure;
  - 13.2.3. The hydrogen sulfide exposure conditions in the employees' work areas;
  - 13.2.4. The proper use and limitations of hydrogen sulfide monitors and respiratory protective equipment; and
  - 13.2.5. Rescue and emergency aid procedures in assisting hydrogen sulfide overexposure victims.
  - 13.2.6. Site-specific operational, contingency and emergency plans, including host employer and general contractor requirements.
- 13.3. Employees performing jobs that require respiratory protection receive training specific to the use and limitations of the equipment. Also, employees designated to perform maintenance and inspection of respiratory protective equipment receive adequate training in these aspects as well.
- 13.4. New or transferred employees receive instruction regarding hydrogen sulfide and respiratory protection prior to their full release to the new work location.

### 14. Required Written Programs

- 14.1. Standard Operating Procedures (SOPs) should be written by each job site supervisor if the potential for significant hydrogen sulfide exposure exists during routine tasks, maintenance activities, and confined space entry. These SOPs should be brief, and stated in such a manner that they can be easily understood.
- 14.2. A written respiratory protection program is required by OSHA when respiratory protection is utilized. Such a program is also recommended for Company operations outside OSHA jurisdiction. Cleveland Integrity Services' written respiratory protection program includes instruction on proper maintenance, inspection, use, and cleaning of respiratory protection equipment.
- 14.3. The program also indicates the individual responsible for these activities, and the time at which these various functions are to be carried out. Requirements for training and subsequent refresher training should also be specified.

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14.4. Routine work operations for Company employees **DO NOT** include entering confined spaces to perform work. This includes confined spaces that may contain an accumulation of H<sub>2</sub>S. In the event that a work assignment should require entering what is identified as a confined space, entry is performed in accordance with the Company's written Confined Space Entry program; and only by personnel who have been trained and authorized to perform this type of hazardous duty. All such work assignments are specifically authorized in advance by the Site Supervisor and the Company Safety Representative.

**15. Medical Surveillance**

- 15.1. Employees subject to potential exposure to hydrogen sulfide are included in a medical surveillance program.
- 15.2. Pre-placement physical examinations should review work histories to determine the significance of any previous exposure to hydrogen sulfide.
- 15.3. The employee's ability to use pressure-demand respiratory protection and /or aid in emergency rescue is determined prior to use.
- 15.4. The physical examination places particular attention on symptoms related to the eyes, central nervous, cardiovascular and respiratory systems.

**APPENDIX I**

**Physical and Chemical Properties of Hydrogen Sulfide**

<u>Molecular Formula</u>	<u>H<sub>2</sub>S</u>
Density compared to air (air-1.0)	1.2 (gas @ 15NC, 1 atm)
Auto ignition temperature	260NC (500NF)
Flammable range in air	4.3-45% (by volume in air)
Appearance of gas	Colorless
Solubility in Water (Fresh or Salt)	Highly soluble
Solubility in Oil	Highly soluble
Odor	"Rotten eggs"
Odor threshold	0.02 ppm*
Olfactory fatigue level	100 ppm* (may vary)

\* parts of H<sub>2</sub>S per million parts air

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## 1. Purpose & Scope

- 1.1. Cleveland Integrity Services has established protocols, policies and procedures for the investigation of all reported at-work injuries, illnesses, non-injury and near-miss incidents.
- 1.2. Based on the nature, circumstances, actual and/or potential severity, investigations are conducted to obtain information about the incident as needed to ascertain root causes.
- 1.3. Based upon severity and other situation-specific considerations, one or more methods of *Root Cause Analysis* (RCA) are then utilized to help identify and determine circumstances, events, behaviors and other contributing factors to the incident.
- 1.4. Investigation, information gathering, RCA and related activities are utilized to identify specific causal factors that are addressed as required to prevent a reoccurrence.
- 1.5. By its nature, a “near miss” is an event that did not result in an injury or damage to property, assets or the environment only because of good fortune. Consequently, under this program, near-miss incidents are investigated in the manner and with the same priority as an actual injury, damage and/or environmental occurrence.

## 2. Incident Reporting Sequence & Timetable

- 2.1. An incident reporting sequence is followed in accordance with site-specific procedures at the work location.
- 2.2. When the site-specific incident reporting sequence is established, it is included in written incidence response procedures for the work location and posted along with emergency phone numbers and any other incident reporting information.
- 2.3. Unless otherwise established by host employer emergency response procedures and protocols, here is the reporting sequence for an incident (injury or non-injury):
  - 2.3.1. Call 9-1-1 or the facility’s Emergency Response Team immediately, in accordance with host employer procedures to obtain the quickest emergency assistance.
  - 2.3.2. Call the host employer supervisor or designated contact without delay and no later than 24 hours after the incident.
  - 2.3.3. Call the Company main office without delay during business hours and the Company’s Safety Coordinator after hours and on weekends.
  - 2.3.4. Call the local OSHA office within eight hours if one or more employees are hospitalized, or if there is a fatality.

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### **3. Incident Investigation Responsibilities & Training**

- 3.1. For purposes of this program, incidents are defined as including work-related injuries, illnesses, property and vehicle damage, fires, explosions, chemical spills or releases.
- 3.2. Cleveland Integrity Services' on-site supervisor conducts and directs the initial on-site incident investigation, when possible in coordination with the Company Safety Coordinator.
- 3.3. The Company Safety Coordinator will direct the ongoing and follow-up investigation. At the discretion of the Company Safety Coordinator, additional qualified personnel may be enlisted to perform specific functions during the investigation (i.e. safety professionals, consultants, industrial hygiene professionals and technicians).
- 3.4. Employees and other personnel involved in conduct of the investigation are trained and qualified in the methods, techniques and responsibilities of the assignment.
  - 3.4.1. All employees are trained to be aware of incident investigation requirements and procedures;
  - 3.4.2. First Responders are trained in first aid, CPR, protection from bloodborne pathogens, use of AED, and other specialized qualifications and skills as may be part of the Company's work assignment to help control further loss.
  - 3.4.3. Company supervisors are trained on the methods, techniques and requirements for conduct of an initial incident investigation and reporting.
- 3.5. Employee incident investigation and reporting training is conducted initially prior to assignment with refresher training annually thereafter.

### **4. Incident Investigation Procedures**

- 4.1. Procedures, as established by this program, are followed during investigation of all reported incidents.
- 4.2. Equipment necessary for the proper conduct of an incident investigation is provided and available. Such equipment includes:
  - 4.2.1. Necessary personal protective equipment (i.e. hard hat, high visibility vest, other PPE as required by the incident location);
  - 4.2.2. Pens and paper;
  - 4.2.3. Camera(s);
  - 4.2.4. Audio recorder;
  - 4.2.5. Ruler and measuring tape;

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- 4.2.6. Marking devices such as flags;
  - 4.2.7. Warning tape for barricading around the scene;
  - 4.2.8. Flashlights and temporary lighting as required;
  - 4.2.9. Equipment manuals, local work procedures and other documentations that will be reviewed or referenced during the investigation; and
  - 4.2.10. Other materials as may be required.
- 4.3. After rescue, triage and treatment of the injured, additional actions are taken as possible, within the scope of individual training and as authorized by the host employer, to prevent further loss. For example, host employer maintenance and engineering personnel should be called to confirm the integrity and safety of buildings, structures, units or facilities possibly affected by the incident. If the incident involves a chemical spill or release, or explosive materials, the host employer's Hazardous Materials Team should be called to respond.
- 4.4. Initial investigation includes the preliminary assessment and collection of evidence. This includes making an initial list of persons, equipment and materials involved; listing the names of witnesses and potential witnesses; noting environmental factors such as weather, wind direction, temperature, noise, illumination, ventilation and other factors observed relating to the incident.
- 4.5. Following initial rescue, medical response and evacuation of injured persons, evidence at the incident scene are preserved. The positions of persons, wreckage, equipment, parts, papers and materials involved in the incident are preserved, secured and collected through notes, photographs, witness statements, flagging and impoundment of physical evidence.
- 4.6. Unauthorized persons are not allowed access to the incident location.
- 4.7. Beginning with the initial investigation, witnesses are located, their statements taken and interviews conducted in a manner that ensures unbiased testimony.
- 4.8. Interviewing of witnesses, initially and for follow-up, is conducted at appropriate times and locations by individuals designated by Cleveland Integrity Services. Interviewers are trained in the techniques, methods and skills of interviewing witnesses as part of their incident investigation qualification.
- 4.9. Necessary tools, equipment and supplies are available to employees assigned to incident response and investigation. A blank Incident Report Form can be found under Attachment A.
- 4.10. Types of equipment provided for emergency first response are based on the level of response and training of the responder(s).



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- 4.11. First responders hold current certification(s) in first aid, CPR, AED, preventing exposures to bloodborne pathogens, and other skills as required by the first responder assignment and selection.
- 4.12. First response equipment includes first aid and trauma supplies; personal protective equipment for bloodborne pathogens; CPR devices (i.e. one-way face masks, bag masks, latex medical gloves, eye protection; backboards, scoop and basket stretchers; extrication and rescue equipment).
- 4.13. After initial rescue, triage, treatment and safety of personnel at the scene, response includes actions to prevent further damage and loss to property and the environment.
- 4.14. As appropriate to the Company's work assignment and as allowed by the host employer, the site supervisor and designated employees take steps to avoid or minimize further damage and loss.
- 4.15. This includes contacting host employer maintenance, engineering and security personnel to evaluate the integrity and safety of buildings, structures, facilities, and pipeline and process units.
- 4.16. If loss control involves the spill or release of hazardous chemicals, host employer Hazmat responders are contacted immediately.
- 4.17. Company employees who have initial Hazwoper responsibilities will attempt containment and control of the release in accordance with pre-planning, individual qualifications and host employer procedures.
- 4.18. Preliminary identification, collection, preservation and security of evidence
- 4.19. The Company's site supervisor will conduct and direct the initial investigation.
- 4.20. The incident scene is secured in accordance with Company and host employer procedures. Scene security includes keeping unauthorized persons out of the area so that scene situations are not disturbed.
- 4.21. This includes impounding and keeping machines, vehicles, equipment, tools, parts, wreckage and other aftermath intact, undisturbed and protected in anticipation of investigation.
- 4.22. Notes, photos, drawings, measurements, video and other recordings, witness identifications and statements, incident time, location, weather, environmental and other factors -- all such information, materials, records and documentations are taken, protected and secured following an incident.
- 4.23. Witness statements and interviews, initial and follow-up, are conducted in a timely manner. The interviewer is trained in the methods, procedures and techniques for obtaining unbiased witness information.
- 4.24. Location of interviews and follow-up questioning will be similarly performed as needed.

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## 5. Determination and implementation of corrective actions

- 5.1.1. Investigation results are considered using Root Cause Analysis (RCA) to determine specific corrections as required to prevent a reoccurrence.
- 5.1.2. Specific individuals are assigned to take each corrective action. Each action is tracked to completion with documentation.
- 5.1.3. A written report is made based on the incident investigation. The report includes a completed Incident Investigation Form and Root Cause Analysis in the format as established by Cleveland Integrity Services.
- 5.1.4. The written report includes a detailed narrative that explains when, where, how and why the incident occurred; the names, statements and other information from or about persons involved; findings and recommendations.
- 5.1.5. The report includes the name and role of each investigating participant.
- 5.1.6. Witness statements, photos, videos, drawings, diagrams, reference and other support materials are included as part of the report.
- 5.1.7. The report is used to document and help communicate lessons learned from the incident, as well as corrections, changes and measures taken to prevent reoccurrence of a similar event.

Date investigation initiated

STATUS:  In progress  Completed

**PARTICULARS OF INCIDENT**

Reported date of incident	Time	AM	PM	Location	Date reported	
	Supervisor					
MTWTFSS				<input type="checkbox"/> Company premises	<input type="checkbox"/> Job site	<input type="checkbox"/> Highway

Weather Conditions at Time of Event

<b>Skies</b>	Clear	Fair	Partly Cloudy	Cloudy	Stormy
<b>Temperature</b>	0 - 30	31 - 50	51 - 70	71 - 90	91 - 115
<b>Wind</b>	Still		Moderate		High
<b>Speed</b>	0 - 5	6 - 10	11 - 19	20 +	

Other Information:

Note: Please do not forget to take pictures of the site where incident occurred.

**THE PERSON REPORTING THE INCIDENT**

Name		Address	
Age	Phone number		
Job title or occupation		Hire date	How long at this assignment

What was employee doing when incident occurred? What machine or tool? What operation?

Is an injury alleged to have occurred in connection with the reported incident?  NO  YES

If YES, who was allegedly injured?

Has injury been confirmed?  NO  YES  CANNOT CONFIRM

If injury has NOT been confirmed, explain why?

Type of injury alleged:	<input type="checkbox"/> Bruising	<input type="checkbox"/> Dislocation	<input type="checkbox"/> Other (specify)	Part of body
<input type="checkbox"/> Strain/sprain	<input type="checkbox"/> Scratch/abrasion	<input type="checkbox"/> Internal		
<input type="checkbox"/> Fracture	<input type="checkbox"/> Amputation	<input type="checkbox"/> Foreign body	Remarks	
<input type="checkbox"/> Laceration/cut	<input type="checkbox"/> Burn scald	<input type="checkbox"/> Chemical reaction		

Has medical examination & treatment by a physician been rendered?  NO  YES

If YES, where, by whom and when:

What was physician's initial diagnosis and treatment?

What was physician's initial duty determination?  Return to duty  Duty with restrictions  Full release from duty

What treatment was provided?

Did the physician write one or more prescriptions relating to the examination?  NO  YES

If YES, what were the prescriptions (if known):

Was a post-accident drug screen rendered in accordance with company drug-free workplace policy?  NO  YES

Where and by whom was the drug screen sample collected?

What was the method of collection?   Urine   Blood  Other

**DAMAGED PROPERTY**

Property / material damaged

Nature of damage

Object/substance inflicting damage

**THE INCIDENT AS REPORTED**

**DESCRIPTION** Describe what reportedly happened. Use of drawings, photos and diagrams may be included.

**ROOT CAUSE ANALYSIS** What were the direct and indirect Root Causes of the incident?

1. State the conditions prior to the event. This includes status of task performed or equipment used.
  
2. What was the employee's work assignment prior to the event?
  
3. What work controls (procedures, work order, clearance, etc.) applied to the work assignment?
  
4. What was the employee's first indication that a problem existed

5. What was the employee's action as a result of these indications?
  
6. List any noted equipment problems or inadequacies both before and after the event?
  
7. Explain if there are any procedure or work instruction deficiencies associated with the event.
  
8. What do you believe caused this event?
  
9. What recommendations do you have to prevent reoccurrence of this event?
  
10. List others present or involved with this event.
  
11. Additional comments regarding Root Cause Analysis of this event.

**WITNESSES** List name of any witnesses here. Attach individual witness statements as obtained.

**HOW SERIOUS COULD IT HAVE BEEN?**

Very serious       Serious       Not Serious

**WHAT IS THE CHANCE OF IT HAPPENING AGAIN?**

Frequent       Occasional       Rare

Did this incident result in reporting a recordable injury or illness on the OSHA 300 log?     NO     YES

If YES, briefly describe the reason(s) that this determination was made:

## PREVENTION

What specific action has or will be taken to prevent a recurrence?  
Check items already actioned. Use additional pages if required.

Y / N

By whom

When

What specific action has or will be taken to prevent a recurrence? Check items already actioned. Use additional pages if required.	Y / N	By whom	When

Last revised 1-01-2017

**REPORT PREPARED & SUBMITTED BY:**

**With review by:**

DRAFT

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Applicable Reference: Host Employer Requirement

## 1. Scope

- 1.1. This safety program is established by IMI Industrial Services to protect employees from the hazards of asphyxiation in an inert gas atmosphere during work. For purposes of this program, such a work environment or situation will be identified as an *inert space*.
- 1.2. The program applies to all occupational exposures to an inert gas atmosphere and associated asphyxiation workplace hazards.
- 1.3. An inert atmosphere does not support life. Gas used for the inerting process displaces breathable oxygen and prove to be very deadly. The inerting gas is usually odorless and colorless. A person's senses usually provide no protection against inert gas atmospheres.
- 1.4. Good safety management practices are essential in preventing deaths and injuries caused by asphyxiation in an inert gas atmosphere.

## 2. Hazards of gases used during inerting procedures

- 2.1. Inert gas does not react with other chemicals under most normal circumstances. An inert gas is often used in industrial settings to displace other gases that are toxic, corrosive, reactive, or present fire or explosion hazards, making processes safer.
- 2.2. Using an inert gas to remove oxygen from process equipment decreases the chances of a fire or explosion. But it also can make the atmosphere in and around the equipment hazardous for humans to breathe.
- 2.3. Generally, the gas used for inerting an atmosphere is not a "poison" in the traditional sense. It presents a hazard when it displaces oxygen, making the atmosphere hazardous to humans.
- 2.4. Breathing an oxygen-deficient atmosphere can have serious and immediate effects, including unconsciousness after only one or two breaths.
- 2.5. The exposed individual has no warning and cannot sense that the oxygen level is too low.
- 2.6. Causes of asphyxiation incidents during inerting operations include personnel not knowing they were entering an oxygen-depleted environment; not realizing that the environment had changed; and also mistaking the inerting gas for breathing air when using a supplied-air system.
- 2.7. Incidents can occur in a variety of settings, including chemical plants, processing and storage facilities, laboratories, pipeline and a range of work operations where inerting gas is used.

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- 2.8. Chemical Safety Board statistics show that almost half of reported asphyxiation incidents during inerting operations, and more than 60 percent of fatalities, involved contractors, including construction workers.
- 2.9. Deaths also were caused by personnel attempting to rescue another person from an inert gas environment without proper training and equipment.
- 2.10. Inerting of a confined space is a specific and deadly hazard to workers who enter that space to perform work.
- 2.11. Precautions must be taken to ensure that sufficient oxygen is provided to personnel. The Occupational Safety and Health Administration (OSHA) requires employers to maintain workplace oxygen at levels between 19.5 percent and 23.5 percent.

**3. Safe work procedures when working in a gas inerting operation**

- 3.1. Good safety practice requires continuous monitoring of a confined space to detect oxygen-deficient, toxic or explosive atmospheres.
- 3.2. Standardized warning signs in designated work areas will be reviewed and utilized as needed to communicate a potential asphyxiation hazard from an inert gas. Signs will communicate:

DANGER. INERT GAS PRESENT.  
POSSIBLE OXYGEN DEFICIENT ENVIRONMENT.

- 3.3. Job Safety Analysis (JSA) will be utilized for pre-planning of any operation where there is a potential employee exposure to an inert gas atmosphere, and any time that an active purge is being applied to a system in or around the employee work area.
- 3.4. The JSA will be specific to the vessel being entered and the work being undertaken. It will address all the risks associated with the work such as: setting up the inert entry and catalyst handling equipment at the work site; access and egress to the equipment; provisions for adequate lighting; control of employee access; lifting and rigging activities; removal of vessel internals; and installation of warning signs.
- 3.5. JSA completion will be communicated to and signed by all necessary personnel.
- 3.6. As part of the pre-planning and hazard assessment, a written, site-specific plan for preventing, recognizing and responding to heat-related stress and illness will be prepared. The plan will address a work and rest schedule for prevention of heat-related stress and illnesses. The prevention plan will be based on ACGIH Threshold Limit Values.
- 3.7. Barricades will be utilized as necessary to restrict access and identify (in combination with signage) points where an inert gas is ventilated or purged. Need for barricades will be determined as part of the pre-planning hazard assessment.



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- 3.8. Barricading and signage will be used to identify a perimeter of at least 4 feet from the vessel opening or manway to limit personnel in the area. This is done to protect entry personnel from external hazards.
- 3.9. Because the atmosphere of a confined space or enclosed area often changes during the course of work, it is essential to maintain continuous forced draft fresh-air ventilation before the job begins, during work and to completion.
- 3.10. Areas with the potential to contain elevated levels of an inert gas will be continuously ventilated prior to and during the course of the job. Ventilation is also required in rooms and chambers into which the inert gas may leak or vent.
- 3.11. Continuous air monitoring will be performed during entry operations. This will be done in accordance with the Company's established procedures for atmosphere monitoring during a confined space entry. Monitoring results will be logged at least every 15 minutes.
- 3.12. Equipment used during the inert gas operation will be inspected prior to entry to ensure that it is in good and safe operating condition.
- 3.13. Entry operations will include use of a communication system that allows for simultaneous communications between the entrant, attendant and supervisor. This will be in accordance with the Company's written *Confined Space Entry* program. This communications system will be maintained for use by those employees working inside the inert atmosphere as well as those monitoring from the outside.
- 3.14. Entrant(s) will immediately evacuate the inert space if communications fail, or if given the command to evacuate.
- 3.15. The confined space entry attendant and stand-by personnel will not leave their post until properly relieved while entrants are inside of the vessel or space under their watch.
- 3.16. Personnel trained in first aid and cardiopulmonary resuscitation (CPR) will be available to respond in a timely manner while entrants are inside of the vessel or confined space.
- 3.17. A warning system will be utilized to alert employees of a dangerous atmosphere.
- 3.18. Rescue may be necessary in the event of a continuous monitoring alert, ventilation failure, or another emergency situation. A written emergency response and rescue plan will be developed, communicated and implemented prior to entry into the inert space. This plan will be available on site. Methods and capabilities will be utilized to immediately retrieve immobilized employees from a confined space. Personnel will be trained on how to properly respond and evacuate in the event of a failure of the ventilation system, or when levels of an inert gas compromise a safe level of oxygen in work area breathing air.

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- 3.19. The emergency response plan will specifically address loss of the nitrogen supply; high nitrogen pressure; high levels of oxygen; loss of communication; high or increasing vessel internal temperature; loss of breathing air supply; emergencies that may occur inside the vessel (including medical conditions and injuries); and emergencies occurring outside the vessel.
- 3.20. Breathing air will be supplied when employees enter environments where oxygen is or may become deficient. Employee entrants will use a supplied air system with a lock-on helmet designed so that the helmet cannot be inadvertently removed or dislodged. Selection and use of the system will be done under the direction of a Competent Person in accordance with Company safe work procedures and the supplied air equipment manufacturer's instructions.
- 3.21. Breathing air supplied to the system must be of certified Grade D quality. This will be checked and tagged prior to use by the safety representative. Only bottled air will be used.
- 3.22. The entrant into an inert space will be equipped with an auxiliary escape air bottle, and will be trained in proper use of this equipment prior to entry.
- 3.23. To prevent interchanging cylinders of compressed inert gas with compressed industrial grade air or compressed breathing-quality air, unique fittings will be used for each cylinder so that inert gas cannot be accidentally connected to a breathing air system. This is why cylinders for inert gases, industrial grade air, and breathing-quality air have distinct, incompatible fittings that cannot be cross-connected.
- 3.24. Cylinders of gas used for inerting processes will be stored in an upright position outdoors or in a well-ventilated area. Cylinders will be properly supported and secured from falling.
- 3.25. A protective cap will be in place on any compressed gas cylinder that is not in use.
- 3.26. Inerting gas will not be used to power pneumatic tools or blowers, except when they are used in an inert atmosphere.

#### 4. **Employee training**

- 4.1. Employees who may be exposed to an inert gas atmosphere or purge situation, or who will work in a confined space where an atmosphere enriched with an inert gas may be present, will be specifically trained regarding hazards and safe work practices explained in this program. This will include site-specific, equipment-specific and other task-related situations that may present an asphyxiation exposure, as well as training as required by the Company's written *Confined Space Entry* program.
- 4.2. The Company will certify that required training has been accomplished.
- 4.3. Certification will include the employee's name, trainer signature, date(s) of training, place of training and an outline or copy of the training material, content or curriculum.

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- 4.4. Certifications will be available to employees and their authorized representative.
- 4.5. Training will include:
  - 4.5.1. Use of ventilation systems, retrieval systems, and atmospheric monitoring equipment – both on how to use them and how to determine when they are not working properly;
  - 4.5.2. Dangers of atmospheres enriched with an inert gas, and the systems to prevent interchanging breathing air and an inert gas;
  - 4.5.3. Implementing good hazard communication, which includes safe handling of air and inert gas delivery systems.
  - 4.5.4. Mandatory safety practices and procedures for entry into confined spaces, such as permits, providing an attendant, monitoring, ventilating, rescue, and contractor oversight.
  - 4.5.5. Precautions when working around equipment that may contain elevated levels of an inert gas.
  - 4.5.6. The reason for special fittings on compressed gas cylinders.
  - 4.5.7. Proper use of air supply equipment.
- 4.6. Training will cover new and revised procedures for confined space entry, and establish measurements for employee proficiency.
- 4.7. Contractors as well as employees will be trained.

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Applicable OSHA Standards: 29 CFR 1901.4(a); 1904.29(b)(3); 1904.32(b)(3); 1904.32(b)(5); 1904.32(b)(6); 1904.33(a); Cal-OSHA - TB CCR 3203.

## 1. Purpose

- 1.2. The Company has established, implemented and maintains this written Injury and Illness Prevention Program (IIPP).
- 1.3. A copy is maintained at each work location or at a central work location if the work assignment does not involve multiple separate worksites.

## 2. Scope

- 2.2. This IIP, supported by Cleveland Integrity Services's written safety and health programs, contains the following eight elements:
  - 2.2.2. Responsibility
  - 2.2.3. Compliance
  - 2.2.4. Communication
  - 2.2.5. Hazard Assessment
  - 2.2.6. Accident/Exposure Investigation
  - 2.2.7. Hazard Correction
  - 2.2.8. Training and Instruction
  - 2.2.9. Recordkeeping

## 3. Responsibilities

- 3.1. The Injury and Illness Prevention (IIPP) Program Administrator is the Company Safety Coordinator, or the Site Supervisor if this delegation has been made by the Safety Coordinator.
- 3.2. The designated Program Administrator has the authority and the responsibility for implementing and maintaining this IIP Program for the Company.
- 3.3. Managers and supervisors are responsible for implementing and maintaining the IIP Program in their work areas and for answering worker questions about the IIP Program. A copy of this IIP Program is available from each manager and supervisor.

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#### 4. **Compliance**

- 4.1. All workers, including managers and supervisors, are responsible for complying with safe and healthful work practices. The Company's system of ensuring that all workers comply with these practices includes one or more of the following checked practices:
  - 4.1.2. Informing workers of the provisions of our IIP Program.
  - 4.1.3. Evaluating the safety performance of all workers.
  - 4.1.4. Recognizing employees who perform safe and healthful work practices.
  - 4.1.5. Providing training to workers whose safety performance is deficient.
  - 4.1.6. Disciplining workers for failure to comply with safe and healthful work practices.

#### 4. **Compliance**

- 4.2. All workers, including managers and supervisors, are responsible for complying with safe and healthful work practices. Cleveland Integrity Services system of ensuring that all workers comply with these practices includes one or more of the following checked practices:
  - 4.2.2. Informing workers of the provisions of our IIP Program.
  - 4.2.3. Evaluating the safety performance of all workers.
  - 4.2.4. Recognizing employees who perform safe and healthful work practices.
  - 4.2.5. Providing training to workers whose safety performance is deficient.
  - 4.2.6. Disciplining workers for failure to comply with safe and healthful work practices.

#### 5. **Communication**

- 5.1. All managers and supervisors are responsible for communicating with all workers about occupational safety and health in a form readily understandable by all workers.
- 5.2. The Company's communication system encourages all workers to inform their managers and supervisors about workplace hazards without fear of reprisal.
- 5.3. The communication system includes one or more of the following checked items:
  - 5.3.1. New worker orientation including a discussion of safety and health policies and procedures.
  - 5.3.2. Review of the Company's IIP Program.

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- 5.3.3. Training programs.
- 5.3.4. Regularly scheduled safety meetings.
- 5.3.5. Posted or distributed safety information.
- 5.3.6. A system for workers to anonymously inform management about workplace hazards.
- 5.3.7. Methods for implementation include communicating with and instructing employees orally about general safe work practices and hazards unique to each employee's job assignment.

## **6. Hazard Assessment**

- 6.1. Periodic inspections to identify and evaluate workplace hazards is performed in accordance with Cleveland Integrity Services's written Accident Prevention Plan. Inspections are made by a competent observer in all areas of the workplace. This includes: shop, warehouse, staging and office facilities; work locations at a host employer's facility; and separate work locations that are remote from Company facilities.
- 6.2. Periodic inspections are performed according to the following schedule:
  - 6.2.1. When the IIP Program was initially established;
  - 6.2.2. When new substances, processes, procedures or equipment which present potential new hazards are introduced into the Company workplace;
  - 6.2.3. When new, previously unidentified hazards are recognized;
  - 6.2.4. When occupational injuries and illnesses occur; and
  - 6.2.5. Whenever workplace conditions warrant an inspection.

## **7. Accident / Exposure Investigations**

- 7.1. Procedures for investigating workplace accidents and hazardous substance exposures are explained in the Company's written Accident Prevention Plan. They include:
  - 7.1.1. Interviewing injured workers and witnesses;
  - 7.1.2. Examining the workplace for factors associated with the accident/exposure;
  - 7.1.3. Determining the cause of the accident/exposure;
  - 7.1.4. Taking corrective action to prevent the accident/exposure from reoccurring; and

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7.1.5. Recording the findings and actions taken.

## 8. Hazard Correction

8.1. Unsafe or unhealthy work conditions, practices or procedures are corrected in a timely manner based on the severity of the hazards.

8.2. Hazards are corrected according to the following procedures:

8.2.1. When observed or discovered; and

8.2.2. When an imminent hazard exists which cannot be immediately abated without endangering employee(s) and/or property, all exposed workers are removed from the area except those necessary to correct the existing condition. Workers who are required to correct the hazardous condition are provided with the necessary protection to attend to the hazard.

## 9. Training and Instruction

9.1. All workers, including managers and supervisors, have training and instruction on general and job-specific safety and health practices. Training and instruction is provided:

9.1.1. When the IIP Program is first established;

9.1.2. To all new workers, except for construction workers who are provided training through a construction industry occupational safety and health training program.

9.1.3. To all workers given new job assignments for which training has not previously provided;

9.1.4. Whenever new substances, processes, procedures or equipment are introduced to the workplace and represent a new hazard;

9.1.5. Whenever the employer is made aware of a new or previously unrecognized hazard;

9.1.6. To supervisors to familiarize them with the safety and health hazards to which workers under their immediate direction and control may be exposed; and

9.1.7. To all workers with respect to hazards specific to each employee's job assignment.

9.2. General workplace safety and health practices include, but are not limited to, the following:

9.2.1. Implementation and maintenance of the IIP Program.

- 9.2.2. Emergency action and fire prevention plan.
- 9.2.3. Provisions for medical services and first aid including emergency procedures.
- 9.2.4. Prevention of musculoskeletal disorders, including proper lifting techniques.
- 9.2.5. Proper housekeeping, such as keeping stairways and aisles clear, work areas neat and orderly, and promptly cleaning up spills.
- 9.2.6. Prohibiting horseplay, scuffling, or other acts that tends to adversely influence safety.
- 9.2.7. Proper storage to prevent stacking goods in an unstable manner and storing goods against doors, exits, fire extinguishing equipment and electrical panels.
- 9.2.8. Proper reporting of hazards and accidents to supervisors.
- 9.2.9. Hazard communication, including worker awareness of potential chemical hazards, and proper labeling of containers.
- 9.2.10. Proper storage and handling of toxic and hazardous substances including prohibiting eating or storing food and beverages in areas where they can become contaminated.

## 10. Recordkeeping

- 10.1. Recordkeeping relating to safety policies, procedures, compliance, results, hazard assessments, inspections and other accident and injury prevention activities are maintained in accordance with Cleveland Integrity Services's written Accident Prevention Plan.
  - 10.1.1. Records of hazard assessment inspections, including the person(s) conducting the inspection, any unsafe conditions and work practices that have been identified and the action taken to correct the identified unsafe conditions and work practices, are recorded on a hazard assessment and correction form in accordance with Company procedures; and
  - 10.1.2. Documentation of safety and health training for each worker (including the worker's name or other identifier, training dates, type(s) of training, and training providers) are recorded on a worker training and instruction form in accordance with Company procedures.
- 10.2. Inspection records and training documentation are maintained in accordance with the Company's written Accident Prevention Plan and Company Human Resources policies and procedures.



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- 10.3 A company executive will report each recordable injury or illness on the OSHA 300 Log and 301 Incident Report within seven (7) calendar days of receiving information that a recordable injury or illness has occurred.
- 10.4 A company executive must certify that he or she has examined the OSHA 300 Log and that he or she reasonably believes, based on his or her knowledge of the process by which the information was recorded, that the annual summary is correct and complete. The company executive who certifies the log must be one of the following persons: An owner of the company (only if the company is a sole proprietorship or partnership); An officer of the corporation; The highest ranking company official working at the establishment; or The immediate supervisor of the highest ranking company official working at the establishment.
- 10.5 To post an annual summary, post a copy of the annual summary in each establishment in a conspicuous place or places where notices to employees are customarily posted. Ensure that the posted annual summary is not altered, defaced or covered by other material.
- 10.6 The annual summary must be posted no later than February 1 of the year following the year covered by the records and keep the posting in place until April 30<sup>th</sup>.
- 10.7 Cleveland Integrity Services will save the OSHA 300 Log, the privacy case list (if one exists), the annual summary, and the OSHA 301 Incident Report forms for five (5) years following the end of the calendar year that these records cover.

## **11. General Safety and Safe Work Procedures**

- 11.1. Site-specific and Company-wide safe work procedures are explained in detail in the Company's written safety and health programs.
- 11.2. These programs are the basis for the Company's accident and injury prevention activities; compliance with in-house and regulatory occupational safety and health requirements; and as the primary plan and reference, for management and employees, to accomplish the goals stated in the Company's Master Safety Plan.

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Applicable OSHA Standard: 1910.1096

## 1 Purpose and Applicability

- 1.1 This policy is designed to ensure that all Company workplace activities and operations involving the use of radioactive materials / x-rays are performed in such a way as to protect Employees and the general public from exposure. The operating philosophy of the Company is to maintain all radiation exposures *As Low As Reasonably Achievable (ALARA)*.
- 1.2 This policy applies to all Company Supervisors and Employees who receive, possess, use, transfer, own, or acquire any source of ionizing radiation or radioactive material.

## 2 Definitions and Scope

- 2.1 *Ionizing Radiation* is electromagnetic radiation (x-ray and gamma-ray photons) or particulate radiation (beta particles, electrons, positrons, neutrons, and alpha particles) capable of producing ions by direct or secondary processes.
- 2.2 *ALARA* is an acronym for "as low as reasonably achievable," a level to which radiation protection aims to reduce occupational exposures. ALARA is achieved through good radiation protection planning and practice, backed by management commitment.
- 2.3 *Radiation* includes alpha rays, beta rays, gamma rays, X-rays, neutrons, high-speed electrons, high-speed protons, and other atomic particles; but such term does not include sound or radio waves, or visible light, or infrared or ultraviolet light.
- 2.4 *Radioactive material* means any material which emits, by spontaneous nuclear disintegration, corpuscular or electromagnetic emanations.
- 2.5 *Restricted area* means any area access to which is controlled by the employer for purposes of protection of individuals from exposure to radiation or radioactive materials.
- 2.6 *Unrestricted area* means any area access to which is not controlled by the employer for purposes of protection of individuals from exposure to radiation or radioactive materials.
- 2.7 *Dose* means the quantity of ionizing radiation absorbed, per unit of mass, by the body or by any portion of the body. When the provisions in this section specify a dose during a period of time, the dose is the total quantity of radiation absorbed, per unit of mass, by the body or by any portion of the body during such period of time. Several different units of dose are in current use. Definitions of units used in this section are set forth in paragraphs (a)(6) and (7) of this section.

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- 2.8 *Rad* means a measure of the dose of any ionizing radiation to body tissues in terms of the energy absorbed per unit of mass of the tissue. One rad is the dose corresponding to the absorption of 100 ergs per gram of tissue (1 millirad (mrad) =0.001 rad).
- 2.9 *Rem* means a measure of the dose of any ionizing radiation to body tissue in terms of its estimated biological effect relative to a dose of 1 roentgen (r) of X-rays (1 millirem (mrem)=0.001 rem). The relation of the rem to other dose units depends upon the biological effect under consideration and upon the conditions for irradiation.

### 3 Roles and Responsibilities

- 3.1 The Company Safety Coordinator is responsible for development and administration of a site-specific or project-specific written radiation safety program as required by workplace operations. The Safety Coordinator also establishes policies and enforces compliance with these programs. The Safety Coordinator has the authority and responsibility for approval of all work proposals that involve Employee exposure to ionizing radiation.
- 3.2 Company Supervisors and Employees will not perform any work that has the potential for exposing Company personnel to ionizing radiation without the specific approval of the Safety Coordinator after all requirements of this program have been fulfilled.
- 3.3 The Safety Coordinator, or a specific individual designated by the Safety Coordinator, will serve as the Radiation Safety Officer (RSO). The RSO will have individual and personal responsibility for the daily implementation of the radiation safety program, license provisions, and regulatory requirements. As the authorized representative of the Company, the RSO will supervise all radiation control activities. The RSO is responsible for ensuring the safe use of radiation and radioactive materials and for meeting ALARA levels.
- 3.4 The Safety Coordinator is the lead individual responsible for radiation safety in Company workplaces. Details and/or elaborations of these duties and responsibilities are described in the site-specific or project-specific *Radiation Safety Manual*.
- 3.5 A *Licensee* is an individual authorized in writing by the Safety Coordinator to use radioactive materials in a Company workplace where there is a potential for exposing Company Employees to ionizing radiation. The official document providing the defined scope of authorization is known as a *license*. A licensee is responsible for the radiation control activities under his or her license.
- 3.6 A *Radiation Worker* is an individual who works with ionizing radiation and receives radiation safety training. She or he is responsible for following all applicable regulations pertaining to the use of x-rays and/or radioactive materials as presented in the Radiation Safety Manual, in the license, and in notices issued by the RSO.

**4 Procedures**

**4.1 Radiation Safety Manuals**

4.1.1 The Company may develop or adopt a variety of Radiation Safety Manuals for the applicable use of ionizing radiation. These manuals are written descriptions of the radiation safety programs. The manuals identify the procedures, record keeping, material control and accounting. All Licensees and Radiation Workers are required to comply with all requirements and operating procedures specified in these manuals.

**4.2 License to Use Radioactive Material**

4.2.1 All individuals who wish to independently use radioactive material must apply to the Safety Coordinator for a license. The license evaluations take into consideration the adequacy of facilities and equipment, training and experience of the user, and the operating or handling procedures. The Safety Coordinator reviews and approves Company and work site protocols prior to use of the radioactive material.

4.3 The Company, its management, Supervisors or Employees will not possess, use, or transfer sources of ionizing radiation in such a manner as to cause any individual in a restricted area to receive in any period of one calendar quarter from sources in the Company's possession or control a dose in excess of the limits specified in Table G-18 below.

**TABLE G-18**

	Rems per calendar quarter
Whole body: Head and trunk; active blood-forming organs; lens of eyes; or gonads	1 1/4
Hands and forearms; feet and ankles	18 3/4
Skin of whole body	7 1/2

4.4 The Company, its management, Supervisors or Employees may permit an individual in a restricted area to receive doses to the whole body greater than those permitted, so long as:

4.4.1 During any calendar quarter the dose to the whole body shall not exceed 3 rems; and

4.4.2 The dose to the whole body, when added to the accumulated occupational dose to the whole body, shall not exceed 5 (N-18) rems, where "N" equals the individual's age in years at his last birthday; and

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- 4.4.3 The Company maintains adequate past and current exposure records which show that the addition of such a dose will not cause the individual to exceed the authorized amount. For purposes of this program, *dose to the whole body* will include any dose to the whole body, gonad, active blood-forming organs, head and trunk, or lens of the eye.
- 4.4.4 The Company, its management, Supervisors or Employees will not permit any Employee who is under 18 years of age to receive in any period of one calendar quarter a dose in excess of 10 percent of the limits specified in Table G-18 above.

## 5 Radiation Symbol and Poster Signs

- 5.1 The universal radiation caution symbol, with conventional radiation caution colors of magenta or purple on a yellow background, will be used in combination with the respective posted warning applicable to the workplace. An example of the radiation caution symbol is:



- 5.2 Each *Radiation Area* will be conspicuously posted with a sign or signs bearing the radiation caution symbol shown at 5.1 above and the words:

**CAUTION  
RADIATION AREA**

- 5.3 Each *High Radiation Area* will be conspicuously posted with a sign or signs bearing the radiation caution symbol shown at 5.1 above and the words:

**CAUTION  
HIGH RADIATION AREA**

## 6 Instruction of Employees

- 6.1 All individuals who desire to work with ionizing radiation, including radionuclide or x-rays, will receive appropriate instruction in radiation safety. Specific training requirements are presented in the respective Radiation Safety Manuals as determined by the Safety Coordinator.
- 6.2 All individuals working in or frequenting any portion of a radiation area will be informed of the occurrence of radioactive materials, or of radiation in such portions of the radiation area. Such individuals will be instructed in the safety problems associated with exposure to such materials or radiation, and in precautions or devices to minimize exposure. They also will be instructed in applicable OSHA

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requirements for protecting Employees from exposure to radiation or radioactive materials. Additionally, they will be told about any reports of radiation exposure in the work area, in accordance with OSHA requirements.

6.3 1910.1096(i)(3)

6.4 Each employer to whom this section applies shall post a current copy of its provisions and a copy of the operating procedures applicable to the work conspicuously in such locations as to insure that employees working in or frequenting radiation areas will observe these documents on the way to and from their place of employment, or shall keep such documents available for examination of employees upon request.

## **7 Personnel Monitoring**

7.1 The Company will supply appropriate personnel monitoring equipment (such as film badges, pocket chambers, pocket dosimeters or film rings); and will require the use of this equipment by:

7.1.1 Each employee who enters a restricted area under such circumstances when he or she receives, or is likely to receive, a dose in any calendar quarter of more than 25 percent of the applicable value specified in 4.3 above; and

7.1.2 Each employee under 18 years of age who enters a restricted area under such circumstances when he or she receives, or is likely to receive, a dose in any calendar quarter in excess of 5 percent of the applicable value specified in 4.3 above; and

7.1.3 Each employee who enters a high radiation area.

## **8 Surveys and Audits**

8.1 Radiation users will conduct personal surveys and monitor workspaces before leaving the work location, and take any necessary remedial or control measures as required.

8.2 In the event that radioactive materials are used or stored in a Company workplace, the Safety Coordinator will arrange for the conduct of periodic radiation surveys of the areas where radioactive materials are used or stored. The inspections are conducted in accordance with the requirements of the regulations or license condition.

## **9 Radioactive Waste**

9.1 In the event that the Company handles and processes radioactive waste in the course and scope of a project or work assignment, this will be performed in a cost effective and environmentally safe manner in accordance with all applicable regulations.

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## 10 Spills and Emergencies

- 10.1 The Licensee is responsible for all remedial actions in responding to emergencies. The project RSO must be notified under the following conditions:
  - 10.1.1 Radioactive contamination outside a licensed area
  - 10.1.2 Deliberate misuse of radioactive materials (RAM). All inquiries will be kept in confidence. (Deliberate misuse of RAM will result in loss of use privileges and could result in criminal action.)
  - 10.1.3 Known or suspected personnel contamination, inhalation, injection, or ingestion of RAM.
  - 10.1.4 Any accident resulting in direct exposure to personnel.
  - 10.1.5 Known or suspected loss of radioactive material, including loss to the air or sewer.
  - 10.1.6 Contaminated or damaged radioactive material shipments.

## 11 Emergency Alarms and Signals

- 11.1 When Employees work in an area where an emergency is communicated by sounding an audible alarm or signal, that alarm or signal will be demonstrated during an orientation, training or drill so that personnel will be familiar with the actual sound of the warning. This demonstration will take place before the emergency system is placed into operation.

## 12 Recordkeeping

- 12.1 The Company will maintain records of the radiation exposure of all Employees who underwent required personnel radiation monitoring in accordance with this program. Each such Employee will be informed about his or her individual exposure at least yearly.

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## **Applicable Standards: Owner Requirement**

### **1. Purpose**

- 1.1. This program establishes a system for Cleveland Integrity Services to evaluate, document, track and maintain current statuses of individual employee job competency.
- 1.2. This program also establishes responsibilities for management, supervisors and employees for development, implementation and maintenance of *Job Competency* program components.

### **2. Scope**

- 2.1. Each new, promoted, reassigned or transfer-affected employee whose employment assignments require job competency evaluation, including operator qualification, competent person and other areas of individual capability assessment, will comply with requirements of this program.

### **3. Components, Methods & Responsibilities**

- 3.1. The Company has created job titles and job descriptions for individual work assignments of employees.
- 3.2. Job titles and job descriptions will be used ensure that individual employees have documented qualifications, competencies, certifications and experience as required to perform specific types of work.
- 3.3. Records of designations of job titles and job descriptions to individual employees will be maintained in a spreadsheet, database, organizational chart or list.
- 3.4. Minimum requirements for qualification, competency, certification and/or experience will be specified for each job title and job description.
- 3.5. The information described above will be entered only after the individual employee's qualifications, competencies, certifications and experience as required to perform specific types of work have been confirmed and documented in Company files.
- 3.6. Obtaining required job competency information from employees and other sources will be coordinated by the Human Resources Department in cooperation with affected Supervisors, the Safety Coordinator, project planning personnel and whoever else may be involved in making individual work assignments.

Other sources of job competency information may include third-party database agencies as specified and accepted by the host employer, as well as qualified training providers and authorized operator qualification evaluators.



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- 3.7. Individual job competency will be evaluated and approved by one or more competent persons designated by the Company prior to a work assignment and allowing the employee to perform this work.
- 3.8. Competency training for specific job titles, job descriptions and work assignments will be provided by the Company as part of new hire, task-specific, project-specific and other orientations, and in addition to other standards established by this program.
- 3.9. Job competency files will be maintained by the Human Resources Department at the Company's main office.
- 3.10. Employees authorized by the Company will have access to job competency information as needed to pre-plan and make appropriate work assignments for individual employees.
- 3.11. All personnel will be trained to work safely and will be made aware of environmental considerations in accordance with their duties and responsibilities using the aforementioned job classifications. Training is meant to be task specific and relevant to the job or overall scope of work. If necessary and applicable, operating procedures, safe work practices and emergency response control measures will be included in said training.

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Applicable OSHA Standards: 29 CFR 1926.1053 Ladders.

## 1. Purpose

- 1.1. The purpose of this policy is to outline prevention and protective measures which are taken by Cleveland Integrity Services site management and subcontractor personnel on a project location to ensure the safe use of ladders. This safety policy addresses self-supporting portable ladders, extension ladders and job-built ladders.

## 2. Scope

- 2.1. This program applies to all Company-controlled project locations and subcontractor job sites where workers utilize ladders in the course and scope of their work. Subcontractors have primary responsibility for compliance with these safety standards and project workplace requirements.

## 3. Required Training for Use of Ladders

- 3.1. Cleveland Integrity Services provides training about the safe use of ladders to Employees who will use ladders while working at the project location. Such training is given before an Employee is assigned to work that involves use of a ladder.
- 3.2. Subcontractors performing work on a Cleveland Integrity Services project location will provide training about the safe use of ladders to subcontractor personnel who will use ladders in the course and scope of their work. Such training is given before subcontractor personnel are assigned to work that involves use of a ladder.
- 3.3. Ladder safety training enables each worker to recognize hazards related to ladders and explain mandatory safe work procedures that will minimize these hazards.
- 3.4. Ladder safety training is presented by a competent person and includes the following specific components:
  - 3.4.1. The nature of ladder fall hazards in the work area.
  - 3.4.2. The proper construction, use, placement and care in handling ladders.
  - 3.4.3. The maximum intended load-carrying capacities of ladders.

## 4. Safe Work Procedures for Using Ladders

- 4.1. Do not load any ladder beyond the maximum intended load for which it was built, nor beyond the manufacturer's rated capacity. All ladders, including job made ladders, are capable of supporting at least four times the maximum intended load.
- 4.2. Use ladders only for the purpose for which they were designed.
- 4.3. A competent person must inspect all ladders for visible defects regularly and after any occurrence that could affect safe use. Ladders are inspected before initial use in each work shift or more frequently, if necessary, to identify any defects.

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- 4.4. Ladders on the project location are maintained in good and safe condition. All ladders must meet or exceed OSHA/ANSI specifications, as elaborated below.
- 4.5. Rungs, cleats and steps on ladders are level and parallel. They are also spaced apart uniformly to prevent a potential trip hazard.
- 4.6. Rungs, cleats, and steps of portable ladders (except as provided below) and fixed ladders (including individual-rung/step ladders) shall be spaced not less than 10 inches (25 cm) apart, nor more than 14 inches (36 cm) apart, as measured between center lines of the rungs, cleats, and steps.
- 4.7. Rungs, cleats, and steps of step stools shall be not less than 8 inches (20 cm) apart, nor more than 12 inches (31 cm) apart, as measured between center lines of the rungs, cleats, and steps.
- 4.8. Rungs, cleats, and steps of the base section of extension trestle ladders shall not be less than 8 inches (20 cm) nor more than 18 inches (46 cm) apart, as measured between center lines of the rungs, cleats, and steps.
- 4.9. The rung spacing on the extension section of the extension trestle ladder shall be not less than 6 inches (15 cm) nor more than 12 inches (31 cm), as measured between center lines of the rungs, cleats, and steps.
- 4.10. The minimum clear distance between the sides of individual-rung/step ladders and the minimum clear distance between the side rails of other fixed ladders shall be 16 inches (41 cm).
- 4.11. The minimum clear distance between side rails for all portable ladders shall be 11 1/2 inches (29 cm).
- 4.12. Workers inspect the ladder for safety before using it. If it is found to have a safety defect, the ladder is not used. Additionally, it will be removed from service immediately and prominently marked "Do Not Use."
- 4.13. Never tie or fasten ladders together to provide longer sections unless the ladder is specifically designed for such use.
- 4.14. Each step ladder has a metal spreader or locking device to hold the front and back sections in an open position during use.
- 4.15. Ladders are kept clean and free of oil, grease and other slipping hazards. The surface of each ladder is coated or maintained to prevent injury from punctures or lacerations, and to prevent snagging of clothing.
- 4.16. Do not paint or coat wood ladders with any opaque covering that could hide damage or defects.
- 4.17. Identification or warning labels are placed only on the face of a side rail.

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- 4.18. Use portable extension ladders at an angle where the horizontal distance from the top support to the foot of the ladder is 1/4 of the working length of the ladder. As an example, the base of a 20-ft. ladder should be 5 ft from the structure.
- 4.19. Wood, job-made ladders with spliced side rails are used at an angle where the horizontal distance is 1/4 the working length of the ladder.
- 4.20. Portable ladder side rails must extend at least 3 feet above the surface when used to access to an upper landing.
- 4.21. When such an extension is not possible, because of ladder length, secure the ladder at the top.
- 4.22. Only use ladders on stable, level surfaces and secured to prevent traffic away from the ladder.
- 4.23. Never use ladders on slippery surfaces unless secured at the top and bottom.
- 4.24. When a ladder is used in a place where it could be struck by traffic or workplace activities, the ladder is secured to prevent accidental displacement, or a barricade is used to keep activities or traffic away from the ladder.
- 4.25. Keep the area around the top and bottom of ladders clear.
- 4.26. Place the top of a portable extension ladder so that the two rails are supported equally.
- 4.27. Never move, shift or extend a ladder while someone is on it.
- 4.28. When the worker or the ladder could have contact with exposed energized electrical equipment, use only a ladder that has non-conductive side rails
- 4.29. Never use, stand or sit on the top step of a ladder. Never use single-rail ladders.
- 4.30. Always face the ladder when ascending or descending and keep your belt buckle between both side rails as an easy way to ensure a safe center of gravity.
- 4.31. Maintain three-point contact while using a ladder. This requires the use of at least one hand when moving up or down. Workers will not carry tools, objects or loads that could cause them to lose balance and fall.
- 4.32. When it is necessary to raise or lower tools, objects or loads from one level to the next, workers will use a rope or some other safe lifting method that does not involve carrying the load while going up or down the ladder.

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Applicable OSHA Standards: 29 CFR 1910.147

## 1. Purpose & Scope

- 1.1. This policy and program for Cleveland Integrity Services covers the servicing and maintenance of pipelines and pipeline components, machines, powered tools and equipment used in the workplace where the unexpected energizing or release of product, start up of the machines, equipment or system, or release of stored energy, could cause injury to employees. This policy establishes minimum performance requirements for the control of such hazardous energy.
- 1.2. This policy and program apply to the control of energy during installation, servicing, repair and/or maintenance operations. Normal production operations are not covered by this policy.
- 1.3. Servicing and/or maintenance which takes place during normal production operations is covered by this standard only if:
  - 1.3.1. An employee is required to remove or bypass a guard or other safety device; or
  - 1.3.2. An employee is required to place any part of his or her body into an area on a machine or piece of equipment where work is actually performed upon the material being processed (point of operation) or where an associated danger zone exists during a machine operating cycle.
- 1.4. Minor tool changes and adjustments, and other minor servicing activities, which take place during normal production operations, are not covered by this standard if they are routine, repetitive, and integral to the use of the equipment for production, provided that the work is performed using alternative measures which provide effective protection.
- 1.5. This policy and program does not apply to work on cord and plug connected electric equipment for which exposure to the hazards of unexpected energizing or start up of the equipment is controlled by the unplugging of the equipment from the energy source and by the plug being under the exclusive control of the employee performing the servicing or maintenance.
- 1.6. This policy and program does not apply to hot tap operations involving transmission and distribution systems for substances such as gas, steam, water or petroleum products when they are performed on pressurized pipelines, provided that the employer demonstrates that:
  - 1.6.1. Continuity of service is essential;
  - 1.6.2. Shutdown of the system is impractical; and
  - 1.6.3. Documented safe work procedures are followed, and special equipment is used which will provide proven effective protection for employees.

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- 1.7. Under this policy and program, the company has established and utilizes procedures for affixing appropriate lockout devices or tagout devices to energy isolating devices, and to otherwise disable machines or equipment to prevent unexpected energization, start up or release of stored energy in order to prevent injury to employees.
- 1.8. When other operations and specific safe work procedures require the use of lockout or tagout, they are used and supplemented by the procedural and training requirements of this policy and the procedures set forth herein.
- 1.9. Written company Lockout and Tagout (LOTO) Procedures are referenced when following machine-specific, circuit specific and system-specific methods for isolating and controlling hazardous energy.

## 2. Definitions

- 2.1. *Affected employee.* An employee whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed.
- 2.2. *Authorized employee.* A person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance covered under this program. Company requirements for an authorized employee include training in the company's system and specific procedures for performing and removing a lockout and tagout; participation in a group lockout and tagout; and additional training as may be required to be equivalent to the host employer's LOTO and work permit procedures (when applicable).
- 2.3. *Capable of being locked out.* An energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it. Other energy isolating devices are capable of being locked out, if lockout can be achieved without the need to dismantle, rebuild, or replace the energy isolating device or permanently alter its energy control capability.
- 2.4. *Energized.* Connected to an energy source or containing residual or stored energy.
- 2.5. *Energy isolating device.* A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following:
  - 2.5.1. A manually operated electrical circuit breaker; a disconnect switch;
  - 2.5.2. A manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors, and, in addition, no pole can be operated independently;
  - 2.5.3. A line valve;

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- 2.5.4. A block;
- 2.5.5. And any similar device used to block or isolate energy. **IMPORTANT NOTE:** Push buttons, selector switches and other control circuit type devices are not energy isolating devices.
- 2.6. *Energy source.* Any source of electrical (direct or stored), mechanical, hydraulic, pneumatic, chemical, thermal, kinetic, springs or devices under tension, gravity or other energy.
- 2.7. *Hot tap.* A procedure used in the repair, maintenance and services activities which involves welding on a piece of equipment (pipelines, vessels or tanks) under pressure, in order to install connections or appurtenances. Hot tapping is commonly used to replace or add sections of pipeline without the interruption of service for air, gas, water, steam, and petrochemical distribution systems.
- 2.8. *Lockout.* The placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.
- 2.9. *Lockout device.* A device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment. Included are blank flanges and bolted slip blinds.
- 2.10. *Normal production operations.* The utilization of a machine or equipment to perform its intended production function.
- 2.11. *Servicing and/or maintenance.* Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include lubrication, cleaning or unjamming of machines or equipment and making adjustments or tool changes, where the employee may be exposed to the unexpected energizing or startup of the equipment or release of hazardous energy.
- 2.12. *Setting up.* Any work performed to prepare a machine or equipment to perform its normal production operation.
- 2.13. *Tagout.* The placement of a tagout device on an energy isolating device, in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.
- 2.14. *Tagout device.* A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

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### 3. Energy Control Program

- 3.1. The energy control program established here consists of energy control procedures, employee training and periodic inspections to ensure that before any employee performs any servicing or maintenance on a machine or equipment where the unexpected energizing, startup or release of stored energy could occur and cause injury, the machine or equipment shall be isolated from the energy source and rendered inoperative.

### 4. Lockout/tagout

- 4.1. Lockout and tagout is only performed by authorized persons as defined in this policy and program. Persons who are exposed to accidents and injury in their work by the accidental energizing of the machine, circuit or system on which they are working are trained and authorized to perform lockout and tagout. This includes supervisors, welders and each individual who is exposed to the hazard.
- 4.2. Affected employees are notified by the company on-site or department supervisor or authorized employee of the application and removal of lockout devices or tagout devices. Notification is given before the controls are applied, and after they are removed from the machine or equipment.
- 4.3. If an energy isolating device is not capable of being locked out, the employee authorized to perform lockout and tagout utilizes a tagout system, but only with specific permission of the on-site supervisor and the company Safety Coordinator. In all other circumstances lockout and tagout is utilized to control and isolate hazardous energy sources.
- 4.4. Whenever replacement or major repair, renovation or modification of a machine or equipment is performed, and whenever new machines or equipment are installed, company management must confirm that energy isolating devices for such machines or equipment are designed to accept a lockout device.
- 4.5. Special permissions and full employee protection are required for "tagout only".
- 4.6. Specific permissions of the on-site supervisor and the company Safety Representative are required when a lock cannot be placed and "tagout only" is considered. When such permissions have been obtained and a tagout device is used on an energy isolating device that is capable of being locked out, the tagout device is attached at the same location that the lockout device would have been attached. The standard that shall be met in all authorized "tagout only" situations is that the company demonstrates that the tagout program alone will provide a level of safety equivalent to that obtained by using a lockout program.
- 4.7. In demonstrating that a level of safety is achieved in the tagout program which is equivalent to the level of safety obtained by using a lockout program, the safety standard that shall be met is full compliance with all tagout-related provisions together with such additional elements as are necessary to provide the equivalent safety available from the use of a lockout device. Additional means to be considered



as part of the demonstration of full employee protection includes the implementation of additional safety measures such as:

- 4.7.1. The removal of an isolating circuit element;
- 4.7.2. Blocking of a controlling switch;
- 4.7.3. Opening of an extra disconnecting device; or
- 4.7.4. The removal of a valve handle to reduce the likelihood of inadvertent energizing.

## 5. Energy control procedure

- 5.1. Procedures are developed, documented and utilized for the control of potentially hazardous energy when employees are engaged in the activities covered by this policy and program based on job-specific and site-specific work situations.
- 5.2. The company need not document the required procedure for a particular machine or equipment, when all of the following elements exist:
  - 5.2.1. The machine or equipment has no potential for stored or residual energy or re-accumulation of stored energy after shut down which could endanger employees;
  - 5.2.2. The machine or equipment has a single energy source which can be readily identified and isolated;
  - 5.2.3. The isolation and locking out of that energy source will completely de-energize and deactivate the machine or equipment;
  - 5.2.4. The machine or equipment is isolated from that energy source and locked out during servicing or maintenance;
  - 5.2.5. A single lockout device will achieve a locked-out condition;
  - 5.2.6. The lockout device is under the exclusive control of the authorized employee performing the servicing or maintenance;
  - 5.2.7. The servicing or maintenance does not create hazards for other employees; and
  - 5.2.8. In utilizing this exception, the company has had no accidents involving the unexpected activation or re-energizing of the machine or equipment during servicing or maintenance.
- 5.3. The machine-specific or system-specific procedures clearly and specifically outline the scope, purpose, authorization, rules, and techniques to be utilized for the control of hazardous energy, and the means to enforce compliance including, but not limited to, the following:

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- 5.3.1. A specific statement of the intended use of the procedure;
- 5.3.2. Specific procedural steps for shutting down, isolating, blocking and securing machines or equipment to control hazardous energy;
- 5.3.3. Specific procedural steps for the placement, removal and transfer of lockout devices or tagout devices and the responsibility for them; and
- 5.3.4. Specific requirements for testing a machine or equipment to determine and verify the effectiveness of lockout devices, tagout devices, and other energy control measures.

## 6. Protective materials and hardware

- 6.1. Locks, tags, chains, wedges, key blocks, adapter pins, self-locking fasteners, or other hardware are provided by the company for isolating, securing or blocking of machines or equipment from energy sources.
- 6.2. Lockout devices and tagout devices are singularly identified; are the only device(s) used for controlling energy; are not used for other purposes; and meet the following requirements:
  - 6.2.1. Durability
    - 6.2.1.1. Lockout and tagout devices shall be capable of withstanding the environment to which they are exposed for the maximum period of time that exposure is expected.
    - 6.2.1.2. Tagout devices shall be constructed and printed so that exposure to weather conditions or wet and damp locations will not cause the tag to deteriorate or the message on the tag to become illegible.
    - 6.2.1.3. Tags shall not deteriorate when used in corrosive environments such as areas where acid and alkali chemicals are handled and stored.
  - 6.2.2. Standardized devices
    - 6.2.2.1. Lockout and tagout devices are standardized within the facility or workplace in at least one of the following criteria: Color; shape; or size; and additionally, in the case of tagout devices, print and format shall be standardized.
  - 6.2.3. Substantial design and construction
    - 6.2.3.1. Lockout devices are substantial enough to prevent removal without the use of excessive force or unusual techniques, such as with the use of bolt cutters or other metal cutting tools.

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6.2.3.2. Tagout devices, including their means of attachment, are substantial enough to prevent inadvertent or accidental removal. Tagout device attachment means are of a non-reusable type, attachable by hand, self-locking, and non-releasable with a minimum unlocking strength of no less than 50 pounds and having the general design and basic characteristics of being at least equivalent to a 1-piece, all environment-tolerant nylon cable tie.

6.2.4. Identifiable

6.2.4.1. Lockout devices and tagout devices indicate the identity of the employee applying the device(s).

6.2.4.2. Tagout devices warn against hazardous conditions if the machine or equipment is energized and shall include a legend such as the following: Do Not Start. Do Not Open. Do Not Close. Do Not Energize. Do Not Operate.

**7. Periodic inspection**

- 7.1. The Safety Representative conducts periodic inspections of the energy control procedure at least annually to ensure that the procedure and OSHA requirements are being followed.
- 7.2. The periodic inspection is performed by an authorized employee other than the ones(s) utilizing the energy control procedure being inspected.
- 7.3. The periodic inspection is conducted to correct any deviations or inadequacies identified.
- 7.4. Where lockout is used for energy control, the periodic inspection includes a review, between the inspector and each authorized employee, of that employee's responsibilities under the energy control procedure being inspected.
- 7.5. Where tagout is used for energy control, the periodic inspection includes a review, between the inspector and each authorized and affected employee, of that employee's responsibilities under the energy control procedure being inspected, and the elements set forth in paragraph (c)(7)(ii) of this section.
- 7.6. Cleveland Integrity Services certifies, in writing, that the periodic inspections have been performed. The certifications identify the machine or equipment on which the energy control procedure was being utilized, the date of the inspection, the employees included in the inspection, and the person performing the inspection.

**8. Training and communication**

- 8.1. Cleveland Integrity Services provides training to ensure that the purpose and function of the energy control program are understood by employees and that the knowledge and skills required for the safe application, usage, and removal of the energy controls are acquired by employees. The training includes the following:

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- 8.1.1. Each authorized employee receives training in the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control.
  - 8.1.2. Each affected employee is instructed in the purpose and use of the energy control procedure.
  - 8.1.3. All other employees whose work operations are or may be in an area where energy control procedures may be utilized, are instructed about the procedure, and about the prohibition relating to attempts to restart or re-energize machines or equipment which are locked out or tagged out.
- 8.2. When tagout systems are used, employees are also trained in the following limitations of tags:
- 8.2.1. Tags are essentially warning devices affixed to energy isolating devices, and do not provide the physical restraint on those devices that is provided by a lock.
  - 8.2.2. When a tag is attached to an energy isolating means, it is not to be removed without authorization of the authorized person responsible for it, and it is never to be bypassed, ignored, or otherwise defeated.
  - 8.2.3. Tags must be legible and understandable by all authorized employees, affected employees, and all other employees whose work operations are or may be in the area, in order to be effective.
  - 8.2.4. Tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered in the workplace.
  - 8.2.5. Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program.
  - 8.2.6. Tags must be securely attached to energy isolating devices so that they cannot be inadvertently or accidentally detached during use.
- 8.3. Employee retraining
- 8.3.1. Retraining is provided for all authorized and affected employees whenever there is a change in their job assignments, a change in machines, equipment or processes that present a new hazard, or when there is a change in the energy control procedures.
  - 8.3.2. Additional retraining is conducted whenever a periodic inspection reveals, or whenever the company has reason to believe that there are deviations from or inadequacies in the employee's knowledge or use of the energy control procedures.

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8.3.3. The retraining re-establishes employee proficiency and introduce new or revised control methods and procedures, as necessary.

8.4. The company certifies that employee training has been accomplished and is being kept up to date. The certification contains each employee's name and dates of training.

## 9. Application of Control

9.1. The established procedures for the application of energy control (the lockout or tagout procedures) cover the following elements and actions and are done in the following sequence:

9.1.1. Preparation for shutdown. Before an authorized or affected employee turns off a machine or equipment, the authorized employee has knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, and the method or means to control the energy.

9.1.2. Machine or equipment shutdown. The machine or equipment is turned off or shut down using the procedures established for the machine or equipment. An orderly shutdown must be utilized to avoid any additional or increased hazard(s) to employees as a result of the equipment stoppage.

9.1.3. Machine or equipment isolation. All energy isolating devices that are needed to control the energy to the machine or equipment are physically located and operated in such a manner as to isolate the machine or equipment from the energy source(s).

9.1.4. Lockout or tagout device application.

9.1.4.1. Lockout or tagout devices are affixed on each energy isolating device by authorized employees.

9.1.4.2. Lockout devices, where used, are affixed in a manner to that will hold the energy isolating devices in a "safe" or "off" position.

9.1.4.3. Tagout devices, where used, are affixed in such a manner as will clearly indicate that the operation or movement of energy isolating devices from the "safe" or "off" position is prohibited.

9.1.4.4. Where tagout devices are used with energy isolating devices designed with the capability of being locked, the tag attachment is fastened at the same point at which the lock would have been attached.

9.1.4.5. Where a tag cannot be affixed directly to the energy isolating device, the tag is located as close as safely possible to the device, in a position that is immediately obvious to anyone attempting to operate the device.

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9.1.5. Stored energy

9.1.5.1. Following the application of lockout or tagout devices to energy isolating devices, all potentially hazardous stored or residual energy is relieved, disconnected, restrained, and otherwise rendered safe.

9.1.5.2. If there is a possibility of re-accumulation of stored energy to a hazardous level, verification of isolation is continued until the servicing or maintenance is completed, or until the possibility of such accumulation no longer exists.

9.1.6. Verification of isolation

9.1.6.1. Prior to starting work on machines or equipment that have been locked out or tagged out, the authorized employee verifies that isolation and de-energizing of the machine or equipment have been accomplished.

9.1.7. Preparing for release from lockout or tagout. Before lockout or tagout devices are removed and energy is restored to the machine or equipment, procedures are followed and actions taken by the authorized employee(s) to ensure the following:

9.1.7.1. The machine or equipment. The work area is inspected to ensure that nonessential items have been removed and to ensure that machine or equipment components are operationally intact.

9.1.7.2. The work area is checked to ensure that all employees have been safely positioned or removed.

9.1.7.3. After lockout or tagout devices have been removed and before a machine or equipment is started, affected employees are notified that the lockout or tagout device(s) have been removed.

9.1.8. Lockout or tagout devices removal.

9.1.8.1. Each lockout or tagout device is removed from the energy isolating device by the employee who applied the device.

9.1.8.2. When the authorized employee who applied the lockout or tagout device is not available to remove it, that device may be removed under the direction of the On-site Supervisor or Department Supervisor in accordance with the company's specific written procedures, and when the supervisor has been trained for such removal in accordance with the company's written lockout and tagout procedures. The safety standard to be met is that the specific procedure provides equivalent safety to the removal of the device by the authorized employee who applied it. The specific procedure includes at least the following elements:

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- 9.1.8.2.1. Verification by the company that the authorized employee who applied the device is not at the facility;
- 9.1.8.2.2. Making all reasonable efforts to contact the authorized employee to inform him/her that his/her lockout or tagout device has been removed; and
- 9.1.8.2.3. Ensuring that the authorized employee has this knowledge before he/she resumes work at that facility.

9.2. Additional requirements.

9.2.1. Testing or positioning of machines, equipment or components thereof. In situations in which lockout or tagout devices must be temporarily removed from the energy isolating device and the machine or equipment energized to test or position the machine, equipment or component thereof, the following sequence of actions are followed:

- 9.2.1.1. Clear the machine or equipment of tools and materials in accordance with procedures specified in this policy and program;
- 9.2.1.2. Remove employees from the machine or equipment area in accordance with procedures specified in this policy and program;
- 9.2.1.3. Remove the lockout or tagout devices in accordance with procedures specified in this policy and program;
- 9.2.1.4. Energize and proceed with testing or positioning;
- 9.2.1.5. De-energize all systems and reapply energy control measures in accordance with procedures specified in this policy and program to continue the servicing and/or maintenance.

9.3. Outside personnel (contractors, etc.)

- 9.3.1. Whenever outside servicing personnel are to be engaged in activities covered by the scope and application of this standard, the company and the outside contractor shall inform each other of their respective lockout or tagout procedures.
- 9.3.2. The company on-site supervisor must ensure that his/her employees understand and comply with the restrictions and prohibitions of the outside contractor's energy control program.

9.4. Group lockout or tagout

- 9.4.1. When servicing and/or maintenance is performed by a crew, craft, department or other group, they utilize a procedure which affords the

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employees a level of protection equivalent to that provided by the implementation of a personal lockout or tagout device.

9.4.2. Group lockout or tagout devices are used in accordance with the procedures required by machine, circuit or system specific lockout and tagout procedures, but not necessarily limited to, the following specific requirements:

9.4.2.1. Primary responsibility is vested in an authorized employee for a set number of employees working under the protection of a group lockout or tagout device (such as an operations lock);

9.4.2.2. Provision for the authorized employee to ascertain the exposure status of individual group members with regard to the lockout or tagout of the machine or equipment and

9.4.2.3. When more than 1 crew, craft, department, etc. is involved, assignment of overall job-associated lockout or tagout control responsibility to an authorized employee designated to coordinate affected work forces and ensure continuity of protection; and

9.4.2.4. Each authorized employee shall affix a personal lockout or tagout device to the group lockout device, group lockbox, or comparable mechanism when he or she begins work, and shall remove those devices when he or she stops working on the machine or equipment being serviced or maintained.

9.5. Shift or personnel changes. Specific procedures are utilized during shift or personnel changes to ensure the continuity of lockout or tagout protection, including provision for the orderly transfer of lockout or tagout device protection between off-going and oncoming employees, to minimize exposure to hazards from the unexpected energizing or start-up of the machine or equipment, or the release of stored energy.

## 10. Specific Procedures

10.1. Individual LOTO. Compare Cleveland Integrity Services's LOTO procedures with host employer LOTO procedures in place or being utilized at the job site. Proper LOTO procedures require the following steps:

10.1.1. Complete the company's or host employer's work permit or Job Safety Analysis (JSA), as applicable to the work and situation and in accordance with company procedures.

10.1.2. Notify all affected personnel and host employer personnel in the immediate or affected area that LOTO will be utilized and why.

10.1.3. Identify all energy sources and isolation devices.

10.1.4. As allowed and authorized by the host employer, shut down the equipment by following normal shutdown procedures in accordance with



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host employer requirements. The host employer may require shutdown by host employer personnel only.

- 10.1.5. Isolate the equipment from all potential energy sources.
  - 10.1.6. Lockout and tagout energy isolation devices in accordance with company safety procedures, or confirm any such LOTO by host employer personnel. Complete the required LOTO information on the work permit form or JSA in accordance with form completion procedures.
  - 10.1.7. Stored energy (such as that in springs, elevated machine members, rotating flywheels, hydraulic systems, air, gas, capacitors, steam, or water pressure) is dissipated or restrained by appropriate methods (such as repositioning, blocking, bleeding down).
  - 10.1.8. Visually inspect equipment isolation and de-energizing by attempting to start or otherwise operate the device. This is done to ensure that the LOTO was effective.
  - 10.1.9. Perform the repair or maintenance.
  - 10.1.10. Inspect the area around the machines or equipment to ensure that no one is exposed; then remove any tools or rags, and replace any guards or covers.
  - 10.1.11. Notify all affected personnel in the area that energy will be restored.
  - 10.1.12. Remove all LOTO devices.
  - 10.1.13. Operate the energy-isolating devices to restore energy to the machine or equipment.
  - 10.1.14. Return the equipment to normal service.
  - 10.1.15. Advise all affected personnel that operations are back to normal.
  - 10.1.16. Complete and terminate the work permit or JSA form.
- 10.2. Extended-Time Energy Isolation Work. When equipment or machines have been locked out for longer than 24 hours, the individual performing the work confirms the following:
- 10.2.1. Appropriate locks and tags remain in place
  - 10.2.2. The tag is still serviceable, effective in its communication, and appropriate to the situation
- 10.3. Shift Changes and Call-Out Situations.

- 10.3.1. During changes of shifts and when there is a call-out, any LOTO in place must carry over and be maintained as effective protection. The procedures explained below are followed regarding shift changes and call-outs:
- 10.3.1.1. Employees coming to work on a shift or called out to a work assignment identify any equipment, machines or systems pertinent to the work that is locked out.
  - 10.3.1.2. Employees inspect and become thoroughly familiar with the LOTO procedures in place and how they are protecting personnel at the time of the shift change or call-out.
  - 10.3.1.3. When the authorized person who installed the LOTO will not be the same person who completes and removes the LOTO, the personnel coming onto the shift or responding to the call-out places their own lock(s) and tag(s) either before or during the process of removal of the lock(s) and tag(s) of the authorized person being relieved.

#### 10.4. Procedure Involving More Than One Person

- 10.4.1. When more than one person is performing work on equipment, machines or systems that require LOTO, each individual performing this work must place his or her own lock(s) or tag(s) in a manner that effectively isolates energy sources.
- 10.4.2. If an energy-isolating device accepts only a single lock or tag, a LOTO hasp device that accepts multiple locks and tags is used to secure the single-lock energy isolating device.
- 10.4.3. If locked box or locked cabinet procedures is chosen for performing LOTO, confirm that a single lock is placed on the energy-isolating device and the key to that single lock is secured in the locked box or locked cabinet. In turn, the locked box or cabinet is then secured by a lock placed by each employee performing the work. In this way each member of the group is protected by his or her own lock and key because it secures the key to the lock on the energy-isolating device.
- 10.4.4. As each member of the group completes his or her work and no longer need LOTO protection, that individual removes his or her lock from the box or cabinet containing the key to the lock on the energy-isolating device.

#### 10.5. Testing or Positioning.

- 10.5.1. A supervisor in charge of work must authorize any removal of a LOTO device prior to any testing or positioning of machines, equipment or components, this must be approved by supervision.

- 10.5.2. The authorized person who placed the LOTO must clear the machine or equipment and make sure that potentially exposed personnel are at a safe location before any LOTO device is removed.
  - 10.5.3. LOTO device(s) are removed only for the time necessary to conduct the test or positioning.
  - 10.5.4. As soon as testing or positioning is completed, the equipment, machine or system shall be de-energized in accordance with LOTO procedures and LOTO shall be re-applied. At that point attempt is made to start the equipment, machine or system as a test to confirm that the replaced LOTO is effective.
- 10.6. When Work and Required LOTO Carry Over to Another Shift. Sometimes specific work or maintenance will carry over to the next shift. In this situation the locked box procedure for LOTO may be used to protect personnel. This procedure involves:
- 10.6.1. The authorized person(s) place one lock and tag on an energy isolation device. Note that more than one energy-isolating device may be involved.
  - 10.6.2. All keys to locks placed on energy-isolating devices are then secured inside of a locked box.
  - 10.6.3. The locked box is secured with a hasp that accepts multiple locks.
  - 10.6.4. Once an authorized person involved in the work confirms that all potentially hazardous energy sources are effectively isolated, locked out and tagged out, the authorized person places his or her own lock and tag on the locked box. This is an acceptable alternative to having each authorized person place a lock and tag on each locked-out energy-isolating device.
- 10.7. Removal of Another Authorized Person's LOTO
- 10.7.1. In the event that an authorized person leaves the work location without removing a LOTO he or she has placed there, the company established specific safety procedures that are followed prior to and when removing the lock or tag. Note that the host employer may have its own procedures regarding removal of another person's LOTO. These are reviewed and coordinated with company procedures. Company procedures are explained below:
    - 10.7.1.1. Make a determined effort to notify the authorized person who placed the LOTO so that they can return to the work location and personally remove the lock and tag.
    - 10.7.1.2. In the event that the authorized person who placed the LOTO cannot be contacted or is not able to come to the work location, the company Site Supervisor or other authorized

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personnel confirms that it is safe to remove the lock and that the lock is removed, and all energy-isolating devices are returned to normal operating position.

- 10.7.1.3. The Site Supervisor notifies the authorized person who initially placed the LOTO about the removal immediately upon that individual's returning to work.

## 10.8. Group LOTO -- Responsibilities and Requirements

- 10.8.1. The following safe work procedures for performing a Group Lockout and Tagout have been established by Cleveland Integrity Services. These procedures are followed in coordination with group LOTO procedures of the host employer.
- 10.8.2. Procedures are designed to make sure all employees and personnel involved are identified, and that the level of LOTO protection provided to the group is equivalent to that provided by an individually placed LOTO.
- 10.8.3. When a LOTO involves more than one energy-isolating device, or when multiple personnel are involved, it may be appropriate to use separate group lockouts and tagouts.
- 10.8.4. For example, it may not be practical to require each authorized person to LOTO at multiple energy-isolating devices if not practical. At the same time, each employee shall comply with LOTO procedures and achieve effective protection from potentially hazardous energy sources.
- 10.8.5. The group LOTO procedure provides an option for compliance with safe work requirements while not requiring an authorized person to place more than a single LOTO.
- 10.8.6. The company's Site Supervisor and the host employer's field supervisor makes the decision when to perform a group LOTO rather than LOTOs placed by individual authorized persons.
- 10.8.7. Group LOTO requires that a single authorized person be designated as the individual with overall and primary responsibility for coordinating the group LOTO. This designated authorized person is in charge of the LOTO and be responsible for ensuring that LOTO sequences are effectively completed. This includes performing the basic procedures and confirming that all procedures for group LOTO are followed.
- 10.8.8. Procedures for group LOTO are:
  - 10.8.8.1. Complete the appropriate company and/or host employer work permit.
  - 10.8.8.2. Designate the authorized person who will be in charge of and responsible for the group LOTO.

- 10.8.8.3. Complete a thorough assessment of the machines, equipment, systems and processes involved to determine all potential sources of hazardous energy. This includes identification and understanding all potential sources of residual or stored energy. This step may include discussions with other work groups, workers who have previously performed similar work, and host employer representatives who are familiar with this type of work operation and the effective control of hazardous energy.
- 10.8.8.4. Confirm that the host employer has been notified in accordance with established procedures.
- 10.8.8.5. Shutdown, or confirm shutdown, of equipment, machines, systems or processes involved with the work assignment. This may involve having the host employer designate the components involved are ready for servicing, repair or maintenance.
- 10.8.8.6. Safe-for-work designation by the host employer may involve cleaning, flushing or otherwise making sure that work assignment components are in fact safe and ready for work to begin. In situations when the host employer does not make this designation, host employer personnel should specify how the equipment, machine, system or process should be rendered safe.
- 10.8.8.7. The authorized person in charge of the group LOTO must identify, locate, and isolate all energy sources associated with the job. If needed, they must also identify, locate, and prepare relief devices for ensuring that residual or accumulated energy creates no employee hazard.
- 10.8.8.8. The authorized person in charge of the group LOTO places the appropriate LOTO devices and tags on energy-isolating devices and then tests the devices to confirm that energy has been effectively isolated and cannot re-accumulate, re-charge or build up pressure. In certain situations the host employer's personnel may also apply LOTO devices in addition to those places by the authorized person in charge.
- 10.8.8.9. The authorized person in charge of the group LOTO shall record LOTO information on the work permit in accordance with form procedures.
- 10.8.8.10. All keys to lockout devices must be placed in a group lockout box (or a similar securing device). This box then is locked by the authorized person in charge of the group LOTO. The group LOTO box is located in a secure place known to all authorized persons involved with the work.

- 10.8.8.11. Each authorized person and host employer personnel involved in the group LOTO places his or her individual locks and tags to the group LOTO box prior to beginning the work at hand.
- 10.8.9. Company employees involved in the group LOTO:
  - 10.8.9.1. Follow and respect the LOTO process.
  - 10.8.9.2. Check and, as applicable, test specific LOTO device locations to confirm that proper and effective LOTO is in place.
  - 10.8.9.3. The authorized person in charge of the group LOTO, or someone this person may designate, directs and accompanies the other authorized persons to the specific locations where energy isolation is in place.
  - 10.8.9.4. During shift changes and the arrival of new crews, the group LOTO box remains locked until the authorized person in charge of the group LOTO determines that it is safe to remove the keys. This means that the lock placed by the authorized person in charge of the group LOTO usually stays on the group LOTO box until the job is completed. Other control procedures approved by the authorized person in charge of the group LOTO may be used as required as long as personnel are properly protected.
  - 10.8.9.5. When work is finished, the authorized person in charge of the group LOTO and, if applicable, a host employer representative inspects and reviews the completed work to confirm that it is safe to remove LOTO devices. Special precautions are taken to ensure that all personnel are relocated away from danger if removal of a LOTO device might present a hazard.
  - 10.8.9.6. The authorized person in charge of the group LOTO review all forms and permits filled out during the work to ensure that the assignment is properly and safely completed. When this is accomplished, the authorized person in charge of the group LOTO is ready to remove LOTO devices from the lockout box and all other energy isolation devices.
  - 10.8.9.7. All applicable work permits and forms are completed, signed and submitted in accordance with company and host employer requirements.
- 10.8.10. Personnel and supervisors acknowledge that each group LOTO is different and requires individual site-specific consideration and special procedures / precautions as appropriate to situations at hand. This may include procedures and precautions that are not included in the procedures explained above. Consequently, the authorized person in

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charge of a group LOTO has the authority to do whatever is necessary to achieve safety for all company employees and personnel in the work area.

**11. Periodic Assessment and Challenge of LOTO Procedures**

- 11.1. Cleveland Integrity Services shall inspect, evaluate and challenge LOTO procedures for energy control at least once each year.
- 11.2. This process is intended and carried out to ensure that LOTO procedures are correct, effective and in accordance with OSHA standards and requirements. Additionally, the process identifies and addresses any inadequacies or needs for updating that may be discovered.

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## 1. Purpose

- 1.1. Handling of materials accounts for 20 to 25 percent of all occupational injuries, according to the National Safety Council.
- 1.2. These injuries occur in every part of plant operations, not just the warehouse or stockroom. Cleveland Integrity Services makes every effort to reduce these incidences at work locations where manual lifting is required.

## 2. Scope

- 2.1. Analyze injury and illness records such as OSHA 300 logs, for evidence of cumulative trauma disorders and back overexertion injuries;
- 2.2. Further identify problem areas by reviewing internal accident investigation reports, medical reports, employee complaints and walk-through surveys.
- 2.3. Compile a list or examples of items required to be manually lifted, such as containers, boxes, or drums;
- 2.4. Make a list of manual lifting aids, such as conveyors, hand trucks, carts, dollies, rollers and slides;
- 2.5. If possible, video tape or take pictures of employees lifting items used in their work areas. Use this tape later to identify workstation deficiencies. Review and discuss injuries that have occurred as a result of material handling. Ask employees what could have been done to prevent them.

## 3. Ways to minimize material handling incidents

- 3.1. **Eliminate Handling.** Analyze the manual lifting operations. Find ways to eliminate manual material handling tasks.
- 3.2. **Planning.** Details of material handling should be planned before actual work is started. Ensure the area is unobstructed and free from all hazards. Select the correct equipment, identify and analyze steps that can go wrong and procedures to deal with potential problems. This should be a documented hazard assessment, such as in the form of a JSA.
- 3.3. **Design and Selection.** Material handling equipment must be properly designed and selected for the job. For example, a conveyor that moves material above workers must have overhead protection to protect the worker from falling objects. A completed hazard assessment will contain material design, such to include size, bulk, weight of object(s), if mechanical lifting is required, if a two-man lift will be required, whether vision may be obscured while carrying the object and the walking surface path.



- 3.4. **Use.** Equipment must be used properly and as intended. Loads on material handling equipment must not exceed safe load limits.
- 3.5. **Training.** Employees must be properly trained in the use of equipment. They should be able to demonstrate proficiency in the equipment's use before working alone. Training will include basic ergonomic principles, recognition of hazards, procedures for reporting hazardous conditions and methods of early reporting of injuries. Additionally, job specific training should be given and include safe lifting for work practices, hazards and controls.
- 3.6. **Environment.** Lighting, visibility, weather, terrain, material properties, such as toxicity and weight, is taken into consideration before beginning the task.

#### 4. Lifting Mechanics

- 4.1. When you lift an object, it's important to keep your back in alignment and balance. If you bend at the waist and extend your upper body to lift an object, you upset your back's alignment and the center of balance. Your spine is forced to support the weight of your body and the weight of the object you are lifting. You can avoid "overloading" your back by using good lifting techniques. For example, when you bend at the knees and hug the object close to your body as you lift, you keep your back in alignment and let your thigh muscles do the actual lifting.
- 4.2. Engineering controls such as work table height, ergonomic layout of the workplace and use of lifts, jacks and other machinery should be used to lessen the physical burden of lifting. When other controls are not feasible, two man lifts must be utilized.

#### 5. Supervisor responsibilities

- 5.1. In the event of an accident or near miss, the supervisor must investigate the reason of the injury caused by the accident to prevent further injury in the future.
- 5.2. A back injury is a recordable injury on the OSHA 300 log.
- 5.3. Supervisors of Cleveland Integrity Services have the duty to perform inspections at work stations periodically to assess the potential for and prevention of injury.
- 5.4. Required to enforce the use of supplied manual lifting equipment when practical to reduce the risk of injuries.
- 5.5. Employees are required to use all supplied manual lifting devices at all times when lifting, if feasible.
- 5.6. If manual lifting devices are not available or feasible then a "two-man lift" is used to reduce the stress of lifting on one person.
- 5.7. Injuries are recorded and reported as required by 29 CFR Part 1904.

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Applicable OSHA Standards: 29 CFR 1910.178; 29 CFR 1926.601

## 1. Purpose & Scope

- 1.1. This policy contains safety requirements relating to maintenance, and use of fork trucks, tractors, platform lift trucks, motorized hand trucks, and other specialized industrial trucks powered by electric motors or internal combustion engines.
- 1.2. This policy applies to all employees and subcontractors working within Cleveland Integrity Services controlled job sites.

## 2. General Procedures

- 2.1. Only trained and authorized operators will be permitted to operate a powered industrial truck. The Company will ensure that each powered industrial truck operator is competent to operate a powered industrial truck safely. This will be demonstrated by the successful completion of the training and evaluation specified in this program.
- 2.2. Prior to permitting an employee to operate a powered industrial truck (except for training purposes), the Company will ensure that each operator has successfully completed the training required by this program.
- 2.3. All operators must be certified through the Company's forklift operator certification program.
- 2.4. Modifications and additions which affect capacity and safe operation will not be performed by the customer or user without manufacturer's prior written approval. Capacity, operation, and maintenance instruction plates, tags, or decals will be changed accordingly.
- 2.5. An operator shall not use or attempt to use any vehicle in a any manner or for any purpose other than for which it is designed for by the manufacture.
- 2.6. If the truck is equipped with front-end attachments other than factory installed attachments, the user will request that the truck be marked to identify the attachments and show the approximate weight of the truck and attachment combination at maximum elevation with load laterally centered.
- 2.7. The operator or a designated qualified person will perform a daily or pre-shift inspection of the forklift to confirm that it is safe to use. This will be documented on the *Forklift Safety Inspection Form* (included as an attachment).
- 2.8. If the Mobile Equipment is equipped with a roll cage, the operator will wear the approved safety seat belt installed by the manufacturer.
- 2.9. The user will see that all nameplates and markings are in place and are maintained in a legible condition.

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- 2.10. Where general lighting is less than 2 lumens per square foot, auxiliary directional lighting will be provided on the truck.
- 2.11. All mobile equipment will have an operational audible alarm that activates once the equipment is put into a reverse gear.
- 2.12. The brakes of highway trucks will be set, and wheel chocks placed under the rear wheels to prevent the trucks from rolling while they are boarded with powered industrial trucks.
- 2.13. If the mobile equipment is not equipped with an enclosed cab, the user will be required to wear approved eye protection.
- 2.14. Fixed jacks may be necessary to support a semi-trailer and prevent upending during the loading or unloading when the trailer is not coupled to a tractor.
- 2.15. Wheel stops or other recognized positive protection will be provided to prevent railroad cars from moving during loading or unloading operations.
- 2.16. Fork trucks will not be driven up to anyone standing in front of a bench or other fixed object.
- 2.17. No person will be allowed to stand or pass under the elevated portion of any truck, whether loaded or empty.
- 2.18. Unauthorized personnel will not be permitted to ride on powered industrial trucks. A safe place to ride will be provided where riding of trucks is authorized.
- 2.19. Do not place arms or legs between the uprights of the mast or outside the running lines of the truck.
- 2.20. When a powered industrial truck is left unattended, load engaging means will be fully lowered, controls will be neutralized, power will be shut off, and brakes set. Wheels will be blocked if the truck is parked on an incline.
- 2.21. A powered industrial truck is unattended when the operator is 25 ft. or more away from the vehicle which remains in his view or whenever the operator leaves the vehicle and it is not in his view.
- 2.22. When the operator of an industrial truck is dismounted and within 25 ft. of the truck still in his view, the load engaging means will be fully lowered, controls neutralized, and the brakes set to prevent movement.
- 2.23. A safe distance will be maintained from the edge of ramps or platforms while on any elevated dock, or platform or freight car. Trucks will not be used for opening or closing freight doors.
- 2.24. Only approved industrial trucks will be used in hazardous locations.

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### 3. Traveling

- 3.1. All traffic regulations will be observed, including authorized plant speed limits. A safe distance will be maintained approximately three truck lengths from the truck ahead, and the truck will be kept under control at all times.
- 3.2. The right of way will be yielded to ambulances, fire trucks, or other vehicles in emergency situations.
- 3.3. Other trucks traveling in the same direction at intersections, blind spots, or other dangerous locations will not be passed.
- 3.4. The driver is required to slow down and sound the horn at cross aisles and other locations where vision is obstructed. If the load being carried obstructs forward view, the driver will be required to travel with the load trailing.
- 3.5. Railroad tracks will be crossed diagonally wherever possible. Parking closer than 8 feet from the center of railroad tracks is prohibited.
- 3.6. The driver is required to look in the direction of and keep a clear view of the path of travel.
- 3.7. Grades will be ascended or descended slowly.
- 3.8. When ascending or descending grades in excess of 10 percent, loaded trucks will be driven with the load upgrade.
- 3.9. On all grades the load and load engaging means will be tilted back if applicable and raised only as far as necessary to clear the road surface.
- 3.10. Under all travel conditions the truck will be operated at a speed that will permit it to be brought to a stop in a safe manner.
- 3.11. The driver is required to slow down for wet and slippery floors.
- 3.12. Dock board or bridge plates will be properly secured before they are driven over. Dock board or bridge plates will be driven over carefully and slowly, and their rated capacity never exceeded.
- 3.13. Running over loose objects on the roadway surface will be avoided.
- 3.14. While negotiating turns, speed will be reduced to a safe level by means of turning the hand steering wheel in a smooth, sweeping motion. Except when maneuvering at a very low speed, the hand steering wheel will be turned at a moderate, even rate.

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#### **4. Loading**

- 4.1. Only stable or safely arranged loads will be handled. Caution will be exercised when handling off-center loads which cannot be centered.
- 4.2. Only loads within the rated capacity of the truck will be handled.
- 4.3. The long or high (including multiple-tiered) loads which may affect capacity will be adjusted to center and secured for transport.
- 4.4. Trucks equipped with attachments will be operated as partially loaded trucks when not handling a load.
- 4.5. Extreme care will be used when tilting the load forward or backward, particularly when high tiering. Tilting forward with load engaging means elevated will be prohibited except to pick up a load. An elevated load will not be tilted forward except when the load is in a deposit position over a rack or stack. When stacking or tiering, only enough backward tilt to stabilize the load will be used.

#### **5. Operation of the Truck**

- 5.1. If at any time a powered industrial truck is found to be in need of repair, defective, or in any way unsafe, the truck will be taken out of service until it has been restored to safe operating condition.
- 5.2. Fuel tanks will not be filled while the engine is running. Spillage will be avoided.
- 5.3. Spillage of oil or fuel will be carefully washed away or completely evaporated and the fuel tank cap replaced before restarting engine.
- 5.4. No truck will be operated with a leak in the fuel system until the leak has been corrected.
- 5.5. Open flames will not be used for checking electrolyte level in storage batteries or gasoline level in fuel tanks.
- 5.6. No Smoking will be allowed within 200 ft of the filling station.

#### **6. Maintenance of Mobile Equipment**

- 6.1. Any power-operated industrial truck not in safe operating condition will be removed from service. All repairs will be made by authorized personnel.
- 6.2. Those repairs to the fuel and ignition systems of industrial trucks which involve fire hazards will be conducted only in locations designated for such repairs.
- 6.3. Trucks in need of repairs to the electrical system will have the battery disconnected prior to such repairs.

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- 6.4. All parts of any such industrial truck requiring replacement will be replaced only by parts equivalent as to safety with those used in the original design.
- 6.5. Industrial trucks will not be altered so that the relative positions of the various parts are different from what they were when originally received from the manufacturer, nor will they be altered either by the addition of extra parts not provided by the manufacturer or by the elimination of any parts. Additional counter weighting of fork trucks will not be done unless approved by the truck manufacturer.
- 6.6. Industrial trucks will be examined before being placed in service, and will not be placed in service if the examination shows any condition adversely affecting the safety of the vehicle. Such examination will be made at least daily. Where industrial trucks are used on a round-the-clock basis, they will be examined after each shift. Defects when found will be immediately reported and corrected.
- 6.7. When the temperature of any part of any truck is found to be in excess of its normal operating temperature, thus creating a hazardous condition, the vehicle will be removed from service and not returned to service until the cause for such overheating has been eliminated.
- 6.8. Industrial trucks will be kept in a clean condition, free of lint, excess oil, and grease. Noncombustible agents should be used for cleaning trucks. Low flash point (below 100 deg. F.) solvents will not be used. High flash point (at or above 100 deg. F.) solvents may be used. Precautions regarding toxicity, ventilation, and fire hazard will be consonant with the agent or solvent used.

## 7. Motor Vehicles

- 7.1. All vehicles shall have a service brake system, an emergency brake system and a parking brake system. These systems may use common components and shall be maintained in operable conditions.
- 7.2. Whenever visibility conditions warrant additional light, all vehicles or combinations of vehicles, in use shall be equipped with at least two headlights and two taillights in operable condition. All vehicles shall have brake lights in operable condition regardless of light conditions.
- 7.3. All vehicles shall be equipped with an adequate audible warning device at the operator's station and in an operable condition. No employer shall use any motor vehicle equipment having an obstructed view to the rear unless:
  - 7.3.1. The vehicle has a reverse signal alarm audible above the surrounding noise level; or
  - 7.3.2. The vehicle is backed up only when an observer signals that it is safe to do so.
- 7.4. All vehicles with cabs shall be equipped with windshields and powered wipers. Cracked and broken glass shall be replaced. Vehicles operating in areas or under

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conditions that cause fogging or frosting of the windshields shall be equipped with operable defogging or defrosting devices.

- 7.5. Tools and materials shall be secured to prevent movement when transported in the same compartment with employees.
- 7.6. Vehicles used to transport employees shall have seats firmly secured and adequate for the number of employees to be carried.
- 7.7. All vehicles in use shall be checked at the beginning of each shift to assure that the following parts, equipment and accessories are in safe operating condition and free of apparent damage that could cause failure while in use: service brakes, including trailer brake connections; parking system (hand brake); emergency stopping system (brakes); tires; horn; steering mechanism; coupling devices; seat belts; operating controls; and safety devices. All defects shall be corrected before the vehicle is placed in service. These requirements also apply to equipment such as lights, reflectors, windshield wipers, defrosters, fire extinguishers, etc., where such equipment is necessary.

## 8. Training

- 8.1. All operators will be trained on the contents of this policy:
  - 8.1.1. Before initial assignment;
  - 8.1.2. At least annually thereafter, and as required according to circumstances explained below;
  - 8.1.3. When an operator is involved in an incident with a fork truck, or when remedial training is required as explained below.
- 8.2. Training will consist of a combination of formal instruction (e.g., lecture, discussion, interactive computer learning, video tape, written material), practical training (demonstrations performed by the trainer and practical exercises performed by the trainee), and evaluation of the operator's performance in the workplace.
- 8.3. All operator training and evaluation will be conducted by persons who have the knowledge, training, and experience to train powered industrial truck operators and evaluate their competence.
- 8.4. Powered industrial truck operators will receive initial training in the following topics, except in topics that the Company can demonstrate are not applicable to safe operation of the truck in the Company workplace.
  - 8.4.1. Truck-related topics:
    - 8.4.1.1. Operating instructions, warnings, and precautions for the types of truck the operator will be authorized to operate;

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- 8.4.1.2. Differences between the truck and the automobile;
  - 8.4.1.3. Truck controls and instrumentation: where they are located, what they do, and how they work;
  - 8.4.1.4. Engine or motor operation;
  - 8.4.1.5. Steering and maneuvering;
  - 8.4.1.6. Visibility (including restrictions due to loading);
  - 8.4.1.7. Fork and attachment adaptation, operation, and use limitations;
  - 8.4.1.8. Vehicle capacity;
  - 8.4.1.9. Vehicle stability;
  - 8.4.1.10. Any vehicle inspection and maintenance that the operator will be required to perform;
  - 8.4.1.11. Refueling and/or charging and recharging of batteries;
  - 8.4.1.12. Operating limitations;
  - 8.4.1.13. Any other operating instructions, warnings, or precautions listed in the operator's manual for the types of vehicle that the employee is being trained to operate.
- 8.4.2. Workplace-related topics:
- 8.4.2.1. Surface conditions where the vehicle will be operated;
  - 8.4.2.2. Composition of loads to be carried and load stability;
  - 8.4.2.3. Load manipulation, stacking, and unstacking;
  - 8.4.2.4. Pedestrian traffic in areas where the vehicle will be operated;
  - 8.4.2.5. Narrow aisles and other restricted places where the vehicle will be operated;
  - 8.4.2.6. Hazardous (classified) locations where the vehicle will be operated;
  - 8.4.2.7. Ramps and other sloped surfaces that could affect the vehicle's stability;
  - 8.4.2.8. Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust;



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8.4.2.9. Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation.

8.4.2.10. The requirements of this program.

8.5. Refresher training, including an evaluation of the effectiveness of that training, will be conducted as to ensure that the operator has the knowledge and skills needed to operate the powered industrial truck safely. Refresher training in relevant topics will be provided to the operator when:

8.5.1. The operator has been observed to operate the vehicle in an unsafe manner;

8.5.1.1. The operator has been involved in an accident or near-miss incident;

8.5.1.2. The operator has received an evaluation that reveals that the operator is not operating the truck safely;

8.5.1.3. The operator is assigned to drive a different type of truck; or

8.5.1.4. A condition in the workplace changes in a manner that could affect safe operation of the truck.

8.6. An evaluation and recertification of each powered industrial truck operator's performance will be conducted at least once every three years.

8.7. The Company will certify that each operator has been trained and evaluated as required by this program. The certification will include the name of the operator, the date of the training, the date of the evaluation, and the identity of the person(s) performing the training or evaluation.

**Daily / Pre-Shift Forklift Safety Inspection**      Date \_\_\_\_\_      Unit # \_\_\_\_\_

<input type="checkbox"/>	<b>Overhead Guard</b> - Are there broken welds, missing bolts, or damaged areas?
<input type="checkbox"/>	<b>Hydraulic Cylinders</b> - Is there leakage or damage on the lift, tilt, and attachment functions of the cylinders?
<input type="checkbox"/>	<b>Mast Assembly</b> - Are there broken welds, cracked or bent areas, and worn or missing stops?
<input type="checkbox"/>	<b>Lift Chains and rollers</b>
<input type="checkbox"/>	Is there wear or damage or kinks, signs of rust, or any sign that lubrication is required?
<input type="checkbox"/>	Is there squeaking?
<input type="checkbox"/>	<b>Forks</b>
<input type="checkbox"/>	Are they cracked or bent , worn, or mismatched?
<input type="checkbox"/>	Is there excessive oil or water on the forks?
<input type="checkbox"/>	<b>Tires</b> - What do the tires look like?
<input type="checkbox"/>	Are there large cuts that go around the circumference of the tire?
<input type="checkbox"/>	Are there large pieces of rubber missing or separated from the rim?
<input type="checkbox"/>	Are there missing lugs?
<input type="checkbox"/>	Is there bond separation that may cause slippage?
<input type="checkbox"/>	<b>Battery Check</b>
<input type="checkbox"/>	Are the cell caps and terminal covers in place?
<input type="checkbox"/>	Are the cables missing insulation?
<input type="checkbox"/>	<b>Hydraulic Fluid</b> - Check level?
<input type="checkbox"/>	<b>Gauges</b> - Are they all properly working?
<input type="checkbox"/>	<b>Steering</b>
<input type="checkbox"/>	Is there excessive free play?
<input type="checkbox"/>	If power steering, is the pump working?
<input type="checkbox"/>	<b>Brakes</b>
<input type="checkbox"/>	If pedal goes all the way to the floor when you apply the service brake, that is the first indicator that the brakes are bad. Brakes should work in reverse, also.
<input type="checkbox"/>	Does the parking brake work? The truck should not be capable of movement when the parking brake is engaged.
<input type="checkbox"/>	<b>Lights</b> - If equipped with lights, are they working properly?
<input type="checkbox"/>	<b>Horn</b> - Does the horn work?
<input type="checkbox"/>	<b>Safety seat</b> - if the truck is equipped with a safety seat is it working?
<input type="checkbox"/>	<b>Load Handling Attachments</b>
<input type="checkbox"/>	Is there hesitation when hoisting or lowering the forks, when using the forward or backward tilt, or the lateral travel on the side shift?
<input type="checkbox"/>	Is there excessive oil on the cylinders?
<input type="checkbox"/>	<b>Propane Tank</b> - Is the tank guard bracket properly positioned and locked down?
<input type="checkbox"/>	<b>Propane Hose</b>
<input type="checkbox"/>	Is it damaged? It should not be frayed, pinched, kinked, or bound in any way.
<input type="checkbox"/>	Is the connector threaded on squarely and tightly?
<input type="checkbox"/>	<b>Propane Odor</b> - If you detect the presence of propane gas odor, turn off the tank valve and report the problem.
<input type="checkbox"/>	<b>Engine Oil</b> - Check levels.
<input type="checkbox"/>	<b>Engine Coolant</b> - Visually check the level. Note: Never remove the radiator cap to check the coolant level when the engine is running or while the engine is hot. Stand to the side and turn your face away. Always use a glove or rag to protect your hand.

CONTINUE INSPECTION ON NEXT SHEET	
<input type="checkbox"/>	<b>Transmission Fluid</b> - Check levels?
<input type="checkbox"/>	<b>Windshield Wipers</b> - Do they work properly?
<input type="checkbox"/>	<b>Seat Belts</b> - Do they work?
<input type="checkbox"/>	<b>Safety Door</b> - (found on stand up rider models) Is it in place?
<input type="checkbox"/>	<b>Safety Switch</b> - (found on stand up riding tow tractors) Is it working?
<input type="checkbox"/>	<b>Hand guards</b> - (found on stand up riding tow tractors, walking pallet trucks, walking transtackers) Are they in place?
<input type="checkbox"/>	<b>Tow Hook</b>
<input type="checkbox"/>	Does it engage and release smoothly?
<input type="checkbox"/>	Does the safety catch work properly?
<input type="checkbox"/>	<b>Control Lever</b> - Does the lever operate properly?
<b>Comments:</b>	

Inspection performed by \_\_\_\_\_

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## 1. Policy

- 1.1. It is company policy that all employees be protected from naturally occurring radioactive material (NORM) and technology enhanced naturally occurring radioactive materials (TENORM) in the event of exposure during work.
- 1.2. This policy includes the company's commitment to comply with occupational, public and environmental radiation protection regulations and requirements established by and within the jurisdiction of federal, state, and local authorities.
- 1.3. This includes, but is not limited to, applicable standards established by the US Nuclear Regulatory Commission, US Department of Energy, US Occupational Safety and Health Administration, US Environmental Protection Agency, and individual states and local authorities.

## 2. Scope of Program

- 2.1. This radiation protection program (RPP) is established and implemented to ensure that safe work procedures and appropriate, specific employee training are provided prior to the assignment of any company employee to perform work where there is an identified potential for NORM or TENORM exposure.
- 2.2. The company safety coordinator shall be the RPP program coordinator and serve as the administrator over program provisions and requirements.
- 2.3. Each manager, supervisor, and other employees involved in work where such radiation exposures may be present share in the responsibility for maintaining a safety margin by use of site-specific and task-specific safe work procedures based on hazard analysis and safety planning prior to commencing work.
- 2.4. Program implementation shall include:
  - 2.4.1. Measures for the identification of NORM and TENORM situations;
  - 2.4.2. Initial and ongoing monitoring of radiation levels during identified situations;
  - 2.4.3. Training of employees about the types of radiation hazards so identified, the location of such hazards in the workplace or job site, and the types of monitoring and identification processes to be used to ensure that appropriate methods of hazard avoidance and protection are utilized as needed.
- 2.5. The implementation of this policy shall be ensured by incorporating the applicable elements of the controlling radiation protection program (RPP) or this Company RPP into site-specific health and safety plans, work plans, or radiological control documents, as appropriate. Where work under specific host employer contracts requires more stringent measures, those measures shall be adopted.

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- 2.6. For projects under the scope of this program in which the host employer either does not have a documented RPP, or the RPP scope is not applicable to the work plan, the site-specific health and safety plan or work plan -- together with applicable elements from this procedure -- shall constitute the company's documented radiation RPP for the project.

### **3. Procedure**

- 3.1. Each site under the purview of this program shall have one or more qualified individuals responsible for implementing radiological protection of employees, members of the public, and the environment.
- 3.2. Qualifications and training of these individuals shall be commensurate with the potential radiological hazards.
- 3.3. Written radiological operational procedures shall be developed for activities where there is an identified risk to employees or a threat to the environment from radiological hazards.
- 3.4. Such procedures shall be commensurate with the level of hazard and shall address all the radiological protection program elements necessary for identifying, evaluating, and controlling radiological hazards, and ensuring compliance with company and federal occupational safety and health requirements, environmental permits and radiological regulations.
- 3.5. The procedures shall provide for the collection and maintenance of information providing a legal record of protection of employees, the public, and the environment such as instrument calibration and performance checks, contamination monitoring and control, direct radiation monitoring and personnel access control.
- 3.6. Surveys and monitoring to evaluate potential radiological hazards shall be conducted as commensurate with the magnitude of the potential hazard.
- 3.7. The surveys shall include measurements of radiation levels, concentrations or quantities of radioactive material, and other measurements and evaluations necessary to characterize the potential radiological hazards that could be present.
- 3.8. Radiation detection instrumentation shall be provided as appropriate for performing necessary surveys and monitoring. The instrumentation shall be selected based upon the type of radiation detected, minimum detectable activity measurement capability and range in accordance with the radiological hazards present or anticipated for the project.
- 3.9. Appropriate procedures and measures shall be established to control personnel access to radiological controlled areas. The procedures shall provide that only appropriately trained, authorized and qualified personnel are permitted access to the controlled area.

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- 3.10. Personal protective equipment (PPE), which may include the use of HEPA respirators, shall be selected based on the contamination levels in the work area and the anticipated work activity, safety and health considerations, and consideration of non-radiological hazardous materials that may be present.
- 3.11. Only respiratory protection devices tested and approved by NIOSH/MSHA are authorized for use in protection against radio nuclides. All personnel who utilize respiratory protection shall do so in accordance with the company's written respiratory protection program.
- 3.12. Hazard communication through posting and labeling shall be in accordance with the cognizant regulatory authority requirements. The standard radiation symbol (ANSI N2.1/12.1) in magenta or black on a yellow background (or alternate as provided by regulations) shall be used to warn individuals of the presence of radiation and/or radioactive material.
- 3.13. Transportation of radioactive material shall be in accordance with DOT requirements in 49 CFR 170 through 180, International Air Transport Association regulations and other Federal, state, and local regulations, as applicable.
- 3.14. The generation, treatment, storage, packaging, and transport of radioactive waste for disposal shall be in accordance with applicable federal, state and local regulatory requirements.
- 3.15. Information and reports regarding any individual's radiation exposure shall be made available to that individual annually and upon request in accordance with the provisions of state privacy laws and federal privacy requirements.

#### **4. Training**

- 4.1. A training program shall be established to provide mandatory training to affected employees at a project site under this radiological program. Radiation protection training shall be provided to each affected employee prior to assignment to work where a NORM or TENORM hazard potential has been identified.
- 4.2. In addition to this initial training, re-training shall be performed at least annually during the length of the project at hand, and whenever workplace situations change or work procedures are modified in a way that affects radiation protection for personnel.
- 4.3. The objective and goal of the training program shall be to provide a consistent baseline level of knowledge and practical skills for general employees and radiological workers working in or adjacent to restricted or radiological controlled areas.
- 4.4. Specific training and qualification standards shall be as specified in the cognizant regulatory authority requirements or guidance documents, and, as a minimum, shall consist of definitions, sources of radiation, radiological fundamentals, biological

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effects, ALARA philosophy (as-low-as-reasonably-achievable), radiological posting and controls, contamination and exposure control, personal protective equipment use and limitations, personal hygiene considerations, emergency procedures, roles and responsibilities, and emergency procedures.

4.5. Training shall include instruction in special concepts of personal protection from radiation that explain three basic considerations:

4.5.1. Limitation of the duration of the exposure;

4.5.2. Greater protection as distance from the exposure increases; and

4.5.3. Greater protection as shielding factors (primarily type and amount) between the radiation source and the individual increase.

## 5. **Emergency procedures**

5.1. Site-specific radiological emergency procedures commensurate with the level of hazard shall be developed or client procedures adopted prior to the initiation of work addressing severe weather actions, transportation accidents or spills, medical emergencies, personnel contaminations, and on-site hazmat response and notification requirements involving radioactive materials.

5.2. All site personnel shall be instructed in their emergency responsibilities and the emergency procedures.

## 6. **Project applicability**

6.1. The majority of company contracts under the purview of this procedure are expected to be at construction, pipeline, and maintenance sites involving materials containing low levels of Naturally Occurring Radioactive Materials (NORM) and radioactivity, as well as Technology Enhanced Naturally Occurring Radioactive Materials (TENORM).

6.2. For these activities, many of the elements of the radiological protection program will not be fully applicable or will be applied in alternate equivalent ways in the site-specific health and safety plan.

## 7. **Site-Specific Information**

7.1. Radium, radon, and their decay products are radioactive elements of concern in petroleum production and gas processing. Exposure may occur when contaminated dusts and sludge are inhaled or ingested (internal exposure) or when radiation from surrounding equipment strikes the body (external exposure).

7.2. Radium is found in most oil and gas fields in the world in varying concentrations. There is potential to find radium in significant amounts in almost all types of equipment. Radon is found in most natural gas deposits in the world.

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- 7.3. Radon itself does not present a health hazard because it is not easily absorbed into the body and is quickly cleared when absorbed.
- 7.4. Radon's radioactive breakdown products, called radon "daughters," may be hazardous. Radon naturally breaks down into radioactive metals before becoming non-radioactive lead.
- 7.5. Radon daughters may be inhaled or ingested when attached to scale or dust generated during equipment inspection and repair. Radon daughter overexposure has been associated with an increased risk of lung cancer.
- 7.6. Work procedures are recommended when maintaining NORM contaminated equipment such as pipelines, filters, pumps, lines, sludge or wellhead equipment. The exposure risk is highest when grinding, cutting, polishing, or performing other work that may generate dust. These dusts present inhalation hazards that result in internal exposures to radioactive material.
- 7.7. Radiological detection and monitoring equipment shall be selected based on the workplace situation and the type of NORM or TENORM anticipated. The methods for testing should be described; in addition, who will perform the tests and the source of information for exposure to which the levels will be compared should also be addressed.
- 7.8. Detection and monitoring shall be done only by trained and qualified personnel who are familiar with the type(s) of equipment in use and methods/protocols to be followed, as determined in the company's and (as applicable) the host employer's site-specific radiation protection program.
- 7.9. Proper respiratory protection (respirator with the proper HEPA filter) should be worn when performing activities that will result in dust or particle generation.
- 7.10. Locations where NORM or TENORM might be found in concentrations higher than background are entrained in water from oil and gas production, transport and delivery equipment for propane, gas processing equipment, and storage areas for used piping.



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Applicable Standards: NFPA 70E (the "Standard for Electrical Safety in the Workplace®", 2015) and OSHA CFR 1910.135, 1910.303, 1910.335, 1910.333, 1910.5 and 1926 Subpart K

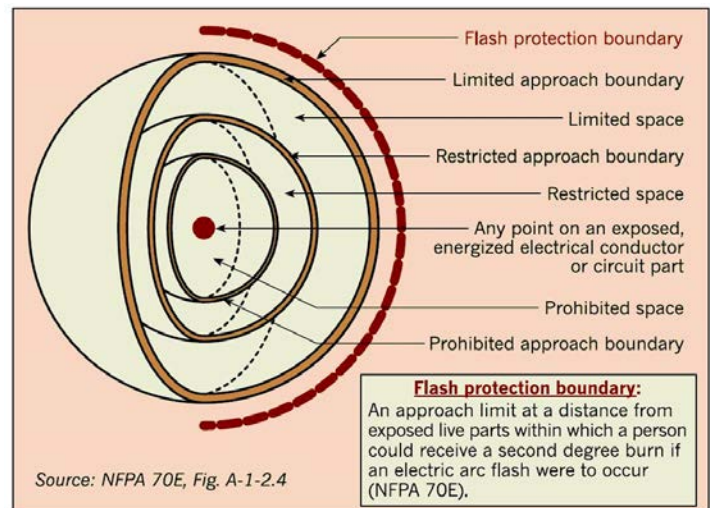
## 1. Purpose, Scope & Implementation

- 1.1. Cleveland Integrity Services has established this policy to outline and implement measures to be taken to ensure protection electrical shock, arc flash and arc blast exposure.
- 1.2. This program applies to all Company-controlled worksites where Qualified and Non-Qualified personnel work on or near energized electrical equipment or systems (50 volts or more). This Program is not intended to address all of the regulatory requirements or applicable guidelines of the Company's written Electrical Safety Program for Qualified and Non-Qualified employees.
- 1.3. The Company Safety Coordinator is responsible for implementation of program components and safe work procedures; proper selection and use of protective equipment; training of employees who may encounter electrical hazards during their work routine (specifically for those performing electrical work); and making program updates and modifications as required.

## 2. Definitions

- 2.1. Arc Flash Boundary – distance at which an electrical arc can flash outward, which may endanger employees working on electrical equipment; burns up to second degree are likely to occur
- 2.2. Arc Flash Hazard – a dangerous condition associated with the possible release of energy caused by an electric arc.
- 2.3. Arc Flash Risk Assessment – a study investigating a worker's potential exposure to arc flash energy, conducted for the purpose of injury prevention and the determination of safe work practices, arc flash protection boundary, and the appropriate levels of PPE.
- 2.4. Arc Flash Protection Boundary – an approach limit (distance) from an energized part within which a person could receive a second degree burn if an arc would occur.
- 2.5. Arc Flash Suit – a complete FR clothing and equipment system that covers the entire body, except for the hands and feet. This includes pants and jacket, and beekeeper-type hood fitted with a face-shield.
- 2.6. Arc Rating – the value attributed to materials describing their protective performance when exposed to an arc flash (in cal/cm<sup>2</sup>).

- 2.7. Barricade – a physical obstruction such as tapes, cones, or A-frame-type wood or metal structures intended to provide a warning about and to limit access to a hazardous area
- 2.8. De-energized – free from any electrical connection to a source of potential difference and from electrical charge; not having a potential different from that of the earth
- 2.9. Electrical Equipment or Systems – equipment or systems operating at 50 volts or more
- 2.10. Electrical Hazard – a dangerous condition such that contact or equipment failure can result in electric shock, arc flash burn, thermal burn, or blast
- 2.11. Energized Parts – electrically connected to or having a source of voltage
- 2.12. Flash Protection Boundary – an approach limit at a distance from exposed live parts within which a person could receive a second degree burn if an electrical arc flash were to occur
- 2.13. High Risk Operations – OSHA considers contact with over 300 volts a high risk operation
- 2.14. High Voltage Electrical Work – work on associated electrical conductors and equipment operating at or intended to operate at a sustained voltage of more than 600 volts between conductors
- 2.15. Limited Approach Boundary – an approach limit at a distance from an exposed live part within which a shock risk exists
- 2.16. Live Parts – exposed energized electrical conductor or circuit part
- 2.17. Minimum Arc Rating of Clothing (previously: Flame Resistant) – expressed cal/cm<sup>2</sup>; arc rated clothing indicates it has been tested for exposure to an electrical arc.
- 2.18. Nominal System Voltage – a value assigned to a circuit or system for the purpose of conveniently designating its voltage class (e.g. 120/240 volts; 480/277 volts; 600 volts)
- 2.19. Non-Qualified Personnel – personnel who may be exposed to electrical hazards or work within limited approach boundaries but who are not authorized as Qualified Personnel or Qualified Electrical Workers



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- 2.20. Personal Protective Equipment (PPE) – includes, but is not limited to electrically rated or FR head protection, eye and face protection, gloves, sleeves, leather protectors, footwear, work clothing, raingear, hot sticks with fittings, personal safety grounds, barriers, mats, insulated blankets, insulated tools, and face protective products
- 2.21. Qualified Electrical Worker – a Qualified person with a minimum of two years of training and experience with high-voltage circuits and equipment under the supervision of another Qualified electrical worker and who has demonstrated by performance familiarity with the work to be performed and the hazards involved. They must be able to distinguish exposed live parts, determine their nominal voltage, maintain approach distances, properly use energy isolation procedures and special precautionary techniques, and properly use PPE, insulating and shielding materials, insulated tools, grounding devices, and test equipment.
- 2.22. Qualified Personnel – one who has skills and knowledge related to the construction and operation of the electrical equipment and installations and has received safety training on the hazards involved.
- 2.23. Restricted Approach Boundary – an approach limit from an exposed live part exposing Qualified Personnel to increased risk of shock.
- 2.24. Risk – a combination of the likelihood of occurrence of injury or damage to health and the severity of injury or damage to health that results from a hazard.

### 3. **Specific Responsibilities & Requirements**

- 3.1. The Company Safety Coordinator, supported by Supervisors and assisted as required by designated individuals trained and knowledgeable in arc flash hazards, NFPA 70E requirements and electrical safety, will fulfill the following responsibilities:
  - 3.1.1. Develop and implement a written electrical safety program as required for Company facilities, projects and site-specific situations.
  - 3.1.2. Implement a permit program for all work on live parts (other than testing, troubleshooting and voltage measuring by Qualified Personnel) with affected Employees.
  - 3.1.3. Develop baseline training for Non-Qualified employees regarding arc flash hazard recognition and safe work procedures in accordance with NFPA 70E.
  - 3.1.4. Ensure that the program elements are incorporated into subcontractor safety requirements as part of subcontractor review and selection processes.
  - 3.1.5. Identify Qualified Personnel, Qualified electrical workers, and Non-Qualified Personnel.

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- 3.1.6. Identify high risk operations and locations where work on energized parts could occur over 300 volts.
- 3.1.7. Complete a written electrical safety program as required for work assignments, projects and site-specific situations.
- 3.1.8. Implement a permit program for work on live parts other than testing, troubleshooting, and voltage measuring by Qualified Personnel.
- 3.1.9. Provide baseline training for Qualified Personnel, Qualified Electrical Workers, and Non-Qualified personnel.
- 3.1.10. Identify and provide appropriate personal protective equipment (PPE) for Qualified Personnel and Qualified Electrical Workers, and require its use.
- 3.1.11. Provide for and monitor the use of PPE and other protective safety devices.
- 3.1.12. Complete an arc flash risk assessment and update as the system, work assignment or project requires.
- 3.1.13. Label all equipment and components in Company facilities that present arc flash hazards. At host employer facilities or work locations, identify and communicate to assigned personnel equipment and components that have been labeled as electrical arc hazards.
- 3.1.14. Identify limited, flash protection, prohibited and restricted approach boundaries in Company facilities. At host employer facilities or work locations, identify and communicate to assigned personnel equipment and components that have been labeled as arc flash hazards.
- 3.1.15. As required for the work assignment, ensure that consultants provide training on electrical arc hazard analysis to all electrical workers.
- 3.1.16. Determine the frequency for reassessing electrical equipment and components.
- 3.1.17. For Company facilities, provide surveillance of program elements including training, hazard assessment and labeling on an ongoing basis.
- 3.2. As required by the work assignment or project, Qualified Personnel and Qualified electrical workers will:
  - 3.2.1. Ensure that unqualified persons do not enter spaces where only Qualified employees are allowed access except when electrical sources, equipment, contacts and conductors in that area are either de-energized or in an electrically safe work condition.
  - 3.2.2. Ensure that Qualified electrical workers are the only employees who may

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perform high voltage work (600 volts or more).

- 3.2.3. Ensure that two Qualified electrical workers are present during high voltage work (600 volts or more).
- 3.2.4. At Company facilities, establish limited, prohibited and restricted approach boundaries with barricades, which provides flash protection boundaries. At host employer facilities or work locations, identify and communicate to assigned personnel the location of any such established boundaries in their respective work area(s).
- 3.2.5. Employees will avoid limited approach boundaries unless supervised by Qualified Personnel or a Qualified electrical worker; and, always wear flash protection while maintaining prohibited, and restricted approach boundaries.
- 3.2.6. Only qualified persons will be allowed to complete tasks such as testing, troubleshooting, and voltage measuring within the limited approach boundary of energized electrical conductors or circuit parts operating at 50 volts or more or where an electrical hazard exists.
- 3.3. When working at a host employer facility or work location, the Company Safety Coordinator or Site Supervisor will notify the host contact person about any arc flash hazard discovered and not previously anticipated pertaining to the assignment. This includes any arc flash hazard discovered that the host employer did not communicate prior to start of work.
- 3.4. Upon notification by a host employer of an arc flash hazard or potential, the Site Supervisor will communicate abatements or mitigations to the host's designated contact or safety representative. The Company Safety Coordinator will be contacted and assist in consideration of any such reported hazard and development of the abatement and/or mitigation. This will be done to correct existing hazard(s) and to prevent a reoccurrence.

#### 4. Training

- 4.1. Training represents one of the most important aspects of any safety program. Electrical safety training should occur as either classroom or on-the-job training. However, the specialized nature of the field requires that an electrician or someone working in the electrical field conduct a large portion of the training.
- 4.2. The Company Safety Coordinator can assist in coordinating the training with the specialist, and can cover many Non-specialty training elements, such as: regulatory requirements, injury potential, emergency procedures, Non-Qualified Personnel training, and basic elements of training for Qualified Personnel and Qualified electrical workers.
- 4.3. Any trainer, consultant or provider conducting this training must document all employees' attendance (by printed name and signature); training date and location;

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successful completion of training; and demonstration of proficiency. They will provide the Company Safety Coordinator with a copy of these records.

- 4.4. Training documentation and records will be maintained at least for the duration of the employee's tenure.
- 4.5. Training curriculum, content and presentation will be based on the type of employee work for which training is required. Training elements will be:
  - 4.5.1. Non-Qualified Personnel Training Elements
    - 4.5.1.1. Limited approach boundaries (See Table 1 below)
    - 4.5.1.2. Types of electrical injuries.
    - 4.5.1.3. Recognition of electrical hazards.
  - 4.5.2. Qualified Personnel Training Elements.
    - 4.5.2.1. Completion of all training elements for Non-Qualified Personnel.
    - 4.5.2.2. Specific hazards associated with electrical energy and how they relate to injury potential and injury types.
    - 4.5.2.3. Safety-related work practices.
    - 4.5.2.4. Procedural requirements to determine voltage of exposed live parts and to differentiate them from other parts.
    - 4.5.2.5. How to distinguish exposed energized electrical conductors and circuit parts from other parts of electrical equipment.
    - 4.5.2.6. How to determine the nominal voltage of exposed energized electrical conductors and circuit parts.
    - 4.5.2.7. Limited approach, flash protection, prohibited and restricted approach boundaries requirements as explained in Table 1 below.
    - 4.5.2.8. Decision-making factors for determining the degree and extent of the hazard and personal protective equipment
    - 4.5.2.9. Decision tree for planning the work.
    - 4.5.2.10. How to select and properly use voltage meters and detectors with hands-on demonstrations to confirm capabilities and limitations for verifying absence of voltage.
    - 4.5.2.11. Task specific hazards, precautions, and arc flash potential. Tasks performed less than once per year require re-training prior

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to performing the task. Refer to Job Safety Analysis (JSA) for specific task.

- 4.5.2.12. Barricade requirements.
- 4.5.2.13. Lockout/Tagout procedures.
- 4.5.2.14. Use of PPE, insulating and shielding materials, and insulated tools and test equipment based on the hazard.
- 4.5.2.15. Emergency procedures.
- 4.5.2.16. Methods to release victims from contact with exposed energized electrical conductors or circuit parts.
- 4.5.2.17. Recognizing signs and symptoms of electric shock, heart fibrillation, electric burns, and proper first aid protocols for these conditions.
- 4.5.2.18. CPR training.
- 4.5.3. Qualified Electrical Worker Training Elements.
  - 4.5.3.1. Completion of all training elements for Qualified Personnel.
  - 4.5.3.2. Minimum of two years of training and experience with high-voltage circuits and equipment.
  - 4.5.3.3. Demonstration by performance familiarity with the work to be performed and the hazards involved. Tasks performed less than once per year require re-training prior to performing the task.
- 4.6. Retrain employees on any required element when:
  - 4.6.1. They are not complying with safety-related work practices.
  - 4.6.2. Changing work conditions require safety-related work practices different than those that are normally used.
  - 4.6.3. The employee must use safety-related work practices not normally used during regular job duties.
  - 4.6.4. Not to exceed 3 years from previous training.
- 4.7. Completion of arc flash analysis triggers the following training:
  - 4.7.1. A two-day training session for Qualified Personnel and Qualified Electrical Workers, supervisors, and safety personnel.

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4.7.2. A half-day session for Non-Qualified Personnel and management.



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## 5. Program Elements

- 5.1. Hazard/Risk Evaluation – Employees shall identify the hazards through a risk evaluation and analysis process before they work within Limited Approach Boundaries or with any electrical hazards. Evaluation will include assessment of the severity of the arc hazard, as well as likelihood and methods necessary to mitigate. This evaluation will be used to determine the level and type(s) of protection required. Risk control includes hierarchy of control which places elimination of a hazard as the primary method of control and identifies PPE as the last option, if all other options have been exhausted.
- 5.2. Risk Assessment – Assessments will include determining appropriate safety related work practices, the arc flash boundary requirements, and the PPE required to minimize the risk of electric shock (see Table 4 below). Assessments must be documented and equipment field marked with a label. These assessments are to be reviewed prior to beginning work.
- 5.3. Electrical Safety Auditing – Management shall audit all elements of the electrical safety program at a risk-based frequency to ensure that the principles and procedures are being followed. Management shall make the appropriate program revisions based on those observations and/or conclusions. An audit must be performed every year to ensure compliance. Edits to the program will be made if elements are not followed due to employee potential hazardous exposure.
- 5.4. Operation Verification – Employees performing work under these standards shall verify operation of the test instrument before and after test instruments are used for the testing of voltage on conductors or circuit parts operating at 50 volts or more. This is to confirm that test equipment and accessories meet ANSI/ISA-61010-1 requirements for rating and design requirements for voltage measurement and test instruments designed for use on electrical systems of 1000 volts and less.
- 5.5. Electrical Work Permit – A written work permit will be used whenever electrically energized components, conductors or circuit parts are not in a zero-energy state. Any such work situation will be considered as *energized electrical work* and conducted only under a written permit procedure. Work on electrical conductors and circuit parts operating at less than 50 volts are not required to be de-energized if it is determined that there will be no increased exposure to electrical burns or explosion.
- 5.6. Lockout/Tagout (LOTO) -- Hazardous energy appears in the workplace in the form electrical, mechanical, pneumatic, hydraulic and thermal energy and includes chemical, water, steam and gaseous energy systems. LOTO procedures prevent the unexpected energizing, start up or release of stored energy that could cause injury to employees working on said equipment. The University has established a LOTO Program to safeguard employees from hazardous energy while they are performing service or maintenance on machines and equipment. The purpose of this program is to identify the practices and procedures necessary to shut down and LOTO machines and equipment. It requires that employees receive training in the

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LOTO program and requires that periodic inspections be conducted to maintain and enhance the program.

- 5.7. Personal Protective Equipment (PPE) -- PPE used for electrical work shall comply with the standards given in Table 130.7 (C)(15)(A)(b) of NFPA 70E, Standard for Electrical Safety in the Workplace (see Table 2 below), table 130.7(C)(16) (see Table 4 below) and in table 130.7 (C)(14) of NFPA 70E (see Table 3 below). PPE used for electrical insulation will be inspected prior to each use. Insulating gloves also will be tested by holding the sleeve closed and squeezing each glove to check for "pin hole" leaks of air that could allow electrical entry. Additionally, whenever an incident occurs that has the potential to damage PPE, the equipment will be re-tested.
- 5.8. PPE will be inspected and tested on the following schedule:
  - 5.8.1. Insulating blankets – prior to issue and every 12 months thereafter;
  - 5.8.2. Insulating gloves – prior to issue and every six months thereafter;
  - 5.8.3. Insulating sleeves – prior to issue and every 12 months thereafter.
  - 5.8.4. Covers and line hose – whenever damage or defect is observed, or there is a reason to suspect that insulating value has been compromised.
- 5.9. A flash hazard analysis shall form the basis of PPE selection or NFPA 70E Table 130.7 (C)(15)(A)(b). See Table 2.
- 5.10. Prior to beginning work with arc flash hazard potential, a safety meeting will be conducted with all Company employees and subcontractor personnel involved. Presentation and discussion will include:
  - 5.10.1. Identification of the specific arc flash hazards anticipated;
  - 5.10.2. Hazards associated with the job;
  - 5.10.3. Special precautions, if applicable;
  - 5.10.4. What PPE is required;
  - 5.10.5. Information on the energized electrical work permit;
  - 5.10.6. How electrical sources are controlled;
  - 5.10.7. Task-specific safety work procedures; and, if required
  - 5.10.8. Additional job briefing if changes which affect employee safety occur.
- 5.11. Qualified Personnel normal work clothing will include:

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- 5.11.1. FR long-sleeve shirt (minimum arc rating of 4) worn over an untreated cotton T-shirt with FR pants (minimum arc rating of 8); or,
  - 5.11.2. FR coveralls (minimum arc rating of 4) worn over untreated cotton T-shirt (or an untreated natural fiber long sleeve-shirt) with untreated natural fiber pants.
  - 5.12. Qualified Personnel and Qualified Electrical Workers shall not wear Non-FR clothing that will ignite or melt when exposed to an arc flash.
  - 5.13. Approach Boundaries to Live Parts
    - 5.13.1. A properly trained employee shall not approach or take any conductive object closer to exposed live parts (operating at 50 volts or more) than the Restricted Approach Boundary listed in Table 1 below unless ANY of the following apply:
      - 5.13.1.1. The properly trained employee is insulated or guarded from the live parts operating at 50 volts or more and no un-insulated part of the employee's body crosses the Prohibited Approach Boundary listed in Table 1 below, or
      - 5.13.1.2. The live part operating at 50 volts or more is insulated from the employee and from any other conductive object at a different potential.
    - 5.13.2. Approach by untrained persons: When an untrained person is working at or close to the Limited Approach Boundary, the supervisor in charge of the job shall advise the untrained person of the electrical hazard.
  - 5.14. Adequate illumination to perform work safely will be provided and utilized as required.
  - 5.15. Employees will not go into a location where there is an electrical hazard when illumination is not adequate for working safely.
  - 5.16. If inadequate illumination or obstructed vision prevents observation of work, no work will be performed inside the Limited Approach Boundary where energized electrical conductors or circuit parts at 50 volts or greater, or if there is an electrical hazard.
- 6. Coordination with OSHA Compliance (based on OSHA interpretations)**
- 6.1. Although the NFPA 70E consensus standard has not been adopted as an OSHA standard, it is relevant as evidence that arc flash is a recognized hazard, and that PPE is necessary to protect against that hazard. Application of other OSHA standards and requirements will be considered to ensure safety of employees from arc flash. Other potentially applicable OSHA regulations include the General Duty Clause, personal protective equipment (PPE), electrical safety and other

requirements. OSHA standards and interpretations will be considered when planning for and executing safety planning and implementations.

- 6.2. No employee will be permitted to work in such proximity to any part of an electric power circuit that he or she could contact the electric power circuit in the course of work, unless the employee is protected against electric shock by de-energizing the circuit and grounding it or by guarding it effectively by insulation or other means.
- 6.3. While OSHA Subpart K does not address the hazard that an arc flash poses to employees, compliance with Subpart K requirements have the effect of reducing the likelihood of an arc flash.
- 6.4. 29 CFR 1926.95(a) provides that protective equipment, including personal protective equipment for eyes, face, head, and the extremities, protective clothing, respiratory devices, and protective shields and barriers, shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary due to hazards of processes or environment, which the Company has determined includes arc flash.
- 6.5. Alerting techniques include safety signs and tags, barricades and attendants. Safety signs must meet ANSI Z535 requirements. Examples of approved labels include:



Barricades must be used in conjunction with safety signs and never by themselves. Any technique used must not increase potential for employee injury.

- 6.6. NFPA 70E's Table 130.7 (C)(15)(A)(b), Arc Flash Hazard PPE Categories for Alternating Current Systems (referenced above and included as Table 2 below) lists the task, "Work on energized parts, including voltage testing" and assigns it a "Arc Flash PPE Category" of "1" or higher.

Consequently, NFPA 70E is evidence that the industry recognizes the hazard of arc flash, that this hazard is present when testing voltage, and that, when present, it is necessary for PPE to be used to protect the employee from it.

- 6.7. Because arc flash hazard varies with site-specific factors, NFPA 70E will be used for assessing the factors in a specific situation and determining what protection to use.

- 6.8. A defective circuit breaker can cause an arc flash. If an employee may be exposed to risk when fixing a defective breaker or turning it on or off, NFPA 70E calls for a flash hazard analysis (or use of PPE under its table of tasks) to be performed in order to determine the risk level and the appropriate PPE.
- 6.9. NFPA 70E 130.3 (Working While Exposed to Electrical Hazards) states: Safety-related work practices shall be used to safeguard employees from injury while they are exposed to electrical hazards from electrical conductors or circuit parts that are or can become energized. The specific safety related work practices shall be consistent with the electrical hazards and the associated risk. Appropriate safety-related work practices shall be determined before any person is exposed to the electrical hazards involved by using both shock risk assessment and arc flash risk assessment. Only qualified persons shall be permitted to work on electrical conductors or circuit parts that have not been put into an electrically safe work condition.
- 6.10. Flash Protection Boundary. For systems that are 600 volts or less, the Flash Protection Boundary shall be 4.0 ft., based on the product of the clearing times of 6 cycles (0.1 second) and the available bolted fault current of 50 kA or any combination not exceeding 300 kA cycles (5000 ampere seconds). For clearing times and bolted fault currents other than 300 kA cycles, or under engineering supervision, the Flash Protection Boundary shall alternatively be permitted to be calculated in accordance with the following general formula:

$$D_c = [2.65 \times \text{MVA}_{bf} \times t]^{1/2}$$

or

$$D_c = [53 \times \text{MVA} \times t]^{1/2}$$

Where:

$D_c$  = distance in feet from an arc source for a second-degree burn

$\text{MVA}_{bf}$  = bolted fault capacity available at point involved (in mega volt-amperes)

$\text{MVA}$  = capacity rating of transformer (mega volt-amperes). For transformers with  $\text{MVA}$  ratings below 0.75  $\text{MVA}$ , multiply the  $\text{MVA}$  transformer rating by 1.25

$t$  = time of arc exposure (in seconds)

Once the risk of exposure is assessed, the employer must then provide PPE in accordance with the results of the analysis. NFPA 70E §130.4(A) states, "The shock risk assessment shall determine the voltage to which personnel will be exposed, the boundary requirements, and the PPE equipment necessary in order to minimize the possibility of electric shock to personnel."

"Flame-resistant (FR) clothing and personal protective equipment (PPE) shall be used by the employee based on the incident energy exposure associated with the specific task."

As an alternative, the PPE requirements of 130.7(C)(14) and (16) shall be permitted to be used in lieu of the detailed flash analysis approach described in 130.3(A).

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If the task to be performed has a high likelihood of arc flash occurrence, the charts under 130.7(C)(15)(A)(b) can be used to determine the appropriate PPE.

Section 130.5 states in part, “An arc flash assessment shall be performed and shall determine the PPE to be used within the arc flash boundary.”

For tasks not listed, or for power systems with greater than the assumed short-circuit current capacity or with longer than the assumed fault clearing times, a flash hazard analysis shall be required.

Although this analysis uses a worst-case scenario to determine the need for PPE, if the breaker has more than the assumed short-circuit current capacity or longer than the assumed fault clearing times, the charts will be of no use, and the flash hazard analysis under 130.4 would need to be done.

The employer must consider several factors in determining which analysis to perform. The risk of injury largely depends on the amount of energy available to the breaker, how old it is, how well it was maintained, and the task that is to be performed, among other factors.

For example, a house with 240-volt service and a well-maintained breaker may typically have 10,000 amps available; in most such situations, there will be little arc flash risk when simply turning the switch on or off.

In contrast, a commercial building with an equally well-maintained breaker typically will have 40,000 amps, which poses greater risk. In addition, switching a breaker on may carry more risk than turning a breaker off.

When using the arc flash risk assessment approach, the employer may determine in some circumstances that, when turning off a breaker, there is little risk and no PPE is needed. However, all the relevant factors, including those referred to above, need to be considered. Alternatively, the employer may use the NFPA table instead of conducting the analysis, in which case some PPE would be required, even for the voltages below 240 V.

In sum, arc flash can be a significant danger under certain circumstances, and the provisions above are evidence of its recognition by the industry.

TABLE 1

**Table 130.4(D)(a)**

Approach Boundaries to Energized Electrical Conductors Table  
(Data from 2015 Editions of NFPA 70E Table 130.4 (D)(a) and CSA  
Z462 Table 1A)

(1) Nominal System Voltage Range, Phase to Phase	(2) Limited Approach Boundary – Exposed Movable Conductor		(3) Limited Approach Boundary – Exposed Fixed Circuit Part		(4) Restricted Approach Boundary – Includes Inadvertent Movement Adder	
Less than 50	Not Specified		Not Specified		Not Specified	
50 to 150	10 ft 0 in.	3.0 m	3 ft 6in.	1.0 m	Avoid Contact	
151 to 750	10 ft 0 in.	3.0 m	3 ft 6in.	1.0 m	1 ft 0 in.	0.3 m
751 to 15 kV	10 ft 0 in.	3.0 m	5 ft 0 in.	1.5 m	2 ft 2 in.	0.7 m
15.1 kV to 36 kV	10 ft 0 in.	3.0 m	6 ft 0 in.	1.8 m	2 ft 7 in.	0.8 m
36.1 kV to 46 kV	10 ft 0 in.	3.0 m	8 ft 0 in.	2.5 m	2 ft 9 in.	0.8 m
46.1 kV to 72.5 kV	10 ft 0 in.	3.0 m	8 ft 0 in.	2.5 m	3 ft 3 in.	1 m
72.6 kV to 121 kV	10 ft 8 in.	3.3 m	8 ft 0 in.	2.5 m	3 ft 4 in.	1.0 m
138 kV to 145 kV	11 ft 0 in.	3.4 m	10 ft 0 in.	3.0 m	3 ft 10 in.	1.2 m
161 kV to 169 kV	11 ft 8 in.	3.6 m	11 ft 8 in.	3.6 m	4 ft 3 in.	1.3 m
230 kV to 242 kV	13 ft 0 in.	4.0 m	13 ft 0 in.	4.0 m	5 ft 8 in.	1.7 m
345 kV to 362 kV	15 ft 4 in.	4.7 m	15 ft 4 in.	4.7 m	9 ft 2 in.	2.8 m
500 kV to 550 kV	19 ft 0 in.	5.8 m	19 ft 0 in.	5.8 m	11 ft 10 in.	3.6 m
765 kV to 800 kV	23 ft 9 in.	7.2 m	23 ft 9 in.	7.2 m	15 ft 11 in.	4.9 m

**Table 130.4(D)(b)**

(1)	(2)	(3)	(4)
<b><u>Limited Approach Boundary</u></b>			
Nominal Potential Difference	Exposed Movable Conductor	Exposed Fixed Circuit Part	Restricted Approach Boundary; Includes Inadvertent Movement Adder
<100 V	Not specified	Not specified	Not specified
100 V- 300 V	3.0 m (10 ft. 0 in.)	1.0 m (3 ft. 6 in.)	Avoid contact
301 V- 1 kV	3.0 m (10 ft. 0 in.)	1.0 m (3 ft. 6 in.)	0.3 m (1 ft. 0 in.)
1.1 kV- 5 kV	3.0 m (10 ft. 0 in.)	1.5 m (5 ft. 0 in.)	0.5 m (1 ft. 5 in.)
5 kV- 15 kV	3.0 m (10 ft. 0 in.)	1.5 m (5 ft. 0 in.)	0.7 m (2 ft. 2 in.)
15.1 kV- 45 kV	3.0 m (10 ft. 0 in.)	2.5 m (8 ft. 0 in.)	0.8 m (2 ft. 9 in.)
45.1 kV- 75 kV	3.0 m (10 ft. 0 in.)	2.5 m (8 ft. 0 in.)	1.0 m (3 ft. 2 in.)
75.1 kV- 150 kV	3.3 m (10 ft. 8 in.)	3.0 m (10 ft. 0 in.)	1.2 m (4 ft. 0 in.)
150.1 kV- 250 kV	3.6 m (11 ft. 8 in.)	3.6 m (11 ft. 8 in.)	1.6 m (5 ft. 3 in.)
250.1 kV- 500 kV	6.0 m (20 ft. 0 in.)	6.0 m (20 ft. 0 in.)	3.5 m (11 ft. 6 in.)
500.1 kV- 800 kV	8.0 m (26 ft. 0 in.)	8.0 m (26 ft. 0 in.)	5.0 m (16 ft. 5 in.)



**TABLE 2**

**Arc Flash Hazard PPE Categories for Alternating Current (ac) Systems**  
**2015 NFPA 70E Table 130.7(C)(15)(A)(b)**

Equipment	Arc Flash PPE Category	Arc Flash Boundary
Panelboards or other equipment rated 240V and below <i>Parameters:</i> Maximum of 25kA short-circuit current available; maximum of 0.03 sec (2 cycles) faulty clearing time; working distance 455 mm (18 in.)	1	486 mm (19 in.)
Panelboards or other equipment rate >240V and up to 600V <i>Parameters:</i> Maximum of 25 kA short-circuit current available; maximum of 0.03 sec (2 cycles) faulty clearing time; working distance 455 mm (18 in.)	2	900 mm (3.0 ft.)
600-V Class motor control centers (MCCs) <i>Parameters:</i> Maximum of 65 kA short-circuit current available; maximum of 0.03 sec (2 cycles) faulty clearing time; working distance 455 mm (18 in.)	2	1.5 m (5.0 ft.)
600-V class motor control centers (MCCs) <i>Parameters:</i> Maximum of 42 kA short-circuit current available; maximum of 0.33 sec (20 cycles) faulty clearing time; working distance 455 mm (18 in.)	4	4.3 m (14.0 ft.)
600-V class switchgear (with power circuit breakers or fused switches) and 600-V class switchboards <i>Parameters:</i> Maximum of 35kA short-circuit available; maximum of 0.5 sec (30 cycles) faulty clearing time; working distance 455 mm (18 in.)	4	6.0 m (20.0 ft.)

**NOTE:** For equipment rated 600 volts and below, and protected by upstream current-limiting fuses or current-limiting circuit breakers sized at 200 amperes or less, the arc flash PPE category can be reduced by one number but not below arc flash PPE category 1.

TABLE 3

NFPA 70E Table 130.7(C)(14)  
Standards on Protective Equipment

Subject	Number and Title
Apparel-Arc Rate	ASTM 1506-10a Standard Performance Specification for Flame Resistant and Arc-Rated Textile Materials for Use by Electrical Workers Exposed to Momentary Electrical Arc and Related Thermal Hazards.
Aprons-Insulating	ASTM 2677-08a Standard Specifications for Electrically Insulating Aprons
Eye and Face Protection -General	ANSI/ASSE Z87.1-2003 Practice for Occupational and Educational Eye and Face Protection
Face-Arc Rated	ASTM F 2178-08 Standard Test Method for Determining the Arc Rating and Standard Specification for Face Protective Products
Fall Protection	ASTM F 887-10 Standard Specifications for Personal Climbing Equipment
Footwear - Dielectric Specification	ASTM F 1117-03 (2008) Standard Specifications for Dielectric Footwear
Footwear - Dielectric Test Method	ASTM F 1116-03 (2008) Standard Test Method for Determining Dielectric Strength of Dielectric Footwear
Footwear - Standard Performance Specification	ASTM F 2413-05 Standard Specification for Performance Requirements for Foot Protection
Footwear – Standard Test Method	ASTM F 2412-05 Standard Test Methods for Foot Protection
Gloves – Leather Protectors	ASTM F 696-06 Standard Specification for Leather Protectors for Rubber Insulating Gloves or Mittens
Gloves – Rubber Insulating	ASTM D 120-09 Standard Specification for Rubber Insulating Gloves
Gloves and Sleeves – In-Service Care	ASTM F 496-08 Standard Specification for In-Service Care of Insulating Gloves and Sleeves
Head Protection – Hard Hats	ANSI/ISEA Z89.1-2009 Personal Protection – Protective Headwear for Industrial Workers
Rainwear - Arc	ASTM F1891-06 Standard Specification for Arc and Flame Resistant Rainwear
Rubber Protective Products - Visual Inspections	ASTM F 1236-96 (2007) Standard guide for Visual Inspection of Electrical Protective Rubber Products
Sleeves – Insulating	ASTM D 1051-08 Standard Specifications for Rubber Insulating Sleeves

**TABLE 4**

**NFPA 70E Table 130.7(C)(16)  
Personal Protective Equipment (PPE)**

PPE Category	PPE
1	<p><b>Arc-Rated Clothing, Minimum Arc Rating of 4 cal/cm<sup>2</sup></b> (see Note 1)                      Arc-rated long-sleeve shirt and pants of arc-rated coverall                      Arc-rated face shield (see Note 2) or arc flash suit hood                      Arc-rated jacket, parka, rainwear, or hard hat liner (AN)  <b>Protective Equipment</b>                      Hard hat                      Safety glasses or safety goggles (SR)                      Hearing protection (ear canal inserts)                      Heavy duty leather gloves (see Note 3)                      Leather footwear (AN)</p>
2	<p><b>Arc-Rated Clothing, Minimum Arc Rating of 8 cal/cm<sup>2</sup></b> (see Note 1)                      Arc-rated long-sleeve shirt and pants of arc-rated coverall                      Arc-rated flash suit hood or arc-rated face shield (see Note 2) and arc-rated balaclava                      Arc-rated jacket, parka, rainwear, or hard hat liner (AN)  <b>Protective Equipment</b>                      Hard hat                      Safety glasses or safety goggles (SR)                      Hearing protection (ear canal inserts)                      Heavy duty leather gloves (see Note 3)                      Leather footwear (AN)</p>
3	<p><b>Arc-Rated Clothing, Minimum Arc Rating of 25 cal/cm<sup>2</sup></b> (see Note 1)                      Arc-rated long-sleeve shirt (AR)                      Arc-rated pants (AR)                      Arc-rated coverall (AR)                      Arc-rated arc flash suit jacket (AR)                      Arc-rated arc flash suit pants (AR)                      Arc-rated arc flash suit hood                      Arc-rated gloves (see Note 1)                      Arc-rated jacket, parka, rainwear, or hard hat liner (AN)  <b>Protective Equipment</b>                      Hard hat                      Safety glasses or safety goggles (SR)                      Hearing protection (ear canal inserts)                      Leather footwear</p>
4	<p><b>Arc-Rated Clothing Selected so That the System Arc Rating Meets the Required Minimum Arc Rating of 40 cal/cm<sup>2</sup></b> (see Note 1)                      Arc-rated long-sleeve shirt (AR)                      Arc-rated pants (AR)                      Arc-rated coverall (AR)                      Arc-rated arc flash suit jacket (AR)                      Arc-rated arc flash suit pants (AR)                      Arc-rated arc flash suit hood                      Arc-rated gloves (see Note 1)                      Arc-rated jacket, parka, rainwear, or hard hat liner (AN)  <b>Protective Equipment</b>                      Hard hat                      Safety glasses or safety goggles (SR)                      Hearing protection (ear canal inserts)                      Leather footwear</p>

**AN** = as needed

**AR** = as required

**SR** = selection required

Notes: (1) Arc rating is defined in Article 100; (2) Face shields are to have wrap-around guarding to protect not only the face, but also the forehead, ears and neck, or alternatively, an arc-rated arc flash suit hood is required to be worn; (3) If rubber insulating gloves with leather protectors are used, additional leather or arc-rated gloves are not required. The combination of rubber insulating gloves with leather protectors satisfies the arc flash protection requirement.

Applicable OSHA Standards: 29 CFR 1910.95(c)

**1. Purpose & Scope**

- 1.1. This hearing conservation program for Cleveland Integrity Services is developed to comply with CFR 1910.95 and to provide guidelines to protect employees from potential hearing loss.
- 1.2. This program establishes the minimum hearing protection requirements for employees and applies to all employees and subcontractors working at company controlled work locations.
- 1.3. All employees who are exposed to a noise at or above action level or work in high noise area will receive the appropriate training. The training is conducted before initial assignment and is repeated annually for each employee.

**2. Responsibilities**

- 2.1. Contractors are responsible for the enforcement and disciplinary action resulting from violation or failure of assigned persons to implement the requirements of this program.
- 2.2. The company Safety Coordinator is responsible to provide for the monitoring of work activities to assure compliance to the requirements of this program.
- 2.3. The primary responsibility for the implementation of the requirements of this program rests with the Site Supervisors.
- 2.4. Individual employees also have responsibility to abide by this program.

**OSHA Continuous Noise Exposure Limits Equaling 100% Dose – Table G-16**

OSHA PEL, dBA	Maximum Duration Minutes (hrs.)
90	480 ( 8 )
92	360 ( 6 )
95	240 ( 4 )
97	180 ( 3 )
100	120 ( 2 )
102	90 (1½)
105	60 ( 1 )
110	30 (1/2)
115	15 (1/4)

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### 3. Requirements

- 3.1. Cleveland Integrity Services provides protection against the effects of noise exposure in the workplace when the sound levels exceed those shown in Table G-16 above when measured on the A scale of a standard sound level meter at slow response.
- 3.2. When employees are subjected to sounds exceeding those listed in Table G-16, feasible administrative or engineering controls will be utilized. If such controls fail to reduce sound levels within the levels of Table G-16, personal protective equipment is provided and used to reduce sound levels within the levels of the table.
- 3.3. If the variations in noise level involve maxima at intervals of 1 second or less, it is to be considered continuous.
- 3.4. The company will administer a continuing, effective hearing conservation program, as described in this program, whenever employee noise exposures equal or exceed an 8-hour time-weighted average sound level (TWA) of 85 decibels measured on the A scale (slow response) or, equivalently, a dose of 50 percent. For purposes of the hearing conservation program, employee noise exposures are computed in accordance with appendix A and Table G-16a, and without regard to any attenuation provided by the use of personal protective equipment.
- 3.5. The standard permits an unprotected, 8-hour permissible exposure limit (PEL) of 90 decibel-A scale (dBA) for continuous noise.
- 3.6. Higher unprotected exposure is allowed, provided there are sufficient periods of noise exposure low enough to maintain a PEL below 90 dBA.
- 3.7. The maximum allowable exposure level is 110 dBA for 30 minutes.
- 3.8. Unprotected exposure above 110 dBA is not permitted regardless of duration.
- 3.9. The PEL is based on 100% dose of the allowed exposure. Table G-16 shows the noise level and corresponding time limits that result in a dose of 100%. 92 decibels for 8 hours is the same dose as 110 dBA for 2 hours.
- 3.10. The standard defines impact or impulse noise as noise with the duration of one second or less. The PEL for impact noise is 140 dBA, peak sound level.
- 3.11. The OSHA standard requires that employees be included in a hearing conservation program if their full shift exposure exceeds the action level by 50%. Employees working 12 hour shifts exceed the action level with a 12 hour average noise exposure of 82 dBA. Employees working 12 hour shifts exceed the permissible exposure limit of 100% dose at 87 dBA.
- 3.12. When information indicates that any employee's exposure may equal or exceed an 8-hour time-weighted average of 85 decibels, a monitoring program is developed and implemented.
- 3.13. When a hearing conservation program is required, it is provided at no cost to employees. Hearing protectors are replaced as necessary.

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#### 4. Hearing Protection

- 4.1. Hearing protection devices are available to employees who are exposed to noise above the action level. Employees who have shown a standard threshold shift measured on their annual audiogram must wear hearing protection at all times in the workplace. Hearing protection must be worn when an employee is working in an area above 85 dBA.
- 4.2. There are two types of hearing protection devices available. These are the circumoral device, better known as an ear-muff, and the insert device. Each type provides a different degree of protection and the employee must be properly trained in its use to obtain the maximum protection.
  - 4.2.1. Circumoral or "Ear Muffs"
    - 4.2.1.1. Circumoral hearing protection seals the area around the entry to the ear canal by means of a liquid or foam filled cushion and has a band connecting each muff. Some models may also be attached to hard hats.
    - 4.2.1.2. This type of protection is easily donned and requires minimal training. It does not require fitting.
    - 4.2.1.3. They provide noise attenuation in a range of 15-25 dBA.
    - 4.2.1.4. The effectiveness of these devices is dependent on the seal around the ear.
    - 4.2.1.5. Temple bars on safety glasses can reduce the protection factor of ear muffs.
    - 4.2.1.6. One advantage of ear muffs is that they may be used in conjunction with insert type hearing protectors to maximize protection.
  - 4.2.2. Insert or "Ear Plugs"
    - 4.2.2.1. Insert devices or "plugs" are available in pre-formed or user-formed styles and may be disposable or non-disposable.
    - 4.2.2.2. Insert plugs provide noise reductions in the 20-30 decibel range.
    - 4.2.2.3. These devices are inserted into the ear canal by the user and their effectiveness depends on proper insertion.
- 4.3. Providing training to the user and practice by the user are imperative to insuring a good fit to insure maximum protection.
- 4.4. The company evaluates hearing protector attenuation for the specific noise environments in which the protector will be used.

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- 4.5. Hearing protectors must attenuate employee exposure at least to an 8-hour time-weighted average of 90 decibels.
- 4.6. Employees are allowed the opportunity to select their hearing protectors from a variety of suitable hearing protectors provided by the employer.
- 4.7. Employees, while on an owner client facility and in areas signed where they will be exposed to an 8-hour time-weighted average of 85 decibels or greater, shall wear hearing protection.

## 5. Audiometric Testing

- 5.1. Audiometric testing is a means of determining if an employee's hearing is being adversely affected by noise exposure in the workplace.
- 5.2. Within 6 months of an employee's first exposure at or above the action level, the company obtains a valid baseline audiogram. This is used to compare with subsequent audiograms.
- 5.3. If a mobile test van is used for audiometric testing, a valid baseline audiogram is obtained within 1 year of an employee's first exposure at or above the action level.
- 5.4. If a baseline audiogram is obtained more than 6 months after the employee's first exposure at or above the action level, the employee will utilize hearing protection for any period exceeding six months after first exposure until the baseline audiogram is received.
- 5.5. Testing to establish a baseline audiogram is preceded by at least 14 hours without exposure to workplace noise. Hearing protectors may be used as a substitute for the requirement that baseline audiograms be preceded by 14 hours without exposure to workplace noise.
- 5.6. Employees who will take an audiogram are told to avoid high levels of non-occupational noise exposure during the 14-hour period immediately preceding the examination.
- 5.7. Hearing protection may be used prior to the audiometric test to ensure the employee is not exposed to high noise levels.
- 5.8. At least annually after obtaining the baseline audiogram, the employer will obtain a new audiogram (annual audiogram) for each employee exposed at or above an 8-hour time-weighted average of 85 decibels.
- 5.9. An annual audiogram may be substituted for the baseline audiogram when in the judgment of the audiologist or physician making the evaluation:
  - 5.9.1. The standard threshold shift revealed by the audiogram is persistent; or
  - 5.9.2. The hearing threshold shown in the annual audiogram indicates significant improvement over the baseline audiogram.

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- 5.10. Annual audiometric testing (when applicable) provides results that should be compared to the baseline to identify any changes in an individual's hearing threshold.
- 5.11. If the audiogram shows a 10 decibel reduction of hearing capability at 2000, 3000, or 4000 Hertz, a repeat audiometric test should be done within 30 days.
- 5.12. This 10 dBA reduction at these frequencies is referred to as a "Standard Threshold Shift" (STS).
- 5.13. A repeat audiogram that shows a permanent threshold shift requires that a full assessment of the hearing loss be completed. Unless a physician has determined that the STS is not work related or aggravated by occupation noise exposure, the company will ensure that:
  - 5.13.1. The employee is notified in writing within 21 days of the determination that the STS is permanent.
  - 5.13.2. The adequacy of hearing protector attenuation will be re-evaluated and/or refitted as required. The company will provide more effective hearing protectors as necessary.
  - 5.13.3. Employees are re-trained in the requirements for and proper use of hearing protection.
  - 5.13.4. In the event that employee noise exposures increase to where hearing protectors provided no longer give adequate attenuation, a medical evaluation may be required.
  - 5.13.5. The employee is referred for a clinical audiological or otological examination if additional testing is needed or if there is suspicion that a medical condition is caused or aggravated by wearing hearing protection.

## **6. Employee Training**

- 6.1. The company institutes a training program for all employees who are exposed to noise at or above an 8-hour time-weighted average of 85 decibels, and will ensure employee participation in such program.
- 6.2. The training program is repeated annually for each employee included in the hearing conservation program. Information provided in the training program is updated to be consistent with changes in protective equipment and work processes.
- 6.3. The employer ensures that each employee is informed of the following:
  - 6.3.1. The effects of noise on hearing;
  - 6.3.2. The purpose of hearing protectors, the advantages, disadvantages, and attenuation of various types, and instructions on selection, fitting, use, and care; and



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- 6.3.3. The purpose of audiometric testing, and an explanation of the test procedures.
- 6.4. Training includes information on the physical nature of sounds, the effects of noise on the ear and the proper use of hearing protection.
- 6.5. Employees who work in high noise areas (>85 dBA) should also be trained for a basic understanding of noise monitoring, work areas with high noise levels, and the purpose of audiometric testing.
- 6.15. Each employee that works in an area above the action level must complete and obtain an acceptable score on the hearing conservation exam.
- 6.16. This exam must be maintained in the employee training files at the corporate office.
- 6.17. Noise exposure monitoring records are retained for at least 2 years. Audiometric test results should be retained for the duration of the employee(s) employment plus 30 years.
- 6.18. Employees may have access to the noise exposure monitoring records and audiometric test results under the OSHA standard "Access to Employee Exposure and Medical Records", 29 CFR 1910.20. For access to these records, a written request for the records must be made to the company Safety Coordinator. Written request form will be distributed upon request.

## **7. Recordkeeping**

- 7.1. The company maintains an accurate record of all employee exposure measurements required by OSHA and this program.
- 7.2. The company retains all employee audiometric test records obtained pursuant to this Program:
- 7.3. This record includes:
  - 7.3.1. Name and job classification of the employee;
  - 7.3.2. Date of the audiogram;
  - 7.3.3. The examiner's name;
  - 7.3.4. Date of the last acoustic or exhaustive calibration of the audiometer; and
  - 7.3.5. Employee's most recent noise exposure assessment.
- 7.4. The company maintains accurate records of the measurements of the background sound pressure levels in audiometric test rooms.
- 7.5. The company retains records required in this program for at least the following periods:
  - 7.5.1. Noise exposure measurement records are retained for 2 years.

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7.5.2. Audiometric test records are retained for the duration of the affected employee's employment.

7.6. All records required by this section are provided upon request to employees, former employees, representatives designated by the individual employee, and the Assistant Secretary.

7.7. If the company ceases to do business, the company will transfer to the successor employer all records required to be maintained by this section, and the successor employer will retain them for the remainder of the period prescribed in this program.

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## 1. Purpose

- 1.1. This program establishes company procedures for preventing and responding to communicable diseases that can be pandemic or epidemic in scope.
- 1.2. The purpose of this program is to prepare Cleveland Integrity Services LLC to play a key role in protecting our employees' health and safety and to limit the negative impact on our business.
- 1.3. Anticipating and planning for a pandemic, or illnesses that have an epidemic or pandemic potential, are critical. This plan provides specific activities which will enable us to achieve these goals through prevention, personal hygiene and responding to specific risks.
- 1.4. The Plan will include procedures for responding to employees and personnel in the workplace who become ill.
- 1.5. This program provides for initial orientation and subsequent training for employees regarding pandemic prevention and response to illnesses and associated risks.
- 1.6. The Plan will impact all aspects of the business.

## 2. Organization:

- 2.1. The Company Safety Coordinator is designated as the *Pandemic Plan Coordinator (PPC)*. The PPC will develop, implement and oversee the *Pandemic Preparedness & Response Plan (the Plan)*.
- 2.2. At the discretion of the PPC, he/she may designate other company employees to serve as a *Pandemic Prevention Team*. The Team will function to support and assist with the effective implementation of this plan.
- 2.3. The PPC also will have responsibility and authority to contact local health care providers, authorities, health department and other resources for assistance in developing and implementing the Plan.

## 3. Training & Evaluation

- 3.1. Employees will be initially trained about health, hygiene, risk and prevention issues relating to preventing and responding to diseases associated with epidemic and pandemic infections.
- 3.2. Thereafter, ongoing awareness and periodic employee training on Plan goals, requirements and initiatives will be conducted.
- 3.3. Training will include goals and expectations for Plan results; methods of disease prevention; initial and subsequent symptoms of epidemic and pandemic diseases; how

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disease infection can be avoided and contained; and when it is safe for a recovering individual to return to work.

- 3.4. Training will be presented in the primary language of employees participating.
- 3.5. Training will be presented to employees with disabilities in a manner that effectively communicates Plan information, requirements and components.
- 3.6. All such employee training will be assessed by individual testing of knowledge and demonstration of skills as applicable to Plan implementation.
- 3.7. In the event that Plan procedures are appended, updated or otherwise modified, employees will be re-trained and re-assessed as required.
- 3.8. Individual testing or re-testing, assessment or re-assessment, will be documented in writing with the name of the employee trained; date and place of training; outline of the information/curriculum presented; specific skills and methods demonstrated during the assessment; results of testing and demonstration; and the name of the individual(s) conducting the assessment.
- 3.9. Results of implementation, training and preparedness will be periodically assessed through some manner of active challenge and demonstration of capabilities. Methods may include drills, tabletop exercises and interactive activities that help evaluate Plan implementation; employee knowledge and preparedness; availability of resources; and probable effectiveness of Plan components.

#### **4. Requirements**

- 4.1. The company will provide facilities for hand washing; antiseptic hand soaps and cleaners; disposable hand towels; “no touch” waste receptacles; and other hygiene items as specified in the Plan.
- 4.2. Supervisors and management will actively participate and encourage use of prevention techniques, procedures and strategies as specified in the Plan.
- 4.3. Management and supervisors will encourage and support employees in obtaining immunizations for illnesses associated with epidemic and pandemic outbreaks. This will include allowing time off to get such immunizations as vaccine become available locally. This also may include making immunization(s) available at designated medical facilities, or at company locations through on-site medical providers.
- 4.4. Employees will comply with Plan requirements for the use of prevention techniques, procedures and strategies.
- 4.5. When employees are ill or are caring for others who are ill, they may work at home in accordance with pre-plans and procedures developed for their respective department or work assignment. These may include “tele-commuting” and performing work from home utilizing online and other resources.

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- 4.6. Management will encourage employees to stay at home when they feel ill; are caring for ill family members or others; caring for children after school or when schools are closed; and similar situations that can be discussed in advance or as needed with the employee's supervisor. After contacting their supervisor, an employee will contact the PPC directly if additional assistance is required.
- 4.7. In the event of a high-risk or high-absenteeism situation attributable to an epidemic or pandemic outbreak, meetings and activities at work involving large numbers of personnel will be limited if an outbreak or increased level of disease is in progress or organizing in ways that minimizes the potential for cross infection among employees.
- 4.8. Under such a situation, consideration also will be given to additional separation of individual employees in the workplace to further minimize the potential for cross infection.
- 4.9. Personal hygiene procedures will include the practice of cleaning and disinfecting surfaces such as desktops, keyboards, doorknobs, faucets, handrails, countertops in food service and refreshment areas, and similar potential exposures.
- 4.10. Institutional housekeeping and cleaning of work surfaces will include frequent cleaning with routine products, and with sanitizers and disinfectants in accordance with the site-specific prevention strategy.

## **5. Communications & Business Continuity Preparedness**

- 5.1. Each company department, business unit and location will develop a site-specific contingency and business continuation plan in anticipation of the possibility of high absenteeism due to illnesses associated with epidemic and pandemic outbreaks.
- 5.2. Each site-specific plan will identify key persons and contacts to be notified and involved is continuation of business and daily operations in situations when there is high absenteeism due to illness. Identification will include the names, home and mobile phone numbers of individuals to be contacted and notified.
- 5.3. Attendance and time-keeping methods will be utilized to track absenteeism as it affects Plan goals, provisions and components.
- 5.4. Other business-tracking systems will be utilized as appropriate to help plan, manage and track results of Plan initiatives.
- 5.5. Site-specific plans will include provisions for contacting and communicating by phone with customers, vendors, subcontractors and suppliers with regard to continuation of company business and services under workforce epidemic or pandemic conditions.
- 5.6. Site-specific plans will include provisions for contacting and communicating by phone with customers, vendors, subcontractors and suppliers when workforce situations normalize after an epidemic or pandemic event and routine operations resume.

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**6. Implementing Lessons learned following a Pandemic Event**

- 6.1. It is critical for the company to demonstrate unity across the boards. It is a time to seek multiple opinions to make the best decisions for the organizations.
- 6.2. The company must communicate early and often. Even if there are no updates, frequently reiterating timely accurate information helps control the message.
- 6.3. It is critical to develop clear consistent messages. This will help alleviate fear, panic and confusion.
- 6.4. When relaying information tone and demeanor can be the difference between calmness and panic. The most effective leaders are those who can adapt and communicate while a crisis is unfolding, reflect on what they've learned when it's passed and implement changes to create a better future for the people they lead.

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Applicable OSHA Standard: 29 CFR 1910 Subpart I

## **1. Purpose & Scope**

- 1.1. Personal Protective Equipment (PPE), including protection for eyes, face, head, and extremities, by use of protective clothing, respiratory devices, protective shields and barriers, are provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reason 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.
- 1.2. This policy applies to all employees and subcontractors at work locations that are controlled by Cleveland Integrity Services.

## **2. Application**

- 2.1. PPE devices alone are not relied on to provide protection against hazards, but are used in conjunction with guards, engineering controls and responsible manufacturing practices.
- 2.2. The Company provides employees with the proper PPE for use in their specific tasks.
- 2.3. This PPE includes, but is not limited to, protection for eyes, face, head, respiratory system, hearing, body and extremities.
- 2.4. The PPE is maintained and stored in accordance with the manufacturer's recommendations.
- 2.5. The employer shall provide PPE at no cost to employees. Exemptions and exclusions to this rule include:
  - 2.5.1. The employer is not required to pay for non-specialty safety-toe protective footwear (including steel-toe shoes or steel-toe boots) and non-specialty prescription safety eyewear, provided that the employer permits such items to be worn off the job-site
  - 2.5.2. When the employer provides metatarsal guards and allows the employee, at his or her request, to use shoes or boots with built-in metatarsal protection, the employer is not required to reimburse the employee for the shoes or boots
  - 2.5.3. The employer is not required to pay for logging boots; everyday clothing, such as long-sleeve shirts, long pants, street shoes, and normal work boots; or Ordinary clothing, skin creams, or other items, used solely for protection from weather, such as winter coats, jackets, gloves, parkas, rubber boots, hats, raincoats, ordinary sunglasses, and sunscreen.

## **3. Employee-Owned Equipment**

- 3.1. Where employees provide their own protective equipment, the Site Supervisor is responsible to assure its adequacy, including proper maintenance, and sanitation of such equipment.

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#### **4. Design**

- 4.1. All PPE meets OSHA/NIOSH standards and approval.
- 4.2. Where a standard may not apply, a competent person will analyze the equipment and give approval or disapproval for its use. The Company's *Certificate of Hazard Assessment* will be completed and utilized to make a determination if hazards are present, or likely to be present, at the jobsite which requires the use of PPE. The certifier's name, signature, dates and identification of assessment documents will be included.

#### **5. Hazard Assessment And Selection**

- 5.1. Selection of PPE is based on Company supervision's written and signed assessment of the hazards associated with the job site and the recommendations included on the safe work permit provided by the host employer or general contractor.
- 5.2. Prior to the beginning of any job task, Company supervision determines the PPE necessary to safeguard the employees assigned to do the work. When the job task is complicated in nature, the Site Supervisor and the host employer or general contractor safety representative are consulted for their expertise in determining the proper PPE for the task.
- 5.3. Company supervision ensures that the PPE is available and is included on the work permit. The information on the permit is discussed with the crew assigned to do the work.
- 5.4. When reviewing the scope of work prior to the commencement of the job, Company supervision assesses the hazards associated with the work and its environment. This assessment is distributed to the Site Safety Supervisor/Representative to determine the needs of the job.
- 5.5. PPE determined for the job is verbally communicated to the employees during a tool box safety meeting prior to the commencement of the job.
- 5.6. PPE selected is of the types that will protect the affected employee from the hazards identified in the hazard assessment, fitted to the employee as needed to be effective, and with PPE ordered in various sizes and types to accommodate a variety of individuals who may be assigned work.

#### **6. Defective And Damaged Equipment**

- 6.1. Defective or damaged equipment is not used.
- 6.2. When PPE is removed for disposal it will be tagged as such, if not disposed of immediately.

#### **7. Training**

- 7.1. Cleveland Integrity Services provides training to each employee who is required to use PPE. Each such employee is trained to know at least the following:
  - 7.1.1. When PPE is necessary;
  - 7.1.2. What PPE is necessary;
  - 7.1.3. How to properly don, doff, adjust, and wear PPE;



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7.1.4. The limitations of the PPE; and

7.1.5. The proper care, maintenance, useful life and disposal of the PPE.

7.2. Each affected employee will demonstrate an understanding of the training specified in 6.1, and the ability to use PPE properly, before being allowed to perform work requiring the use of PPE.

7.3. When Company supervision has reason to believe that any affected employee who has already been trained does not have the understanding and skill required the employee is retrained. Circumstances where retraining is required include, but are not limited to, situations where:

7.3.1. Changes in the workplace render previous training obsolete; or

7.3.2. Changes in the types of PPE to be used render previous training obsolete; or inadequacies in an affected employee's knowledge or use of assigned PPE indicate that the employee has not retained the requisite understanding or skill.

7.3.3. Company supervision will verify that each affected employee has received and understood the required training through a written certification that contains the name of each employee trained, the date(s) of training, and that identifies the subject of the certification.

## **8. Eye and Face Protection**

8.1. The minimum eye protection allowed outside of an office area is ANSI (Z.87.1-1989) approved side shield safety glasses.

8.2. Employees WILL wear their eye protection to adequately protect themselves from hazards in the work area.

8.3. Contact lenses are not allowed at work areas unless approved in writing by management.

8.4. Supervisors and the host employer or general contractor determine what tasks require other eye protection, such as chemical goggles and face shields.

8.5. Eye and face PPE are distinctly marked to facilitate identification of the manufacturer.

8.6. Goggles that can be worn over corrective spectacles without disturbing the adjustment are acceptable.

8.7. Questions about eye protection should be brought to your supervisor and resolved before the job is started. Special protection concerns should also be discussed with your supervisor.

8.8. All face and eye protection equipment is kept clean and in good repair.

8.9. Full-face shields are required to be worn over side shield safety glasses or chemical goggles for grinding, chipping and any other designated assignment.

## **9. Head Protection**

9.1. Approved hard hats (ANSI-Z89.1-1986) in good condition are required when working in the yard and process areas. Protective helmets designed to reduce electrical shock hazard are worn by each affected employee when near exposed electrical conductors which could contact the head (ANSI -Z89.2-1971). Metal hard hats are not worn.

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- 9.2. Hard hats are worn in work areas where there is a potential for injury to the head from falling or flying objects.

## **10. Hand Protection**

- 10.1. Cleveland Integrity Services selects and requires employees to use appropriate hand protection when employee's hands are exposed to hazards such as those from: skin absorption of harmful substances, severe cuts or lacerations, severe abrasions, punctures, chemical burns, thermal burns, and harmful temperature extremes.
- 10.2. The selection of the appropriate hand protection is based on an evaluation of the performance characteristics of the hand protection relative to the task(s) to be performed, conditions present, duration of use and the hazards and potential hazards identified.
- 10.3. All employees should obtain protective gloves suitable for the work they will perform. Gloves will be worn when required. Hand protection will be provided to employees at no additional cost to the employee, when required.

## **11. Foot Protection**

- 11.1. Each affected employee wears protective footwear when working in areas where there is a danger of foot injuries due to falling and rolling objects, or objects piercing the sole and where such employee's feet are exposed to electrical hazards.
- 11.2. Protective footwear complies with ANSI Z41-1991. Steel-toed shoes are required on most job sites. The Company requires the wearing of steel-toed shoes for anyone in the field with the exception of office personnel who are restricted to operations off of job sites.

## **12. Flame-Resistant Clothing (FRC)**

- 12.1. All FRC must be worn so as to provide the maximum protection for which it was designed. All shirts/coveralls/smocks should be fully buttoned; all sleeves must remain extended to cover the wrists; all legs must be covered the full length.
- 12.2. A looser fitting FRC will provide more thermal protection for the wearer; however, care must be taken to ensure the safety intention of the FRC is not compromised (i.e. so loose that it can become ensnared in moving equipment). Follow the guidelines before to select a proper fit:
- 12.2.1. Become familiar with the potential hazards and type of protective equipment that is available and what it can do;
  - 12.2.2. Compare the hazards associated with the environment with the capabilities of the available PPE;
  - 12.2.3. Select the PPE which ensures a level of protection greater than the minimum required to protect employees from the hazards;
  - 12.2.4. Fit the user with the protective device and give instructions on care and the use of PPE.
  - 12.2.5. Careful consideration must be given to comfort and fit. PPE that fits poorly will not afford the necessary protection. Continued wearing of the device is more likely if it fits the wearer comfortably. Protective devices are generally available in a variety of sizes. Care should be taken to ensure the right size is selected.

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- 12.3 It is very important that end users be made aware of all warning labels for and limitations of their PPE.
- 12.4 FRC should be worn over other non-melting fabrics or other flame resistant materials. Layering garments in this manner dramatically increases the thermal protection of the clothing system by providing an extra layer of flame-resistant protection to the user. The FRC should be the outermost garment worn.
- 12.5 FRC Maintenance:
- 12.5.1 FRC is to be replaced if it has been torn or otherwise damaged to the point where its effectiveness is questionable. If the damage is repairable, it should be carried out only by a qualified individual.
- 12.5.2 Only patches or embroidery provided or authorized by the operator client or Cleveland Integrity Services are allowed on the FRC. Care must be taken to not add potential fuel sources to the FRC which will compromise the ability of the FRC to provide the intended protection.
- 12.5.3 Employees laundering their own FRC are responsible to ensure that the manufacturer's recommendations are being followed. Care must be taken to assure that detergents or additives, such as fabric softeners, will not compromise the flame retardant properties of the FRC. Additionally, employees laundering their own FRC will comply by any other regulations that apply to their scope of work to prevent any type of contamination. Garment care and requirements are specified by the ASTM F1449 (2001 Edition): *Standard Guide for Care and Maintenance of Flame, Thermally and Arc Resistant Clothing* as well as in the NFPA 2113 (2001 Edition): *Flame-Resistant Garments for Protection of Industrial Personnel Against Flash Fire*.
- 12.6 All Cleveland Integrity Services employees provided with FRC shall receive the following information:
- 12.6.1 Limitations of the FRC provided;
- 12.6.2 Manufacturers recommended care and use instructions (if care is not provided by the company);
- 12.6.3 Effects of various types of fabric worn under the FRC in the event of a flash fire or any other emergency situation;
- 12.6.4 The potential effects of wearing non-flame resistant clothing over FRC;
- 12.6.5 Electricians are trained on the rating of their FRC and effects of arc flash.
- 12.7 For tasks likely to ruin FRC, or for tasks requiring disposable coveralls in an FRC area, disposable coveralls may be worn over or in lieu of FRC, if approved by Cleveland Integrity Services's site safety department. This exception is to be carried out only for the duration of the task, with the total time worn minimized to the extent possible.
- 12.8 Rain gear may be worn over FRC to prevent its damage in areas with possible acid rain.
- 12.9 Life preservers may be worn over FRC in areas requiring their use, if the life preservers have an outside layer certified by the manufacturer to be self-extinguishing.

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- 12.10 Welders requiring FRC may be provided garments made from fabric not easily damaged by hot slag in lieu of those types of FRC which can be easily ruined. Welder's vest and sleeves may be worn over FRC.
- 12.11 FRC may not be sufficient for protection from electrical arc hazards. Electricians requiring electrical arc protective clothing may be provided with garments which are rated for arc protection and may be worn over or in lieu of FRC, which may not be as highly rated.
- 12.12 Simply diving through an FRC area is acceptable, so long as employees remain within the vehicle. Exiting the vehicle for any reason is means for being fully equipped.
- 12.13 In the event that the hazard of flash fire has been eliminated in a certain area, the requirement to wear FRC may be temporarily suspended, if determined by Cleveland Integrity Services or the operator. These situations must be very clearly communicated to all staff and personnel.
- 12.14 Any allergic reactions to FRC material must be proven with medical evidence from a physician. In this case, an alternative fabric will be chosen for the employee.
- 12.15 Insect repellent must not be applied directly to FRC. If it must be applied, assure to apply directly to the skin as the active ingredient DEET is a flammable product and may decrease the FRC protectiveness.

### **13. Assessment Guidelines**

- 13.1. The on-site Supervisor or Safety Representative will conduct a walk-through survey of the areas in question. The purpose of the survey is to identify sources of hazards to workers and co-workers. Consideration should be given to the following basic hazard categories: Impact, Penetration, Compression (roll-over), Chemical Exposure, Heat and Cold; Harmful dust; and Light (optical radiation).
- 13.2. During the walk-through survey the Site Supervisor should observe:
  - 13.2.1. Sources of motion (i.e., machinery or processes where movement of tools, machine elements or particles could exist), or movement of personnel that could result in collision with stationary objects;
  - 13.2.2. Sources of high temperatures that could result in burns, eye injury or ignition of protective equipment, etc.;
  - 13.2.3. Types of chemical exposures;
  - 13.2.4. Sources of harmful dust;
  - 13.2.5. Sources of light radiation (i.e., welding, brazing, cutting, furnaces, heat treating, high intensity lights, etc.);
  - 13.2.6. Sources of falling objects or potential for dropping objects;
  - 13.2.7. Sources of sharp objects which might pierce the feet or cut the hands;
  - 13.2.8. Sources of rolling or pinching objects which could crush the feet;
  - 13.2.9. Layout of workplace and location of co-workers; and
  - 13.2.10. Any electrical hazards.

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- 13.3. In addition, injury/accident data should be reviewed to help identify problem areas.
- 13.4. Following the walk-through survey, it is necessary to organize the data and information for use in the assessment of hazards. The objective is to prepare for an analysis of the hazards in the environment to enable proper selection of protective equipment.
- 13.5. Having gathered and organized data on a workplace, an estimate of the potential for injuries should be made. Each of the basic hazards should be reviewed and a determination made as to the type, level of risk, and seriousness of potential injury from each of the hazards found in the area. The possibility of exposure to several hazards simultaneously should be considered.

**14. Selection Guidelines**

- 14.1. After completion of the hazard assessment (see 13 above), the general procedure for selection of protective equipment is to:
  - 14.1.1. Become familiar with the potential hazards and the type of protective equipment that is available, and what it can do; i.e., splash protection, impact protection, etc.
  - 14.1.2. Compare the hazards associated with the environment; i.e., impact velocities, masses, projectile shape, radiation intensities, with the capabilities of the available protective equipment.
  - 14.1.3. Select the protective equipment which ensures a level of protection greater than the minimum required to protect employees from the hazards.
  - 14.1.4. Fit the user with the protective device and give instructions on care and use of the PPE. It is very important that end users be made aware of all warning labels for and limitations of their PPE.

**15. Selection Chart Guidelines For Eye and Face Protection**

- 15.1. Work inside of the plant, including process areas and the yard, require eye protection. The following chart provides general guidance for the proper selection of eye and face protection to protect against hazards associated with the listed hazard "source" operations.

## Eye and Face Protection Selection Chart

Source	Assessment of Hazard	Protection
IMPACT - Chipping, grinding machining, masonry work, woodworking, sawing, drilling, chiseling, powered fastening, riveting, and sanding.	Flying fragments, objects, large chips, particles sand, dirt, etc.	Spectacles with side protection goggles, face shields. For severe exposure, use face shield.
HEAT-Furnace operations, pouring, casting, hot dipping, and welding.	Hot sparks Splash from molten metals High temperature exposure	Face shields, goggles, spectacles with side protection. For severe exposure use face shield. Face shields worn over goggles. Screen face shields, reflective face shields.
CHEMICALS-Acid and chemicals handling, degreasing plating.	Splash Irritating mists	Goggles, eyecup and cover types. For severe exposure, use face shield. Special-purpose goggles.
DUST - Woodworking, buffing, general dusty conditions.	Nuisance dust	Goggles, eyecup and cover types.
LIGHT and/or RADIATION - Welding: Electric arc	Optical radiation	Welding helmets or welding shields. Typical shades: 10-14.
Welding: Gas	Optical radiation	Welding goggles or welding face shield. Typical shades: gas welding 4-8, cutting 3-6, brazing 3-4.
Cutting, Torch brazing, Torch soldering	Optical radiation	Spectacles or welding face-shield. shades, 1.5-3.
Glare	Poor vision	Spectacles with shaded or special-purpose lenses, as suitable.

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### **Selection Guideline For Head Protection**

- 16.1. All head protection (i.e. helmet) is designed to provide protection from impact and penetration hazards caused by falling objects. Head protection is also available which provides protection from electric shock and burn. When selecting head protection, knowledge of potential electrical hazards is important.
- 16.2. Class A helmets, in addition to impact and penetration resistance, provide electrical protection from low-voltage conductors (they are proof tested to 2,200 volts).
- 16.3. Class B helmets, in addition to impact and penetration resistance, provide electrical protection from high-voltage conductors (they are proof tested to 20,000 volts).
- 16.4. Class C helmets provide impact and penetration resistance (they are usually made of aluminum which conducts electricity), and should not be used around electrical hazards.
- 16.5. Where falling object hazards are present, helmets must be worn. Some examples include: working below other workers who are using tools and materials which could fall; working around or under conveyor belts which are carrying parts or materials; working below machinery or processes which might cause material or objects to fall; and working on exposed energized conductors.

### **Selection Guidelines For Foot Protection**

- 17.1. Safety shoes and boots which meet the ANSI Z41-1991 Standard provide both impact and compression protection. Where necessary, safety shoes can be obtained which provide puncture protection. In some work situations, metatarsal protection should be provided, and in other special situations electrical conductive or insulating safety shoes would be appropriate.
- 17.2. Safety shoes or boots with impact protection would be required for carrying or handling materials such as lumber, metal construction components and parts, or heavy tools -- any of which could be dropped; and for other activities in which objects might fall onto the feet.
- 17.3. Safety shoes or boots with compression protection are required for work activities involving skid trucks (manual material handling carts) around bulk rolls (such as felt rolls) and around heavy pipes on a job site, all of which could potentially roll over an employee's feet.
- 17.4. Safety shoes or boots with puncture protection would be required where sharp objects such as nails, wire, tacks, screws, large staples, scrap metal, etc., could be stepped on by employees causing a foot injury.

### **Selection Guidelines For Hand Protection**

- 18.1. Gloves are often relied upon to prevent cuts, abrasions, burns, and skin contact with chemicals that are capable of causing local or systemic effects following dermal exposure. OSHA is unaware of any gloves that provide protection against all potential hand hazards, and commonly available glove materials provide only limited protection against many chemicals. Therefore, it is important to select the most appropriate glove for a particular application and to determine how long it can be worn, and whether it can be reused.

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- 18.2. It also is important to know the performance characteristics of gloves relative to the specific hazard anticipated; e.g., chemical hazards, cut hazards, flame hazards, etc. These performance characteristics should be assessed by using standard test procedures.
- 18.3. Before purchasing gloves, the Supervisor or person ordering should request documentation from the manufacturer that the gloves meet the appropriate test standard(s) for the hazard(s) anticipated. Other factors to be considered for glove selection in general include:
- 18.3.1. As long as the performance characteristics are acceptable, in certain circumstances, it may be more cost effective to regularly change cheaper gloves than to reuse more expensive types; and,
  - 18.3.2. The work activities of the employee should be studied to determine the degree of dexterity required, the duration, frequency, and degree of exposure of the hazard, and the physical stresses that will be applied.
  - 18.3.3. With respect to selection of gloves for protection against chemical hazards:
    - 18.3.3.1.** The toxic properties of the chemical(s) must be determined; in particular, the ability of the chemical to cause local effects on the skin and/or to pass through the skin and cause systemic effects;
    - 18.3.3.2.** Generally, any "chemical resistant" glove can be used for dry powders;
    - 18.3.3.3.** For mixtures and formulated products (unless specific test data are available), a glove should be selected on the basis of the chemical component with the shortest breakthrough time, since it is possible for solvents to carry active ingredients through polymeric materials; and,
    - 18.3.3.4.** Employees must be able to remove the gloves in such a manner as to prevent skin contamination.



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Applicable OSHA Standards: 29 CFR 1910.119

## 1. Purpose & Scope

- 1.1. Process Safety Management (PSM) Program complies with OSHA standard 29 CFR 1910.119, Process Safety Management of Highly Hazardous Chemicals; Explosives and Blasting Agents.
- 1.2. Because Cleveland Integrity Services may be a contractor working inside of a PSM facility, we will abide with all such PSM contractor requirements. Under this program, Company employees are trained in the concepts and requirements of PSM.
- 1.3. This program is included here for informational purposes only, and as a typical example of PSM development and implementation in client facilities.
- 1.4. Actual client PSM Program requirements apply to all employees and contractors working within the client controlled work locations.

## 2. Contractor Safety Responsibilities Under a PSM Program

- 2.1. Cleveland Integrity Services assures that each contract employee is trained in the work practices necessary to safely perform his/her job.
- 2.2. Cleveland Integrity Services assures that each contract employee is instructed in the known potential fire, explosion, or toxic release hazards related to his/her job and the process, and the applicable provisions of the host employer's emergency action plan.
- 2.3. Cleveland Integrity Services documents that each contract employee has received and understood the training required by this paragraph. The contract employer has a record prepared which contains the identity of the contract employee, the date of training, and the means used to verify that the employee understood the training.
- 2.4. Cleveland Integrity Services assures that each contract employee follows the safety rules of the host facility, including safe work practices required by the contractor's company safety and health programs, and in accordance with OSHA requirements. This includes procedures for lockout/tagout, confined space entry, opening process equipment or piping and controls over entrance to facility.
- 2.5. Cleveland Integrity Services advises the employer of any unique hazards presented by the contract employer's work, or of any hazards found by the contract employer's work.
- 2.6. Cleveland Integrity Services supervisors and personnel immediately report all incidents, injuries and near misses in accordance with the host employer's PSM program requirements and procedures.
- 2.7. Cleveland Integrity Services employees immediately report any incident, injury or near miss to his or her employer's on-site supervisor.

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2.8. The example program follows.

### 3. Preface of Example PSM Program

- 3.1. Safety, health, and environmental responsibilities must be managed by line management as they manage their other responsibilities including production, quality, cost, and personnel relations. The same basic management techniques are used to manage safety, health, and environmental requirements as for production and quality management.
- 3.2. These include planning, organizing, leading and controlling assigned responsibilities.
- 3.3. Responsibility for protecting people, property, and the environment begins with the ranking facility manager and extends through all levels of the line management organization including employees. Each person in the line organization from the ranking manager to the employees has specific safety, health, and environmental responsibilities that they cannot delegate to others. They must effectively discharge their personal responsibility for protecting people, property, and the environment to achieve a safe and healthful working environment.
- 3.4. One important part of the overall safety and health program involves the prevention of unwanted releases of hazardous chemicals into locations which could expose employees and others to serious hazards as well as the environment and people in the surrounding community.
- 3.5. This Process Safety Management (PSM) Program describes the management system for protecting people, property, and the environment from catastrophic releases of highly hazardous chemicals in the workplace. This is accomplished by systematically evaluating the process(es) using approaches to assess the effectiveness of the process design, technology, operations, maintenance, non-routine activities, procedures, emergency preparedness, training, and other process elements. These are described in more detail throughout this PSM program.
- 3.6. This PSM Program complies with OSHA standard 29 CFR 1910.119, Process Safety Management of Highly Hazardous Chemicals; Explosives and Blasting Agents issued on February 24, 1992, and which became effective on May 26, 1992.

### 4. Introduction

- 4.1. The major objective of this Process Safety Management (PSM) program is to prevent unwanted releases of hazardous chemicals into locations which could expose employees and others to serious hazards including those in the surrounding community.
- 4.2. The PSM program involves a systematic approach to evaluating the entire process, including the design, technology, operation, maintenance, procedures; emergency plans, training programs, and other pertinent process elements. A proactive identification, evaluation and mitigation or prevention of chemical releases is utilized.

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- 4.3. The necessary expertise, experience, judgment, and proactive initiative is provided within the line organization or obtained from outside resources as needed to assure an effective PSM program. There are continuing efforts to strengthen and improve the process safety knowledge and expertise within the line organization.
- 4.4. Alternative avenues of decreasing the risks associated with highly hazardous chemicals in the workplace are considered, including the reduction in the inventory of the highly hazardous chemicals and dispersing hazardous chemical storage locations where one location will not cause a release in another location.
- 4.5. The PSM program describes how employees are involved in the programs, how process hazard analyses are conducted, and preparation of operating procedures and practices, training, contractors, pre-startup safety, mechanical integrity, managing change, incident investigation, emergency preparedness, and compliance audits.

## **5. Process Safety Management System**

- 5.1. The facility's process safety management system is a part of the facility's safety, health, and environmental program. The Central Safety and Health Committee (CSHC), chaired by the ranking manager, serve as the decision-making and policy-setting body. All department heads reporting to the ranking manager serve on the CSHC as members and chair safety and health task groups. There are usually eight task groups including:
  - 5.1.1. Safety Activities
  - 5.1.2. Rules and Procedures
  - 5.1.3. Education and Training
  - 5.1.4. Health and Environment Inspections and Audits
  - 5.1.5. Fire and Emergency
  - 5.1.6. Accident Investigation
  - 5.1.7. Housekeeping
  - 5.1.8. Process Hazards Analysis (PHA) teams
- 5.2. A brief description of the CSHC and each task group and how they are involved in the PSM program follows.

## **6. Central Safety and Health Committee**

- 6.1. The CSHC meets monthly for about an hour to manage the overall safety, health, and environmental program. Group chairmen will report on his or her task group reviews, audits, findings, conclusions, and recommendations at each meeting.

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6.2. CSHC task group meeting minutes are maintained. When recommendations are accepted, they are assigned to specific individuals for follow-up, for completion, and for resolving by specified time periods.

6.2.1. Task Groups

6.2.1.1. Each task group is composed of supervisory and employee members who represent their assigned departments. Usually there are an equal number of supervisors and employees on each task group. In some cases, task group members chair safety and health teams, such as one Inspections and Audits task group member chairing a Process Hazards Analysis (PHA) team. This team conducts and/or manages the PHAs.

6.2.2. Safety Activities

6.2.2.1. Task groups promote the overall safety, health, and environmental program to ensure that it effectively protects people, property, and the environment. Task groups help communicate the importance of the PSM program to employees and the surrounding community and solicit employee participation.

6.2.3. Rules and Procedures

6.2.3.1. The Rules and Procedures task group coordinates all facility safety rules and procedures to ensure that the rules and procedures are known, understood, and followed. They manage the preparation and maintenance of the rules and procedures including the PSM procedures and program information. Also, one member of the group serves on the process safety management compliance audit team.

6.2.4. Education and Training

6.2.4.1. This task group coordinates all facility safety, health, and environmental training programs to ensure high quality training and good comprehension. The PSM training programs are coordinated by this group, including management, supervisors, employees, and contractors.

6.2.5. Health and Environment

6.2.5.1. All facility health and environmental program activities are coordinated by this task group, including the hazard communication program, respiratory protection program, hearing conservation program, and bloodborne

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pathogens program. One member chairs an ergonomics team and another, an environmental team. The task group cooperates with the process hazards analysis team in conducting process analyses.

#### 6.2.6. Inspections and Audits

6.2.6.1. This task group manages all facility safety, health, and environmental inspections, including OSHA required inspections and audits. They determine what should be inspected, when the inspections should be conducted, who should inspect, and how the inspections should be performed. One member of the task group chairs the Process Hazards Analysis (PHA) team. Details concerning the PHA team are provided following this section.

#### 6.2.7. Fire and Emergency

6.2.7.1. The fire and emergency task group coordinates all facility emergency plans, including the Employee Emergency Action Plan, the Fire Prevention Plan, and emergency response. This group also manages the Emergency Preparedness requirements of the process safety management program.

#### 6.2.8. Accident Investigation

6.2.8.1. All facility accident and incident investigations are managed by this task group. This group appoints a process incident investigative team. They also review all accident and incident reports, including process incident investigations.

#### 6.2.9. Housekeeping

6.2.9.1. This task group coordinates all facility housekeeping activities, including routine audits. Recommendations for improving housekeeping and orderliness are made as needed.

#### 6.2.10. Process Hazards Analysis (PHA) Team

6.2.10.1. The PHA team of the facility's Inspection and Audits task group conducts the required process hazard analyses per the OSHA Process Safety Management standard. The PHA team leader is a member of the Inspections and Audits task group and meets each month with the task

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group. When PHA team reports are completed, the team leader accompanies the Inspections and Audits task group.

- 6.3. Chairman to the CSHC meeting and presents a verbal report of the PHA findings, conclusions, and recommendations.
- 6.4. The PHA team leader is fully knowledgeable in the proper implementation of the PHA methodology used and is impartial in the evaluation. Other full and part-time team members provide the team with expertise in areas such as process technology, process design, operating procedures and practices, including how the work is performed, alarms, emergency procedures, instrumentation, maintenance procedures, both routine and non-routine tasks, including how tasks are authorized, procurement of parts and supplies, safety and health, and other relevant subjects as needed. One team member must be familiar with the process being analyzed.
- 6.5. The PHA team has an intimate knowledge of the standards, codes, specifications and regulations applicable to the process being analyzed.
- 6.6. See the Process Hazards Analysis section of the Process Safety Management program for more details concerning PHA methodology.
- 6.7. Employee Participation
  - 6.7.1. Employees participate in process safety management by serving on task groups and teams. Also, employees are consulted concerning the various aspects of the process safety management program.

## 7. Process Safety Information

- 7.1. A compilation of written process safety information is provided for each facility process to enable managers, supervisors, and employees to identify and understand the process hazards. This pertinent process safety information is also provided the process hazards analysis (PHA) Team. This information includes, but is not limited to:
  - 7.1.1. Hazards of highly hazardous chemicals used and processed,
  - 7.1.2. Process technology, and
  - 7.1.3. Process equipment
- 7.2. Highly Hazardous Chemicals Information
  - 7.2.1. Information pertaining to highly hazardous chemicals provided managers, supervisors, employees, and the PHA team includes, but not limited to:
    - 7.2.1.1. Toxicity,
    - 7.2.1.2. Permissible exposure limits,

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- 7.2.1.3. Physical data,
- 7.2.1.4. Reactivity,
- 7.2.1.5. Thermal and chemical stability, and
- 7.2.1.6. Hazardous effects of inadvertent mixing of different materials.

7.2.2. Most of the above information is provided by Safety Data Sheets.

### 7.3. Process Technology Information

7.3.1. The process technology information provided to enable managers, supervisors, employees, and the PHA team to identify and understand the process hazards includes, but is not limited to:

- 7.3.1.1. Block flow diagrams or process flow diagrams,
- 7.3.1.2. Process chemistry, maximum intended inventory, safe upper and lower limits of temperature, pressure, flows, compositions, and
- 7.3.1.3. Evaluations of consequences of deviations, including those affecting employee safety and health.

7.3.2. In those cases where the original process technical data no longer exists, the data is developed during the initial PHA.

### 7.4. Process Equipment Information

7.4.1. Some of the process equipment information available to managers, supervision, employees, and the PHA team include, but is not limited to:

- 7.4.1.1. Materials of construction,
- 7.4.1.2. Piping and instrument diagrams,
- 7.4.1.3. Electrical classification,
- 7.4.1.4. Relief system design and design basis,
- 7.4.1.5. Ventilation system design, design codes and standards employed, material and energy balances for processes built after May 26, 1992, and;
- 7.4.1.6. Safety systems (i.e., interlocks, detection or suppression systems).

7.4.2. Documents are maintained showing that the process equipment complies with recognized and generally accepted good engineering practices. Also, documents are provided that show existing equipment designed and

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constructed in accordance with codes, standards, or practices that are no longer in general use, is designed, maintained, inspected, tested, and is operating in a safe manner.

- 7.4.3. Where process technology requires a design which departs from applicable codes and standards, documents are provided which show that the design and construction is suitable for the intended purpose.

## **8. Process Hazards Analysis (PHA)**

- 8.1. Process Hazards Analysis (PHA) is one of the most important elements of the Process Safety Management (PSM) program. It is an organized and systematic effort to identify and analyze the significance of potential hazards associated with the processing or handling of highly hazardous chemicals.
- 8.2. The PHA provides information to assist management and employees in making decisions for improving safety and reducing the consequences of unwanted and unplanned releases of hazardous chemicals. A PHA analyzes potential causes and consequences of fires, explosions, releases of toxic or flammable chemicals and major spills of hazardous chemicals.
- 8.3. Each PHA focuses attention on equipment, instrumentation, utilities, human actions (routine and non-routine), external factors that might impact the process. These considerations assist in determining the hazards and potential failure points or failure modes in processes.
- 8.4. PHAs are conducted initially and updated at least every 5 years. Each PHA is conducted appropriately for the complexity of the process being evaluated, and to properly identify, evaluate, and control the hazards involved.
- 8.5. The priority for conducting PHAs is determined and documented based on the:
  - 8.5.1. Extent of process hazards,
  - 8.5.2. Numbers of potentially affected employees,
  - 8.5.3. Age of the process, and
  - 8.5.4. Operating history of the process.
- 8.6. PHAs completed after May 26, 1987, which meet the requirements of OSHA standard 29 CFR 1910.119, will be updated and revalidated 5 years after the last analysis.
- 8.7. The PHA methodology utilized depends on many factors, including the existing process knowledge, operating experience, process changes, process size and complexity. One or more of the following methodologies may be used.
  - 8.7.1. "What-if?" Method,



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- 8.7.2. Checklist method,
  - 8.7.3. A combination of “what-if?” And checklist methods,
  - 8.7.4. Hazard and operability study (hazop),
  - 8.7.5. Failure mode and effects analysis (fmea),
  - 8.7.6. Fault tree analysis (fta), or
  - 8.7.7. An appropriate equivalent methodology.
- 8.8. The application of a PHA to a particular process may involve the use of different methodologies for various parts of the process. For example, a process involving a series of unit operations of varying sizes, complexities, and ages may use different methodologies and PHA team members for each operation. When this is done, the PHA findings and conclusions are integrated into one final study and evaluation.
- 8.9. In some cases, a PHA checklist is used to perform PHA, such as for standard boiler or heat exchanger evaluations.
- 8.10. Generic PHAs are also used for batch type processes where there are only small changes of monomer or other ingredient ratios and the chemistry is documented for the full range and ration of batch ingredients. Also, for large continuous processes having several different operations, some PHAs are conducted on each segment of the process and then integrated into one final report.
- 8.11. Each PHA addresses the following items:
- 8.11.1. Hazards of the process,
  - 8.11.2. Previous incident(s) with catastrophic consequences,
  - 8.11.3. Engineering and administrative controls including detection methodologies for early warning of releases such as process monitoring and control instrumentation with alarms, detection hardware, etc.
  - 8.11.4. Consequences of failure of engineering and administrative controls,
  - 8.11.5. Facility siting,
  - 8.11.6. Human factors, and
  - 8.11.7. Qualitative evaluation of a range of possible safety and health effects of failure of controls on employees’ safety and health.
- 8.12. PHAs are performed by a PHA team with expertise in engineering and process operations, including at least one employee having experience and knowledge

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specific to the process being evaluated. Also, one team member must be knowledgeable in the specific process hazard analysis methodology used.

- 8.13. As previously addressed, the PHA team leader is a member of the Central Safety and Health Committee's Inspections and Audits task group. The team leader meets monthly with the Inspections and Audits task group and reports on the team's plans and progress.
- 8.14. The PHA team has the major responsibility for coordinating the overall facility Process Safety Management Program.
- 8.15. PHA Report Follow-up
  - 8.15.1. All PHA reports are prepared by the PHA team, the ranking line manager of the process analyzed, the Inspections and Audits task group, and the Central Safety and Health Committee. The Central Safety and Health Committee (CSHC) chairman (ranking manager of the facility) assigns specific individuals to be responsible for completing and/or resolving all PHA report recommendations. The PHA team leader maintains a log of all recommendations and reports to the CSHC chairman monthly concerning the status of all unresolved recommendations.
  - 8.15.2. The actions to be taken as the result of PHA report recommendations, including a schedule for completion, are communicated by the PHA team leader to the process managers involved, maintenance, and other employees whose work assignments are in the process and who may be affected by the recommendations or actions.
- 8.16. The PHAs are updated and revalidated by the PHA team at least every 5 years after completion of the initial PHA to assure that the PHA is consistent with the current process.
- 8.17. All PHAs and updates or re-validations are retained for the life of the process.

## 9. Operating Procedures

- 9.1. Operating procedures have been developed and implemented which describe tasks to be performed, dates to be recorded, operating conditions to be maintained, samples to be collected, and safety and health precautions to be taken.
- 9.2. The procedures are thoroughly reviewed and approved to ensure they are technically accurate. Employees assist in the preparation of the procedures and verify that they are understandable to employees. All operating procedures are routinely reviewed and revised as necessary to ensure they reflect current operations.
- 9.3. Process safety information compiled to assist in conducting process hazards analyses is also used as a resource for assuring the process operating procedures

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and practices are consistent with the known hazards and operating parameters are accurate.

- 9.4. The operating procedures are reviewed by the engineering staff and operating personnel to ensure they are accurate and provide practical instructions on how to perform jobs safely. Specific instructions and details are included in the operating procedures describing what steps are to be taken or followed, including applicable safety precautions and implications, pressure limits, temperature ranges, flow rates and what to do when the operating limits, ranges and rates are abnormal. Also, the actions needed to correct and/or control upset conditions are included in the procedures.
- 9.5. The training program ensures that operating personnel have a full understanding of the operating procedures including verification that workers not fluent in English understand the procedures.
- 9.6. All process and equipment changes are included as necessary in operating procedures and personnel trained to ensure they are properly informed of all pertinent changes. The operating procedures also include controls for maintenance personnel and contractors to enter the process area and to verify they have completed their authorized jobs.

## 10. Employee Training

- 10.1. All employees, including maintenance and contractor employees, involved with highly hazardous chemicals are trained to ensure they fully understand the safety and health hazards of the chemicals and processes they work with to protect themselves, and citizens living near the facility.
- 10.2. The training employees receive in compliance with OSHA's hazard communication standard 29 CFR 1910.1200 helps them become more knowledgeable about the chemicals they work with as well as familiarize them with reading and understanding SDSs. However, additional training is provided concerning operating procedures; safe work practices; emergency procedures including alarms, special assignments, evacuation, and emergency response; safety rules and procedures; routine and non-routine work authorization; and other pertinent process safety information.
- 10.3. The employees to be trained and the subjects to be covered have been defined and documented. Also, the training goals and objectives have been established and written in clear measurable terms. These training goals and objectives are tailored to each specific training module or segment. The important actions and conditions under which employees demonstrate competence and knowledge as well as acceptable performance have been described and documented.
- 10.4. Hands-on training is provided to employees to enhance their senses beyond listening, including dry runs and simulated operations to help employees feel the full reality of the situation under controlled conditions.

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- 10.5. Along with the hands-on training, employees receive traditional classroom instruction including lectures, videos, programmed instruction, and on-the-job instruction. Employees are encouraged to actively participate in all training activities and practice their skills and knowledge.
- 10.6. The training programs are periodically evaluated to see if the necessary skills, knowledge, and routines are being properly understood and implemented by the trained employees. The means/methods for evaluating the training programs has been developed and implemented including assigned responsibility and reports.
- 10.7. Any training program deficiencies detected during the evaluation are documented and recommendations made to correct them. Retraining or more frequent refresher training is provided as needed to ensure an effective training program. Each employee trained is requested to complete a training critique to obtain information on how to improve the training process. Also, trainees are consulted as to how to improve the training programs.
- 10.8. Maintenance and contract employees receive current and updated process safety training, including training about process changes which may affect their jobs. Responsibility is assigned for maintenance and contractor employee training and records maintained. They are also consulted about the effectiveness of their training programs.

## 11. Contractors

- 11.1. A screening process has been established for hiring contractors to perform work in and around processes that involve highly hazardous chemicals. The screening process is designed to ensure that the contractors hired or used can accomplish their assigned tasks without compromising the safety and health of employees at the facility. The screening program involves obtaining information on the contractor's safety performance, including injury and illness rates and experience. Also, contractor references are contracted concerning the contractor's safety performance.
- 11.2. In addition to reviewing the contractor's safety performance, the contractor's job skills, knowledge, and certifications (such as pressure vessel welders) are also reviewed.
- 11.3. A site injury and illness log is maintained for contractors working on or adjacent to processes to provide full knowledge of process injury and illness experience. This information is used by those auditing the process safety management program compliance and those investigating process incidents.
- 11.4. Workplace controls have been established to ensure that contractors perform their work safely. These controls specify that work permits are required for all contractor work on or adjacent to a process. The permit keeps all operating personnel and affected personnel informed concerning contractor work activities.
- 11.5. Contract employees will not perform hot work until a hot work permit is obtained from the host employer. The permit shall document that the fire prevention and protection

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requirements in 29 CFR 1910.252(a) have been implemented prior to beginning the hot work operations, it shall indicate the date(s) authorized for hot work, and identify the object on which hot work is to be performed. The permit shall be kept on file until completion of the hot work operations.

## 12. Pre-Startup Safety

- 12.1. Process hazard analyses (PHAs) are used for new processes to improve the design and construction of the process from a reliability and quality standpoint. The PHA recommendations are implemented before final installations are complete. Other items completed prior to initial process startup include piping and instrument diagrams, operating procedures, and operating personnel trained.
- 12.2. The initial startup and normal operating procedures are fully evaluated as part of the pre-startup review to assure a safe transfer into the normal operating mode for meeting the process parameters.
- 12.3. Management of change procedures are required for changes to existing processes that have been shut down for turnaround or modifications. Also, all changes other than "replacement in kind" made to the process during shutdown go through the management of change procedures. Piping and instrument diagrams and operating procedures are updated as necessary following changes. Significant changes impacting the process result in refresher and/or additional employee training.
- 12.4. Incident investigations, compliance, audits, and PHA reports are evaluated to determine their impacts they may have prior to startup of new processes.

## 13. Mechanical Integrity

- 13.1. An on-going mechanical integrity program is used to ensure safe process operation. Reviews of maintenance programs and schedules are periodically conducted to see if only "breakdown" maintenance is being used. Where such is the case, corrections will be made. Equipment used to process, store, or handle highly hazardous chemicals are designed, constructed, installed, and maintained to minimize releases. To accomplish this, an effective mechanical integrity program has been established to ensure the continued integrity of process equipment.
- 13.2. The elements of the mechanical integrity program include the identification and categorization of equipment and instrumentation, inspections and tests, testing and inspection frequencies, development of maintenance procedures, training of maintenance personnel, criteria for acceptable test results, documentation of test and inspection results, and documentation of manufacturer's recommendations as to the meantime for failure of equipment and instrumentation.
- 13.3. The priority for safe process equipment operation is:
  - 13.3.1. Primary Lines of Defense

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- 13.3.1.1. Operate and maintain the process as designed and keep chemicals contained.
- 13.3.1.2. Controlled release of chemicals through venting to scrubbers or flares, or to surge or overflow tanks which are designed to receive such chemicals, etc.
- 13.3.2. Secondary Lines of Defense
  - 13.3.2.1. Fixed fire protection systems like sprinklers, water spray, or deluge systems, monitor guns, etc.; dikes, designed drainage systems, and other systems which would control or mitigate hazardous chemicals once an unwanted release occurs.
  - 13.3.2.2. The mechanical integrity program protects the above lines of defense and ensures effective highly hazardous chemical control.
- 13.4. The mechanical integrity program includes the following stages:
  - 13.4.1. A list of all process equipment and instrumentation has been compiled and categorized including:
    - 13.4.1.1. Pressure vessels,
    - 13.4.1.2. Storage tanks,
    - 13.4.1.3. Process piping,
    - 13.4.1.4. Relief and vent systems,
    - 13.4.1.5. Fire protection systems components,
    - 13.4.1.6. Emergency shutdown systems, alarms and interlocks; and
    - 13.4.1.7. Pumps.
- 13.5. The equipment and instrumentation is categorized on a priority basis for items requiring closer scrutiny than other items. This priority and the manufacturer's data or operating experience determines the inspection and testing frequency and associated procedures.
- 13.6. Applicable codes and standards which provide information for the inspection and testing frequency and appropriate methodologies include:
  - 13.6.1. National Boiler Inspection Code, or
  - 13.6.2. American Society for Testing and Material,

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- 13.6.3. American Petroleum Institute,
  - 13.6.4. National Fire Protection Association,
  - 13.6.5. American National Standards Institute,
  - 13.6.6. American Society of Mechanical Engineers, and
  - 13.6.7. Other groups.
- 13.7. Inspections
- 13.7.1. The applicable codes and standards are used to provide criteria for external inspections for such items as foundation supports, anchor bolts, concrete or steel supports, guy wires, nozzles and sprinklers, pipe hangers, grounding connections, protective coatings and insulation, and external metal surfaces of piping and vessels, etc.
  - 13.7.2. These codes and standards also provide information on methodologies for internal inspection, and a frequency formula based on the corrosion rate of the materials of construction. The erosion of internal and external surfaces is considered along with corrosion effects of pipes and valves. When the corrosion rate is not known, a maximum inspection frequency is followed until the specific corrosion rate has been determined.
  - 13.7.3. The internal inspection covers items such as vessel shell, bottom and head; metallic linings; nonmetallic linings; thickness measurements for vessels piping; inspection for erosion; corrosion, cracking and bulges; internal equipment like trays, baffles, sensors and screens for erosion, corrosion or cracking and other deficiencies.
  - 13.7.4. Although some inspections may be performed by state and local government inspectors under state and local statutes, procedures have been established to ensure that tests and inspections are conducted properly and consistency is maintained even when different employees may be involved.
- 13.8. Appropriate training is provided maintenance personnel to ensure they understand the preventative maintenance program procedures, safe practices, and the proper use and application of special equipment or unique tools that may be required.
- 13.9. A quality assurance system is provided to help ensure that the proper materials of construction are used, that fabrication and inspection procedures are proper, and that installation procedures recognize field installation concerns.
- 13.10. The quality assurance program is an essential part of the overall mechanical integrity program and helps maintain the primary and secondary lines of defense for preventing unwanted chemical releases or those which control or mitigate a release.

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- 13.11. "As built" drawings, together with certifications of coded vessels and other equipment, and materials of construction are verified and retained in quality assurance documentation. Equipment installation jobs are inspected in the field for use of proper materials and procedures and to assure that qualified craftsmen are used. Also, the use of proper gaskets, packing, bolts, valves, lubricants, and welding rods are verified in field inspections. The procedures for installation of safety devices are verified in the field, such as the torque on the bolts for rupture discs, uniform torque on flange bolts, proper installation of pump seals, etc.
- 13.12. Where the quality of parts is a problem, audits of equipment supplier's facilities are conducted to ensure the equipment is suitable for its intended service.
- 13.13. All necessary changes in process equipment go through the management of change procedures.

#### **14. Non-Routine Work Authorizations**

- 14.1. Non-routine work performed in process areas is controlled in a consistent manner. The hazards identified involving the work to be accomplished is communicated to those performing the work and to operating personnel whose work could affect the safety of the process.
- 14.2. A work permit procedure describes the steps the maintenance supervisor, contractor representative or other person needs to follow to obtain the necessary clearance to get the job started.
- 14.3. The procedure references and coordinates applicable are:
  - 14.3.1. Lockout/tagout procedures,
  - 14.3.2. Line breaking procedures,
  - 14.3.3. Confined space entry procedures, and
  - 14.3.4. Hot work authorizations.

#### **15. Managing Change**

- 15.1. Temporary and permanent changes to process chemicals, technology, equipment and facilities are managed to ensure effective process safety management. This process safety management program describes the overall management system used to assure a safe and healthful workplace from process hazards. Management of change is part of the process safety management system. Both technical and mechanical changes must be authorized.
- 15.2. Process changes include all modifications to equipment, procedures, raw materials and processing conditions other than "replacement in kind." The changes are identified, reviewed, and authorized prior to implementing the change. A Process Change Authorization is required for all changes to ensure the operating procedures



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contain the operating parameters (pressure limits, temperature ranges, flow rates, etc.) and the importance of operating within the limits.

- 15.3. Management of change covers changes such as process technology changes, and changes to equipment and instrumentation. Changes in process technology requiring authorization include, but are not limited to, changes in production rates, raw materials, experimentation, equipment unavailability, new equipment, new product development, and change in catalyst and changes in operating conditions to improve yield or quality.
- 15.4. Equipment changes requiring authorization include, but are not limited to, changes in materials of construction, equipment specifications, piping pre-arrangements, experimental equipment, computer program revisions, and changes in alarms and interlocks.
- 15.5. The process change authorization is not only used to assure that temporary and permanent changes can be accomplished safely, but to ensure that following the change that processes are returned to the normal operating state and original designed state. Also, the process change authorization assures that the pertinent safety and health considerations are incorporated into the operating procedures and the process. All process change authorizations are filed for reference by PHA teams and others reviewing, evaluating, and/or inspecting processes.
- 15.6. Employees involved in operating a process and maintenance whose job task will be affected by a change in process shall be notified of, and trained in, the change prior to start-up of the process or the affected part of said process.

## 16. Incident Investigations

- 16.1. Employees and contractor personnel immediately report all incidents, injuries and near misses in accordance with the host employer's PSM program requirements and procedures.
- 16.2. Process incidents which result in, or could reasonably have resulted in, a catastrophic release of highly hazardous chemicals are investigated immediately, or no later than within 48 hours of the incident. This includes "near miss" incidents.
- 16.3. The purpose of these incident investigations is to identify the underlying causes of the incident and to implement corrective action to prevent similar incidents and avoid repeating past mistakes.
- 16.4. Following the investigation, a written report is made. The report contains at least the following components:
  - 16.4.1. Incident date, time and specific location;
  - 16.4.2. The date when the investigation is initiated;

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- 16.4.3. A description of the incident;
- 16.4.4. A list and description of factors that caused or contributed to the incident; and
- 16.4.5. Findings and recommendations for corrective and other actions identified by the investigation.
- 16.5. The Company will assist the host employer as required to promptly address incident report findings and recommendations. This includes resolving needs and recommendations. Resolutions, corrective and any other actions are documented.
- 16.6. All Company personnel whose work tasks are affected by investigation findings will review the written incident investigation report.
- 16.7. The Company maintains its copy of the incident investigation report for a minimum of five years.
- 16.8. Investigation Team
  - 16.8.1. An incident investigation team will be established and consist of at least one person knowledgeable in the process involved, including a contract employee if the incident involved work of the contractor, and other persons with appropriate knowledge and experience to thoroughly investigate and analyze the incident.
  - 16.8.2. Process incidents are investigated by a process incident investigation team under the Accident Investigation task group. One task group member chairs the team and reports through the task group chairman to the ranking facility manager who chairs the Central Safety and Health Committee.
  - 16.8.3. The process incident investigation team has received special training in process incident investigation, including how to conduct interviews and report preparation. Both management and employees are included as team members and is multidisciplinary.
  - 16.8.4. One supervisor and one employee knowledgeable of the process is added to process incident investigation teams to ensure effective investigations. The team gathers the facts of the incident, analyzes them and develops plausible scenarios as to what happened, and why.
  - 16.8.5. Employees and supervisors in the process area where the incident occurred are consulted and interviewed to obtain incident facts. The focus of the investigation is to obtain facts and not to place blame. The team and the investigation process deals with all involved individuals in a fair, open and consistent manner. An incident report is prepared following the investigation which includes the findings, conclusions, and recommendations. The written

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report which is to the ranking manager of the process involved is verbally reviewed with him or her prior to distribution.

- 16.8.6. Copies of the report are distributed to the ranking manager of the entire facility, the accident investigation task group, and other affected groups and individuals.
- 16.8.7. The process incident investigation team is responsible for assuring that all report recommendations are completed or resolved by those responsible for the follow-up. Monthly status reports are presented on incident recommendations at each Central Safety and Health Committee meeting by the chairman of the Accident Investigations task group.

## 17. Emergency Preparedness

- 17.1. The Fire and Emergency Task Group is responsible for assuring proper emergency preparedness and response, including what actions employees are to take when there is an unwanted release of highly hazardous chemicals.
- 17.2. Emergency Action and Fire Prevention Plans have been established that comply with OSHA standard 29 CFR 1910.38. These plans describe the actions employees must take in the event of an emergency. These actions may involve special emergency duties or evacuation. Refer to the Emergency Action and Fire Prevention plans for specific details.
- 17.3. The emergency action plan includes the prompt evacuation of employees due to an unwanted release of highly hazardous chemicals. This plan involves emergency alarms to alert employees when to evacuate. Prompt evacuation is essential, including physically impaired employees who are provided the necessary support and assistance. Also, the use of process control centers in process areas as safe areas is prohibited since they may have not been designed for safe refuge.
- 17.4. When unwanted releases of highly hazardous chemicals may occur outdoors, wind direction indicators have been placed at the highest point that can be seen throughout the process area. These indicators allow employees to move cross wind to upwind to gain safe access to refuge areas.
- 17.5. Minor emergency or incidental releases of unwanted highly hazardous chemicals in the process area are handled by highly trained, designated employees wearing appropriate personal protective equipment and following specific procedures. Preplanning for handling incidental releases for minor emergencies in the process area has been accomplished, including hazard communication training per OSHA standard 29 CFR 1910.1200, emergency action and fire prevention plans per OSHA standard 29 CFR 1910.38, and emergency response per OSHA standard 29 CFR 1910.120.
- 17.6. The specific employee actions which must taken for incidental and major unwanted releases of highly hazardous chemicals have been designated in the emergency

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action plan. Also, the required actions to obtain outside assistance from mutual aid groups or local government emergency response organizations have been defined in the emergency action plan.

- 17.7. The emergency action plan and fire prevention plan describes the emergency organization and command system, including an on-scene incident commander and staff. This fully trained organization has been properly equipped to carry out their assigned duties.
- 17.8. Drills, training exercises, and simulations with local community emergency response planners and responsible organizations have been conducted and are conducted on a periodic basis. This cooperation with local emergency agencies also assists in complying with EPA's Risk Management Plan Criteria.
- 17.9. An emergency control center has been established at the facility in a safe area away from the process area. This center serves as the major communication link between the on-scene incident commander and plant or corporate management as well as with local emergency organizations and officials. Communication equipment in the center includes a network for receiving and transmitting information by telephone, radio or other means. A back-up communications network is provided in case of power failure or one communication system fails.
- 17.10. The emergency control center is equipped with plant layout and community maps, utility drawings including firefighting water sources, emergency lighting, appropriate reference materials such as government agency notification lists, Company telephone lists, SARA Title III reports, material safety data sheets, emergency plans and procedures manual, listing of local emergency response equipment, mutual aid information, and access to meteorological or weather condition data and dispersion modeling data.

## 18. Compliance Audits

- 18.1. The PHA team is responsible for assembling a compliance audit team to audit compliance with OSHA's process safety management standard 29 CFR 1910.119 at least every three years. Normally, the entire process hazards team plus a member of the rules and procedures task group not on the PHA team and the facility safety/health manager are assigned to the team. The chairman of the PHA team is the compliance audit team chairman unless he or she is responsible for the process(es) being audited to ensure compliance.
- 18.2. In that case, a person knowledgeable in audit techniques and who is impartial towards the facility area being audited is appointed chairman of the Inspection and Audits task group.
- 18.3. The audit includes an evaluation of the design and effectiveness of the process safety management system and a field inspection of the safety and health conditions and practices to ensure compliance. The essential elements of the audit program include:

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- 18.3.1. Planning,
  - 18.3.2. Staffing,
  - 18.3.3. Conducting the audit,
  - 18.3.4. Evaluation,
  - 18.3.5. Recommendations,
  - 18.3.6. Corrective action,
  - 18.3.7. Follow-up, and
  - 18.3.8. Documentation.
- 18.4. An OSHA standard 29 CFR 1910.119 process safety management check sheet is used by the audit team to conduct the audit. Also, a standardized form is used to document each audit step and ensure an effective audit is conducted and proper follow-up is accomplished. All team members and their expertise are listed. If the needed expertise is not available, it is obtained prior to conducting the audit. The standardized audit form includes:
- 18.4.1. Process description and documentation,
  - 18.4.2. Process safety information,
  - 18.4.3. Training,
  - 18.4.4. Procedures,
  - 18.4.5. Physical inspection of the facility,
  - 18.4.6. Work authorizations,
  - 18.4.7. Interviews with all levels of facility personnel,
  - 18.4.8. Findings,
  - 18.4.9. Conclusions,
  - 18.4.10. Recommendations, and
  - 18.4.11. Follow-up.
- 18.5. The compliance audit team issues the final audit report to the chairman of the PHA team with copies to the Inspections and Audits task group chairman and the chairman of the Central Safety and Health Committee who is the ranking facility manager. The audit team is responsible for ensuring that all report recommendations are completed

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or resolved. Written monthly progress reports are issued to the Inspections and Audits task group chairman who gives monthly status reports to the Central Safety and Health Committee until all items are resolved.

- 18.6. All affected persons and groups are informed of the audit findings, conclusions, and recommendations. The Central Safety and Health Committee chairman assigns specific responsibility for follow-up including revision of the process safety management program, revised operating procedures, improved training, etc. The PHA team has the overall responsibility to ensure that the necessary actions are taken to maintain an effective process safety management program.

## 19. Safety and Health Hazard Control Team

- 19.1. Effective safety and health programs prevent accidents, injuries and illnesses through proper recognition, evaluation and control of safety and health hazards. Emphasis is placed on prevention, not after-the-fact accident investigation. Thus, products, processes, workplaces and environments must be made safe through design. To ensure proper safety and health engineering controls, each organization and facility should establish and maintain effective safety and health hazard control teams.
- 19.2. Accidents are costly for organizations and individuals. Correcting safety and health problems after an accident occurs is expensive. A proactive approach must be taken to eliminate and/or control safety and health hazards before accidents, injuries and/or illnesses occur. The Safety and Health Hazard Control Team can help accomplish this objective.
- 19.3. The purpose of the team is to recognize, evaluate and control safety and health hazards before they cause accidents, damage, injuries and/or illnesses.
  - 19.3.1. The following priority is utilized to control recognized safety and health hazards.
    - 19.3.1.1. Eliminate hazards by substitution or engineering controls
    - 19.3.1.2. Reduce the risks when hazards cannot be eliminated by substitution, employee rotation, or limited exposure
    - 19.3.1.3. Provide safety devices (guards, interlocks, etc.)
    - 19.3.1.4. Provide warning signs, placards or tags
    - 19.3.1.5. Provide procedures, education and training, and protective equipment
    - 19.3.1.6. Assure that procedures are feasible, that they can be followed and the job can still be done
    - 19.3.1.7. Enforce safety rules and procedures

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- 19.4. The Safety and Health Hazard Control (SHHC) Team is chaired by a facility manager or supervisor with strong engineering knowledge and experience. He or she is a member of the Inspections and Audits Task Group of the Central Safety and Health Committee.
- 19.5. Members of the SHHC Team include at least one representative from each major department within the facility including staff, supervisors and employees.
- 19.6. The SHHC Team meets monthly for about 45 minutes to plan their activities and report on their findings, conclusions and recommendations. Minutes are kept and provided to the Inspections and Audits Task Group Chairman.
- 19.7. The following activities are some of the many things the team considers:
  - 19.7.1. New Facilities, Processes and Equipment -- The team develops implements and maintains effective procedures for performing safety and health evaluations of new facilities, processes and equipment.
  - 19.7.2. Modified Facilities, Processes and Equipment -- The team develops implements and maintains effective procedures for reviewing potential safety and health hazards associated with modified or revised facilities, processes and equipment.
  - 19.7.3. Accident/Incident Analysis -- The team develops implements and maintains effective procedures for analyzing accidents and/or incidents which involve basic design (engineering) defects. These procedures are developed in cooperation with the Accident Investigation Task Group.
  - 19.7.4. Process Hazard Analyses -- The team develops implements and maintains effective procedures and systems for performing periodic (usually annual) process hazard analyses of all major facility processes. Written process hazard analysis reports are presented to the Inspections and Audits Task Group Chairman and to the Central Safety and Health Committee.
- 19.8. Responsibilities
  - 19.8.1. Each SHHC Team member is given a specific assignment (activity) to coordinate. He or she obtains assistance from other facility supervisors and employees in effectively coordinating the assignment.
- 19.9. Staff Assistance
  - 19.9.1. The facility staff safety and health manager, supervisor and/or coordinator meets with the Team and provides assistance as needed to ensure the Team has the necessary resources.

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#### 19.10. Trade Secrets

- 19.10.1. The employer shall complete a compilation of written process safety information before conducting any process hazard analysis required by the standard.
- 19.10.2. The compilation of written process safety information is to enable the employer and the employees involved in operating the process to identify and understand the hazards posed by those processes involving highly hazardous chemicals.
- 19.10.3. This process safety information shall include information pertaining to the hazards of the highly hazardous chemicals used or produced by the process, information pertaining to the technology of the process, and information pertaining to the equipment in the process
- 19.10.4. Trade secret information will be made available to those assisting in the development of the process hazard analysis. The employer shall perform an initial process hazard analysis (hazard evaluation) on processes covered by this standard.
- 19.10.5. The process hazard analysis shall be appropriate to the complexity of the process and shall identify, evaluate, and control the hazards involved in the process.
- 19.10.6. Employers shall determine and document the priority order for conducting process hazard analyses based on a rationale which includes such considerations as extent of the process hazards, number of potentially affected employees, age of the process, and operating history of the process
- 19.10.7. Trade secret information will be made available to those responsible for developing the operating procedures. The employer shall develop and implement written operating procedures that provide clear instructions for safely conducting activities involved in each covered process consistent with the process safety information.
- 19.10.8. Trade secret information will be made available to those involved in incident investigations. The employer shall investigate each incident which resulted in, or could reasonably have resulted in, a catastrophic release of highly hazardous chemical in the workplace.
- 19.10.9. An incident investigation team shall be established and consist of at least one person knowledgeable in the process involved, including a contract employee if the incident involved work of the contractor, and other persons with appropriate knowledge and experience to thoroughly investigate and analyze the incident.



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- 19.10.10. Trade secret information will be made available to emergency planning and response teams. The employer shall establish and implement an emergency action plan for the entire plant in accordance with the provisions of 29 CFR 1910.38. In addition, the emergency action plan shall include procedures for handling small releases and compliance audits.
- 19.10.11. Employers shall certify that they have evaluated compliance with the provisions of this section at least every three years to verify that the procedures and practices developed under the standard are adequate and are being followed, without regard to possible trade secret status of such information.
- 19.10.12. Nothing in this paragraph will preclude the employer from requiring the persons to whom the information is made available to enter into confidentiality agreements not to disclose the information as set forth in 29 CFR 1910.1200.
- 19.10.13. Employees and their designated representatives will have access to trade secret information contained within the process hazard analysis and other documents required to be developed by this standard. All contract employers and employees must respect the confidentiality of trade secret information when the process safety information is released to them

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Applicable OSHA Standards: 29 CFR 1910.134

## 1. Purpose

- 1.2. The purpose of this policy is to comply with the OSHA standards on Respiratory Protection.

## 2. Scope

- 2.2. This program applies to all Cleveland Integrity Services controlled work locations where an employee or a subcontract employee may be occupationally exposed to respiratory hazards.

## 3. Responsibilities

- 3.1. **MANAGEMENT** - It is management's responsibility to determine what specific applications require use of respiratory equipment. Management must also provide proper respiratory equipment to meet the needs of each specific application. Employees must be provided with adequate training and instructions on all equipment.
- 3.2. **MANAGEMENT/SUPERVISORY** - Superintendents, supervisors, foremen, or group leaders of each area are responsible for insuring that all personnel under their control are knowledgeable of the respiratory protection requirements for the areas in which they work. They are also responsible for ensuring that their subordinates comply with requirements of this respiratory program, including proper respirator inspection, use, cleanliness, sanitation, storage and maintenance.
- 3.3. **EMPLOYEES** - It is the responsibility of the employee to have an awareness of the respiratory protection requirements for their work areas (as explained by management), according to proper instruction, and for maintaining equipment in a clean, sanitary and operable condition.

## 4. Requirements & Guidelines

- 4.1. The Company Safety Coordinator is designated as the program administrator and will be qualified by appropriate training or experience that is commensurate with the complexity of the program to administer or oversee the respiratory protection program and conduct the required evaluations of program effectiveness.
- 4.2. In the control of those occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors, the primary objective of this program will be to prevent atmospheric contamination.
- 4.3. This is accomplished as far as feasible by accepted engineering control measures (for example, enclosure or confinement of the operation, general and local ventilation, and substitution of less toxic materials).

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- 4.4. Respirators, medical evaluation, fit testing and training are provided by Cleveland Integrity Services at no cost to employees when such equipment is necessary to protect the health of the employee. The Company provides the respirators which are applicable and suitable for the purpose intended. The Safety Coordinator is responsible for the establishment and maintenance of a respiratory protection program.
- 4.5. The guidelines in this program are designed to help reduce employee exposures against occupational dusts, fumes, mists, radionuclide, gases and vapors.
- 4.6. The primary objective is to prevent atmospheric exposure to these contaminants.
- 4.7. Where feasible, exposure to contaminants is eliminated by engineering controls (for example, general and local ventilation, enclosure or isolation, and substitution of a less hazardous process or material).
- 4.8. When effective engineering controls are not feasible, use of personal respiratory protective equipment may be required to achieve this goal and includes the following components, as applicable:
  - 4.9.1. Selection of respirators
  - 4.9.2. Medical evaluation
  - 4.9.3. Fit testing
  - 4.9.4. Types of respiratory equipment and their use
  - 4.9.5. Maintenance and care of respirators
  - 4.9.6. Breathing air quality and use
  - 4.9.7. Identification of filters, cartridges, and canisters
  - 4.9.8. Employee training and information
  - 4.9.9. Program evaluation
- 4.10. In any workplace where respirators are necessary to protect the health of the employee or whenever respirators are required, the Company has established and implemented a written respiratory protection program with worksite-specific procedures. The program is updated as necessary to reflect those changes in workplace conditions that affect respirator use. The employer will include in the program the following provisions of this section, as applicable:
  - 4.10.1. Procedures for selecting respirators for use in the workplace;
  - 4.10.2. Medical evaluations of employees required to use respirators;

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- 4.10.3. Fit testing procedures for tight-fitting respirators;
- 4.10.4. Procedures for proper use of respirators in routine and reasonably foreseeable emergency situations;
- 4.10.5. Procedures and schedules for cleaning, disinfecting, storing, inspecting, repairing, discarding, and otherwise maintaining respirators;
- 4.10.6. Procedures to ensure adequate air quality, quantity, and flow of breathing air for atmosphere-supplying respirators;
- 4.10.7. Training of employees in the respiratory hazards to which they are potentially exposed during routine and emergency situations;
- 4.10.8. Training of employees in the proper use of respirators, including putting on and removing them, any limitations on their use, and their maintenance; and
- 4.10.9. Procedures for regularly evaluating the effectiveness of the program.
- 4.11. The Company selects and provides an appropriate respirator based on the respiratory hazard(s) to which the worker is exposed and workplace and user factors that affect respirator performance and reliability.
- 4.12. The Company selects a NIOSH-certified respirator. The respirator is used in compliance with the conditions of its certification.
- 4.13. The Company identifies and evaluates the respiratory hazard(s) in the workplace. This evaluation will include a reasonable estimate of employee exposures to respiratory hazard(s) and an identification of the contaminant's chemical state and physical form. Where the Company cannot identify or reasonably estimate the employee exposure, the employer will consider the atmosphere to be IDLH.
- 4.14. The Company selects respirators from a sufficient number of respirator models and sizes so that the respirator is acceptable to, and correctly fits, the user.
- 4.15. The employer provides the following respirators for employee use in IDLH atmospheres:
  - 4.15.1. A full facepiece pressure demand SCBA certified by NIOSH for a minimum service life of thirty minutes, or
  - 4.15.2. A combination full facepiece pressure demand supplied-air respirator (SAR) with auxiliary self-contained air supply.
  - 4.15.3. Respirators provided only for escape from IDLH atmospheres will be NIOSH-certified for escape from the atmosphere in which they will be used.

4.16. All oxygen-deficient atmospheres will be considered IDLH, except if the Company can demonstrate that, under all foreseeable conditions, the oxygen concentration can be maintained within the ranges specified in the table at right (for the altitudes set out in the table at right), then any atmosphere-supplying respirator may be used.

4.17. The Company provides a respirator that is adequate to protect the health of the employee and ensure compliance with all other OSHA statutory and regulatory requirements, under routine and reasonably foreseeable emergency situations.

TABLE II	
Altitude (ft.)	Oxygen deficient Atmospheres (% O <sub>2</sub> ) for which the employer may rely on atmosphere-supplying respirators
Less than 3,001 .....	16.0–19.5
3,001–4,000 .....	16.4–19.5
4,001–5,000 .....	17.1–19.5
5,001–6,000 .....	17.8–19.5
6,001–7,000 .....	18.5–19.5
7,001–8,000 <sup>1</sup> .....	19.3–19.5

<sup>1</sup> Above 8,000 feet the exception does not apply. Oxygen-enriched breathing air must be supplied above 14,000 feet.

4.18. The Company does not permit respirators with tight-fitting face pieces to be worn by employees who have:

4.18.1. Facial hair that comes between the sealing surface of the facepiece and the face or that interferes with valve function; or

4.18.2. Any condition that interferes with the face-to-facepiece seal or valve function.

4.19. If an employee wears corrective glasses or goggles or other personal protective equipment, the Company will ensure that such equipment is worn in a manner that does not interfere with the seal of the facepiece to the face of the user.

4.20. For all tight-fitting respirators, the Company ensures that employees perform a user seal check each time they put on the respirator using safety procedures in 29 CFR 1910.146 Appendix B-1 or procedures recommended by the respirator manufacturer that the employer demonstrates are as effective as those in Appendix B-1.

4.21. Appropriate surveillance is maintained of work area conditions and degree of employee exposure or stress.

4.22. When there is a change in work area conditions or degree of employee exposure or stress that may affect respirator effectiveness, the Company reevaluates the continued effectiveness of the respirator.

4.23. The Company ensures that employees leave the respirator use area:

4.23.1. To wash their faces and respirator face pieces as necessary to prevent eye or skin irritation associated with respirator use; or

4.23.2. If they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the face piece; or

4.23.3. To replace the respirator or the filter, cartridge, or canister elements.

4.24. If the employee detects vapor or gas breakthrough, changes in breathing resistance, or leakage of the face piece, the Company must replace or repair the respirator before allowing the employee to return to the work area.

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- 4.25. For all IDLH atmospheres, Cleveland Integrity Services will ensure that:
  - 4.25.1. One employee or, when needed, more than one employee is located outside the IDLH atmosphere;
  - 4.25.2. Visual, voice, or signal line communication is maintained between the employee(s) in the IDLH atmosphere and the employee(s) located outside the IDLH atmosphere;
  - 4.25.3. The employee(s) located outside the IDLH atmosphere are trained and equipped to provide effective emergency rescue;
  - 4.25.4. The Company representative or designated supervisor is notified before the employee(s) located outside the IDLH atmosphere enter the IDLH atmosphere to provide emergency rescue; and
  - 4.25.5. The representative or designated supervisor authorized to do so by the Company, once notified, provides necessary assistance appropriate to the situation.
- 4.26. Employee(s) located outside IDLH atmospheres are equipped with:
  - 4.26.1. Pressure demand or other positive pressure SCBAs, or a pressure demand or other positive pressure supplied-air respirator with auxiliary SCBA; and either
  - 4.26.2. Appropriate retrieval equipment for removing the employee(s) who enter(s) these hazardous atmospheres where retrieval equipment would contribute to the rescue of the employee(s) and would not increase the overall risk resulting from entry; or
  - 4.26.3. Equivalent means for rescue where retrieval equipment is not required.
- 4.27. Appropriate surveillance is maintained of work area conditions and degree of employee exposure or stress. When there is a change in work area conditions or degree of employee exposure or stress that may affect respirator effectiveness, the Company will reevaluate the continued effectiveness of the respirator.

## **5. Maintenance & Care of Respirators**

- 5.1. The Company provides for the cleaning and disinfecting, storage, inspection, and repair of respirators used by employees.
- 5.2. The Company provides each respirator user with a respirator that is clean, sanitary, and in good working order. The Company ensure that respirators are cleaned and disinfected using procedures required by OSHA, or procedures recommended by the respirator manufacturer, provided that such procedures are of equivalent effectiveness.

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- 5.3. The respirators are cleaned and disinfected at the following intervals:
  - 5.3.1. Respirators issued for the exclusive use of an employee will be cleaned and disinfected as often as necessary to be maintained in a sanitary condition;
  - 5.3.2. Respirators issued to more than one employee will be cleaned and disinfected before being worn by different individuals;
  - 5.3.3. Respirators maintained for emergency use are cleaned and disinfected after each use; and
  - 5.3.4. Respirators used in fit testing and training are cleaned and disinfected after each use.
- 5.4. The Company ensures that all respirators are stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals, and they will be packed or stored to prevent deformation of the face piece and exhalation valve.
- 5.5. Additionally, emergency respirators are:
  - 5.5.1. Kept accessible to the work area;
  - 5.5.2. Stored in compartments or in covers that are clearly marked as containing emergency respirators; and
  - 5.5.3. Stored in accordance with any applicable manufacturer instructions.
- 5.6. The Company ensures that respirators are inspected as follows:
  - 5.6.1. All respirators used in routine situations are inspected before each use and during cleaning;
  - 5.6.2. All respirators maintained for use in emergency situations are inspected at least monthly and in accordance with the manufacturer's recommendations, and will be checked for proper function before and after each use; and
  - 5.6.3. Emergency escape-only respirators are inspected before being carried into the workplace for use.
- 5.7. The Company ensures that respirator inspections include the following:
  - 5.7.1. A check of respirator function, tightness of connections, and the condition of the various parts including, but not limited to, the facepiece, head straps, valves, connecting tube, and cartridges, canisters or filters; and
  - 5.7.2. A check of elastomeric parts for pliability and signs of deterioration.

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- 5.8. In addition to other requirements of this program, self-contained breathing apparatus are inspected monthly. Grade D air cylinders are maintained in a fully charged state and are recharged when the pressure falls to 90% of the manufacturer's recommended pressure level. The Company determines that the regulator and warning devices function properly.
- 5.9. For respirators maintained for emergency use, the Company will:
  - 5.9.1. Certify the respirator by documenting the date the inspection was performed, the name (or signature) of the person who made the inspection, the findings, required remedial action, and a serial number or other means of identifying the inspected respirator; and
  - 5.9.2. Provide this information on a tag or label that is attached to the storage compartment for the respirator, is kept with the respirator, or is included in inspection reports stored as paper or electronic files. This information is maintained until replaced following a subsequent certification.

## **6. Selection of Respirators**

- 6.1. Respirators are selected and approved by management. The selection is based upon the physical and chemical properties of the air contaminants and the concentration level likely to be encountered by the employee.
- 6.2. The respirator program administrator will make a respirator available immediately to each employee who is placed as a new hire or as a transferee in a job that requires respiratory protection. Replacement respirators/pre-filters will be made available as required. The Respirator Program Administrator for Cleveland Integrity Services is the Company Safety Director.
- 6.3. Standard respirators currently approved by this Company are:
  - 6.3.1. 3M "EASI-AIR" 7200S -- Dual Cartridge Respirator
  - 6.3.2. 3M 8210 -- N95 Particulate Respirator
  - 6.3.3. MSA "COMFO II ELITE" 7-201 -- Dual Cartridge Respirator
  - 6.3.4. Gerson 1730 -- N95 Particulate Respirator
- 6.4. More than one hazard may exist for a given operation and more than one respirator could be used to protect against a number of different air contaminants. Correct respirator selection for each situation however, is a complex job.
- 6.5. Before proper respiratory protection can be assigned, we must consider the nature of the hazard, extent and limitations of respirators. It is important to select the right equipment for the job.
- 6.6. Evaluation of exposure to a toxic air-borne material necessitates:



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- 6.6.1. Identifying the type of contaminant (mist, dust, vapor, gas, and fume).
- 6.6.2. Logging the name of the contaminant.
- 6.6.3. Listing pertinent physical and chemical properties (LEL, Flash Point, etc.)
- 6.6.4. Estimating or monitoring the concentration of the contaminant in the breathing zone and immediate work area.
- 6.6.5. Noticing the Threshold Limit Value (TLV) -- both OSHA and ACGIH recommended levels.
- 6.6.6. Comparing the surveyed levels to the recommended exposure limits. (Ceiling, short term, time-weighted average).
- 6.6.7. Noting odor threshold, IDLH level, warning properties and if contaminant is an eye irritant.
- 6.6.8. Evaluating whether the contaminant can be trapped by a given sorbent efficiently; or would react with filter media.
- 6.6.9. Recording if the contaminant may cause systemic poisoning by absorption through the skin.
- 6.7. The toxicology of a given contaminant can be assessed when all information outlined above is evaluated on a respirator selection work sheet.
- 6.8. The overall protection afforded by a given respirator design (and mode of operation) may be defined in terms of its assigned protection factor (APF). The APF is a measure of the degree of protection afforded by a respirator, defined as the ratio of the concentration of contaminant in the ambient atmosphere to that inside the enclosure (usually inside the face piece) under conditions of use.
- 6.9. Respirators should be selected so that the concentration inhaled and the APFs are selection and use guides. These guides should only be used when the employer has established a minimal acceptable respirator program as defined in Section 3 of the ANSI Z88.2-1969 Standard.
- 6.10. In addition to face pieces, this includes any type of enclosure or covering of the wearer's breathing zone, such as supplied-air hoods, helmets or suits.
- 6.11. Review should include dusts, mists, and fumes only. Consideration does not apply when gases or vapors are absorbed on particulates and may be volatilized or for particulates volatile at room temperature. Example: coke oven emissions.
- 6.12. Review also should be given to any single-use dust respirator (with or without valve) not specifically tested against a specified contaminant.

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- 6.13. Dust filter refers to a dust respirator and includes all types of media -- that is, both non-degradable mechanical type media and degradable resin- impregnated wool felt or combination wool-synthetic felt media.
- 6.14. Fume filter refers to a fume respirator approved by the lead fume test. All types of media are included.
- 6.15. High-efficiency filter refers to a high-efficiency particulate respirator filter with at least 99.9% efficiency against 0.3 microns in accordance with NIOSH specifications.
- 6.16. For gases and vapors, an APF should only be assigned when published test data indicate the cartridge or canister has adequate sorbent efficiency and service life for a specific gas or vapor. In addition, the APF should not be applied in gas or vapor concentrations that are: (1) immediately dangerous to life, (2) above the lower explosive limit, and (3) cause eye irritation when using a half mask.
- 6.17. A positive pressure supplied-air respirator equipped with a half-mask face piece may not be as stable on the face as a full-face piece. Therefore, the APF recommended is half that for a similar device equipped with a full-face piece.
- 6.18. A positive pressure supplied-air respirator equipped with a full-face piece provides eye protection but is not approved for use in an atmosphere that is immediately dangerous to life.
- 6.19. The design of the supplied-air hood, suit, or helmet (with a minimum of 170 liters/min. of air) may determine its overall efficiency and protection. For example, when working with the arms over the head, some hoods draw the contaminant into the hood-breathing zone. This may be overcome by wearing a short hood under a coat or overalls. Other limitations specified by the approval agency must be considered before using in certain types of atmospheres.
- 6.20. The SCBA operated in the positive pressure mode has been tested and the face piece recorded as < 0.01% penetration. Therefore, a PF of 1,000 + is recommended. At this time, the lower limit of detection 0.01% does not warrant listing a higher number. A positive pressure SCBA for an unknown concentration is recommended. This is consistent with the 1,000 + that is listed. It is essential to have an emergency device for use in unknown concentrations. A combination supplied-air respirator in pressure-demand or other positive pressure mode, with auxiliary self-contained air supply, is also recommended for use in unknown concentrations of contaminants immediately dangerous to life. Other limitations, such as skin absorption of HCN or tritium, must be considered.
- 6.21. The protection a respirator may provide for a worker is dependent upon his type of unit and the fit. A respirator protection factor is an indicator of how much protection a respirator may provide. The factor is the ratio of the contaminant concentrations outside vs. inside the respirator,  $P = C/C$ . This is determined by quantitative testing. The general rule of thumb, however, says the protection factor is the approximate average effectiveness of a given respirator in qualitative tests with good face seal.

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Under normal operating conditions, the time-weighted average (TWA) concentration x protection factor = maximum concentration of a contaminant against which a particular type of respirator may be used.

- 6.22. For example: If an employee were spray painting with an enamel paint cut with toluol solvent and the measured TWA concentration was 200 ppm, and the TLV (ACGIH) is 100 ppm, then a half mask air purifying respirator with organic vapor trapping cartridges is satisfactory.

## **7. Work Area Monitoring**

- 7.1. To ensure the adequacy of a respiratory protection program, monitoring is conducted on exposure hazards as a basis to provide for a continuing healthful environment for employees. Personal sampling equipment may be used in accordance with accepted industrial hygiene standards to sample each work area. Results of these samples will pinpoint areas where respiratory protection is required. A "Job Description -- Respirator Specification" Form will also document what type of equipment should be worn for specific hazards present.

## **8. Cartridge Change Schedule**

- 8.1. Using the present available air monitoring data, cartridges are changed as follows:
  - 8.1.1. Organic vapor cartridges -- 1 time per week or when need for change is otherwise indicated

## **9. Medical Evaluation**

- 9.1. Using a respirator may place a physiological burden on employees that varies with the type of respirator worn, the job and workplace conditions in which the respirator is used, and the medical status of the employee. Accordingly, this program specifies the minimum requirements for medical evaluation that Cleveland Integrity Services will implement to determine the employee's ability to use a respirator.
- 9.2. The Company will provide a medical evaluation to determine the employee's ability to use a respirator, before the employee is fit tested or required to use the respirator in the workplace. The employer may discontinue an employee's medical evaluations when the employee is no longer required to use a respirator.
- 9.3. The Company identifies the physician or other licensed health care professional (PLHCP) to perform medical evaluations using a medical questionnaire or an initial medical examination that obtains the same information as the medical questionnaire.
- 9.4. The medical evaluation will obtain the information requested by the questionnaire required in this program.
- 9.5. The Company will ensure that a follow-up medical examination is provided for an employee who gives a positive response to any question among questions 1 through

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8 in Section 2 of the questionnaire, whose initial medical examination demonstrates the need for a follow-up medical examination.

- 9.6. The follow-up medical examination includes any medical tests, consultations, or diagnostic procedures that the PLHCP deems necessary to make a final determination.
- 9.7. The medical questionnaire and examinations are administered confidentially during the employee's normal working hours or at a time and place convenient to the employee. The medical questionnaire is administered in a manner that ensures that the employee understands its content.
- 9.8. The Company provides the employee with an opportunity to discuss the questionnaire and examination results with the PLHCP.
- 9.9. Each employee required to wear a respirator will fill out a Medical Evaluation Questionnaire.
- 9.10. The Medical Evaluation Questionnaire is read by a PLHCP. If the PLHCP determines a follow-up examination is necessary, the employee will make themselves available, during regular business hours, for the follow-up examination. Once the PLHCP has performed all the required duties a written recommendation will be rendered by the PLHCP for the type of respirator which can be worn.

## **10. Limitations and Surveillance**

- 10.1. Employees should be physically fit and able to perform job duties while wearing a respirator. If a physician determines that a worker has a severe cardiovascular or pulmonary dysfunction that would be aggravated by wearing a respirator; then by a written PLHCP opinion, that person is exempted from a job requiring the use of a respirator.
- 10.2. Conditions that may prevent a person from using an atmosphere supplying respirator may include:
  - 10.2.1. Emphysema
  - 10.2.2. Chronic pulmonary obstructive disease
  - 10.2.3. X-ray evidence of pneumoconiosis
  - 10.2.4. Coronary artery disease
  - 10.2.5. Heart attack
  - 10.2.6. Bronchial asthma
  - 10.2.7. High blood pressure

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- 10.2.8. Epilepsy
  - 10.2.9. Diabetes
  - 10.2.10. Restrictive heart abnormalities
  - 10.2.11. Experiencing anxiety or any problems when wearing a respirator
  - 10.2.12. Open hole in the eardrum
- 10.3. Persons are not assigned to tasks requiring the use of respirators unless it has been determined that they are physically able to perform the work and use the equipment. A "yes" answer to any of the preceding questions would constitute a warning sign regarding the use of respirators. A medical opinion to confirm any of the above situations (answered "yes") should then be obtained. The respirator user's medical status should be reviewed periodically (for instance, annually).
- 10.4. No beards or facial hair should interfere with the sealing surfaces of any respirator. If respiratory protective equipment is required for a job, no beards or long sideburns will be allowed, as they will not permit a good face seal.
- 10.5. Contact lenses cannot be worn in an atmosphere that necessitates the use of respirators. No glasses may be worn with a full-face piece respirator, unless the face piece is fitted with an adapter.
- 10.6. Should a worker have exposure to certain toxic materials, periodic medical examinations such as urinalysis, blood chemistries, or bioassay may be required even though the employee wears the proper respiratory protective equipment.

## 11. Fit Testing

- 11.1. Before an employee may be required to use any respirator with a negative or positive pressure tight-fitting facepiece, the employee must be fit tested with the same make, model, style, and size of respirator that will be used. This section specifies the kinds of fit tests allowed, the procedures for conducting them, and how the results of the fit tests must be used.
- 11.2. The Company ensures that employees using a tight-fitting facepiece respirator pass an appropriate qualitative fit test (QLFT) or quantitative fit test (QNFT) as stated in this paragraph.
- 11.3. The Company ensures that an employee using a tight-fitting facepiece respirator is fit tested prior to initial use of the respirator, whenever a different respirator facepiece (size, style, model or make) is used, and at least annually thereafter.
- 11.4. The Company conducts an additional fit test whenever the employee reports, or the employer, PLHCP, supervisor, or program administrator makes visual observations of, changes in the employee's physical condition that could affect respirator fit. Such

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conditions include, but are not limited to, facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight.

- 11.5. If after passing a QLFT or QNFT, the employee subsequently notifies the Company, program administrator, supervisor, or PLHCP that the fit of the respirator is unacceptable, the employee is given a reasonable opportunity to select a different respirator facepiece and to be retested.
- 11.6. The fit test is administered using an OSHA-accepted QLFT or QNFT protocol.
- 11.7. QLFT may only be used to fit test negative pressure air-purifying respirators that must achieve a fit factor of 100 or less.
- 11.8. If the fit factor, as determined through an OSHA-accepted QNFT protocol, is equal to or greater than 100 for tight-fitting half facepieces, or equal to or greater than 500 for tight-fitting full facepieces, the QNFT has been passed with that respirator.
- 11.9. Fit testing of tight-fitting atmosphere-supplying respirators and tight-fitting powered air-purifying respirators will be accomplished by performing quantitative or qualitative fit testing in the negative pressure mode, regardless of the mode of operation (negative or positive pressure) that is used for respiratory protection.
- 11.10. Qualitative fit testing of these respirators is accomplished by temporarily converting the respirator user's actual facepiece into a negative pressure respirator with appropriate filters, or by using an identical negative pressure air-purifying respirator facepiece with the same sealing surfaces as a surrogate for the atmosphere-supplying or powered air-purifying respirator facepiece.
- 11.11. Quantitative fit testing of these respirators is accomplished by modifying the facepiece to allow sampling inside the facepiece in the breathing zone of the user, midway between the nose and mouth. This requirement will be accomplished by installing a permanent sampling probe onto a surrogate facepiece, or by using a sampling adapter designed to temporarily provide a means of sampling air from inside the facepiece.
- 11.12. Any modifications to the respirator facepiece for fit testing is completely removed, and the facepiece restored to NIOSH-approved configuration, before that facepiece can be used in the workplace.

## **12. Implementation**

- 12.1. Employees required to wear a respirator must be fitted properly and tested for a face seal prior to use of the respirator in a contaminated area. Manufacturers provide fitting instructions and use limitations on the product packaging.
- 12.2. Qualitative fit testing is acceptable for most hazards in the work place. (Refer to OSHA standards for specific direction.)

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- 12.3. For a respirator to work effectively, it must fit well and feel comfortable. All the care that went into proper respirator selection will not protect the worker if the face piece does not fit properly. Fitting is most critical for self-contained breathing apparatus and respirators used in IDLH atmospheres.
- 12.4. There are two categories of fitting tests -- qualitative and quantitative.
- 12.4.1. Qualitative tests include:
- 12.4.1.1. Negative Pressure Test - Close off air inlet of canister, cartridge, or filter with palms, inhale gently so that the face piece collapses. Hold breath for 10 seconds, if the face piece remains slightly collapsed and no inward leakage is detected, the respirator probably has an adequate fit.
  - 12.4.1.2. Positive Pressure Test - Close off exhalation valve, exhale gently into the face piece. If a positive pressure can be built up inside the face piece without excess outward leakage, the fit is good. Take care not to disturb placement of the face piece by placing undue pressure on the mask with hand.
  - 12.4.1.3. Banana Oil Testing - A worker is subjected to isoamyl acetate vapor (banana oil) adjacent to sealing surfaces of the respirator face piece. If there is a detectable odor inside the mask, then the face piece should be refitted in clean air; and the test repeated, switching respirators if necessary, until a fit is made.
  - 12.4.1.4. Irritant Smoke Test - Stannic chloride is impregnated on pumice in glass tubes. When the tube ends are broken, irritant smoke is released. The tester puffs smoke towards the wearer from increasingly shorter distances until the tube is within about 6 inches of the respirator, where the smoke is then directed toward potential sources of leakage. At this point, if no leakage has been detected, the wearer may cautiously begin various head movements to simulate use in particular job. This test has an advantage in that the wearer usually reacts involuntarily to leakage by coughing or sneezing. If there is a reaction, stop producing smoke immediately. The irritant smoke test is valid for testing both air-purifying and atmosphere-supplying respirators; but an air-purifying respirator must have high efficiency filters.
- 12.4.2. Quantitative test uses instruments to measure (quantify) the amount of test chemical outside vs. inside of the respirator. This type of test expresses the amount of leakage as a percentage of the challenge atmosphere outside of the mask. This test is excellent when face piece leakage must be minimized for work in IDLH atmospheres. A quantitative test may be required when

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employees are exposed to chemical agents like acrylonitrile, benzene, coal tar pitch volatiles or vinyl chloride.

- 12.5. When fitting any face piece, the head straps must be comfortable. Tightening the straps will sometimes reduce leakage, but the wearer may be unable to tolerate the respirator for any length of time; thus, invalidating the fitting test for a normal job routine.

### 13. Types of Respiratory Protective Equipment and Their Uses

- 13.1. There are three categories of respirators: air purifying, atmosphere supplying and combination respirators.

#### 13.1.1. Air purifying

- 13.1.1.1. Single Use Disposal Dust Mask or Filter -- This mask protects against dusts and mists having a TLV not less than .05 mg/m<sup>3</sup> or 2.0 mppcf. The respirator has a disposal filter and elastic straps for comfort and tight fit.
- 13.1.1.2. Half Mask Respirator for Dust, Mist Fumes -- The respirator covers the mouth and nose and is provided with flexible straps and is either totally disposal or has replaceable cartridges. Not for use in concentrations greater than 10 x TLV.
- 13.1.1.3. Half Mask Respirator for Gases and Vapors -- The half mask chemical cartridge respirator has a rubber facepiece flexible straps, exhalation port and element holders. Screw in cartridges is available for protection against most gases and vapors.
- 13.1.1.4. Emergency Escape Respirator -- This mouthpiece-type respirator offers protection against low concentrations of gases or vapors or may be used for escape from hazardous atmosphere if the chemical cartridge will absorb the contaminant.

#### 13.1.2. Atmosphere supplying

- 13.1.2.1. Escape Air Supplied Respirator -- This device is used for escape only from hazardous atmospheres. The respirator's plastic hood is for fresh air from a pack placed behind the neck.
- 13.1.2.2. Airline Respirator -- Air under pressure is fed to either a larger more flexible hose or regulator where the pressure reduced, and the breathing air delivered to a flexible face piece. Types: demand and continuous flow pressure demand.



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- 13.1.2.3. Airline Respirator with Self-contained Escape Cylinder -- This unit is similar to the airline respirator and includes a small compressed air bottle with regulator to provide breathable air for work in, and escape from, IDLH atmosphere.\
- 13.1.2.4. Self-Contained Breathing Apparatus (SCBA) -- Demand and pressure demand SCBA units are used in operations for hazardous work or rescue. The SCBA equipment includes a compressed air cylinder, regulator, flexible hose to a full face piece, and shoulder harness.
- 13.1.2.5. Abrasive Blasting Hood -- A helmet and protection apron fed by air from a compressor or cascade of cylinders that is used for protection in sandblasting and may be fitted with a vortex tube to assist in cooling worker.
- 13.1.3. Airline respirator with escape bottle -- The airline respirator with full face piece in the pressure- demand mode is designed for use in atmospheres immediately dangerous to life or health when used with an approved emergency escape system. With the potential hazards involved when using this respirator, it is imperative that this type of equipment be inspected before and after each use.
  - 13.1.3.1. Before entry into a hazardous area, check the following:
    - 13.1.3.1.1. Hose length to the escape unit from a compressor or bottle cascade system should be adequate to perform all types of work, but not greater than 300 feet.
    - 13.1.3.1.2. All connections should be tight and free of leaks. Rubber hose from the face piece to the regulator and hand disconnect union should be hand tight only.
    - 13.1.3.1.3. The face piece and all hoses should be free of cracks and the regulators functioning normally at recommended pressures.
    - 13.1.3.1.4. The air pressure in the emergency escape bottle should be approximately 2100 pounds per square inch (PSI).
    - 13.1.3.1.5. Face seal on respirator should be good by using negative pressure test.
    - 13.1.3.1.6. Make sure the respirator works properly before entering a contaminated area.

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- 13.1.3.2. When using an airline respirator with an emergency escape bottle:
  - 13.1.3.2.1. Never over-pressure the regulator.
  - 13.1.3.2.2. The bottle should be used for escape from a hazardous atmosphere. Do not breathe from the bottle during normal work. Do not turn on the air supply from the bottle except to escape from a hazardous area, if the main air supply has been cut off.
  - 13.1.3.2.3. After the escape cylinder has been used or the air pressure is below the recommended level (2100 PSI), the foreman at the job site should be notified and the foreman should then see that this equipment is refilled with certified breathing air.
  - 13.1.3.2.4. Exposure to high levels of contaminants requires that all exposed skin be properly protected.
- 13.1.4. Self-contained breathing apparatus -- Self-contained breathing apparatus (SCBA) should be used for emergencies like clean-up of a large spill, firefighting, or rescue from a hazardous area. The equipment must be checked before and after each use and at least monthly. Routine inspection of this equipment assures that it will be ready for use in an emergency.
  - 13.1.4.1. Thirty (30) minute SCBA units provide protection against most airborne agents and are an excellent back-up system when tank cleaning, vessel entry or breaking into lines is done with airline-SCBA equipment.
  - 13.1.4.2. Before Using Any SCBA Equipment:
    - 13.1.4.2.1. Inspect the connections for tight fit and possible leaks.
    - 13.1.4.2.2. Inspect all parts of the respirator for damage or excessive wear. Check low air pressure alarm.
    - 13.1.4.2.3. Check the air pressure in the cylinder, it should read approximately 2100 PSI, and check the air flow to the face piece.
    - 13.1.4.2.4. Make sure you can get a good face seal. Use the negative pressure fitting test to check the fit. Do not wear this apparatus if you have a beard, long side burns or wear glasses.

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13.1.4.2.5. Be sure you have been properly instructed before using this equipment.

13.1.4.3. When Using SCBA Equipment:

13.1.4.3.1. Do not attach the hose from the respirator face piece until you are ready to enter the contaminated area. This will conserve the air supply in the cylinder.

13.1.4.3.2. If the alarm bell rings, signaling a lowered air supply, LEAVE THE CONTAMINATED AREA AT ONCE!

13.1.4.3.3. If air flow is insufficient for any reason, turn on the bypass valve to increase air flow to the face piece and leave the area immediately. Do not return to the hazardous area until the equipment is repaired or a new SCBA unit is issued.

13.1.4.4. After Using SCBA Equipment:

13.1.4.4.1. Close all valves and then de-pressure the hose through the by-pass valve.

13.1.4.4.2. Tell the foreman that the cylinder has been discharged. The foreman should then see that the cylinder is properly charged with certified breathing air.

13.1.4.4.3. This equipment should be inspected, tagged and properly stored to protect against damage and to insure ready use.

## 14. Emergencies and Special Operations

14.1. Self-contained breathing apparatus may be required in specific areas for emergency use. This equipment is used only by trained personnel when it is necessary to enter hazardous atmospheres. The following points should be considered:

14.1.1. All potential users are fully trained in the use of this equipment.

14.1.2. When the equipment is used, it is tested in an uncontaminated atmosphere prior to entering the hazardous area if possible.

14.1.3. An employee will not work with this apparatus in a hazardous atmosphere on an individual basis. At least one additional employee suitably equipped with a similar breathing apparatus must be in contact with the first employee and must be available to render assistance if necessary.

14.1.4. This equipment is inspected monthly by trained department or group personnel.

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- 14.2. There are certain situations where only one type of respiratory protection should be considered. For firefighting and rescue from a hazardous atmosphere only self-contained breathing apparatus is acceptable. In confined spaces with IDLH atmospheres only SCBA, airline with escape bottle or other approved equipment should be used.
- 14.3. Emergencies, such as explosion and fire, release of high concentrations of toxic gas or vapor, and rescue are discussed at those locations where incidents occur.
- 14.4. Special operations like tank cleaning, tower maintenance, turnarounds, clean up of large spills, etc., and the use of appropriate respirators, are covered by safety personnel, superintendents or foremen.
- 14.5. Before entering areas that could be oxygen deficient or have chemical contaminants of unknown concentration, the work environment should be monitored with available equipment to determine exposure levels. If the proper equipment is not on hand or special monitoring is required, contact the Site Supervisor or the Company Safety Coordinator; if unavailable and on a client's work location, contact the client's safety personnel.

## 15. Additional Respirator Information

### 15.1. Canister Gas Masks

- 15.1.1. Some operations require the use of canister masks to protect against chemical contaminants. This equipment is designed to filter harmful chemical agents from the air; however, this is not multi-purpose equipment and will not afford protection for all exposures.
- 15.1.2. Each gas mask canister is made for protection from a certain agent or group of agents with similar properties. The manufacturer's instructions for proper use should be followed carefully.
- 15.1.3. Gas masks are not used if any of the following conditions exists:
  - 15.1.3.1. Oxygen content in work area is below 19.5%.
  - 15.1.3.2. If contaminant concentrations are unknown or are likely to be very high.
  - 15.1.3.3. If the atmosphere has been determined to be immediately dangerous to life or health (IDLH).
  - 15.1.3.4. If any chemical agent in the work area has poor odor warning properties or is odorless like carbon monoxide.
  - 15.1.3.5. If the gas mask is not effective in filtering the chemical agent, i.e. H<sub>2</sub>S - hydrogen sulfide.

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15.1.4. If gas masks are used, then canisters must be used prior to the expiration date.

15.1.5. Wearer must leave the contaminated area if:

15.1.5.1. Any odor is detected within mask, or

15.1.5.2. The canister is noticeably causing an increase in breathing resistance.

15.1.6. Gas mask canisters are changed after each use.

15.1.7. All instructions for proper use are followed.

## **16. Maintenance & Care of Respirators**

16.1. The following points should be considered for respirator inspection and maintenance:

16.1.1. The wearer of a respirator inspects it daily whenever it is in use.

16.1.2. The supervisor, foreman, or group leader periodically spot checks respirators for fit, usage, and condition.

16.1.3. Respirators not discarded after one shift use are cleaned on a daily basis, according to the manufacturer's instructions, by the assigned employee or other person designated by the respirator program coordinator.

16.1.4. Respirators not discarded after one shift use, are stored in a suitable container away from areas of contamination.

16.1.5. Whenever feasible, respirators not discarded after one shift use, are marked or stored in such a manner to assure that they are worn only by the assigned is be cleaned between uses.

16.2. Maintenance of respiratory protective equipment is essential to the overall effectiveness of the program. Wearing a poorly maintained or malfunctioning respirator could be more hazardous than not having any respirators available. A worker wearing a defective respirator thinks (s)he is fully protected when, in reality, (s)he may not be.

16.3. Emergency equipment must be maintained routinely. Self-contained breathing apparatus is generally used in the most hazardous and demanding circumstances; wearing a defective unit could have lethal results.

16.4. Equipment should be repaired by trained personnel or the manufacturer. Only designated replacement parts are used when assembling respirators. Substitution of parts from a different brand or type of respirator invalidates approval of the device. All respiratory protective equipment is cleaned and disinfected. For most respirators, hot soap and water and a hot rinse is adequate. Manufactured disinfectant solutions aid in sterilization. Respirators used in atmospheres immediately dangerous to life or health or for emergencies or rescue are cleaned after each use.

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- 16.5. Respirators are stored to protect against dust, sunlight, heat, extreme cold, high humidity, corrosive conditions and contamination. Respirators are protected and stored in a sealed plastic bag in a metal cabinet. If equipment is issued to an employee, it is his/her responsibility to keep it clean and store it in the proper manner.
- 16.6. Emergency equipment should be readily available for use, not under lock and key, and strategically placed for ready access in an emergency.
- 16.7. All respirators are inspected to check for tightness of the connections, fit of component parts and adjustment of straps on the face piece as follows:
  - 16.7.1. Air purifying - when inspecting this type of respirator, be sure to check the head straps for wear and cracks; face piece for broken element holders or split lens, sealing of exhalation valve, and air purifying elements for correct type, expiration date, gasket seal, and previous use. Reusable air purifying respirators should be inspected before and after each use.
  - 16.7.2. Atmosphere supplying - although units differ in construction, examination should include: a check of head straps and face piece, condition of lines or hoses and connections, and inspection of regulators, valve, cylinders and warning alarms. Most important- respirators for emergency use should be inspected monthly; and the person initializing the record tag should make certain that the SCBA equipment is in good working order. Atmosphere supplying equipment not used routinely should be inspected after use before it is put back into service.

## **17. Breathing Air Quality and Use**

- 17.1. This section assures that breathing air for atmosphere supplied-air respirators is of high quality. When supplied-air is used the following are required:
  - 17.1.1. Compressed breathing is Type 1 - Grade D as described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989.
  - 17.1.2. Compressors used to supply breathing air are constructed and situated to prevent entry of contaminated air into the air-supply system, minimize moisture, have suitable in-line air filters, have a tag on the filter showing last date changed and signature of person changing filter.
  - 17.1.3. Oil lubricated compressors will have a high temperature alarm or CO alarm, or both. If only a high temperature alarm is used, the air supply is monitored at intervals sufficient to prevent CO in the breathing air from exceeding 10 PPM.
  - 17.1.4. Breathing airline couplings will be incompatible with non-respirable worksite air or gas systems. No asphyxiating substances are introduced into the breathing air system.

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17.1.5. Pure oxygen is not used in breathing air cylinders or systems.

## **18. Identification of Filters, Cartridges, and Canisters**

18.1. All filters, cartridges and canisters used in the workplace are labeled and color coded with the NIOSH approved label and that label is not removed and will remain legible.

## **19. Employee Training and Information**

19.1. Cleveland Integrity Services provides effective training to employees who are required to use respirators. The training must be comprehensive and understandable. This includes providing basic information on respirators to employees who wear respirators when not required by OSHA or the Company to do so.

19.2. Additionally, employees who use respirators are retrained annually, and also in the event of any of the following:

19.2.1. There are changes in the workplace or the type of respirator being used that contradict or make obsolete previous training;

19.2.2. Observation or evaluation is made that indicate an employee's knowledge or use of a respirator is not in accordance with program requirements, or the individual has not retained the required training information, knowledge or skills; or

19.2.3. Some other situation arises that indicates the need for retraining to ensure that employees are using respiratory equipment safely and in accordance with program requirements.

19.3. Regarding training objectives and requirements, each employee must demonstrate knowledge of at least the following:

19.3.1. Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator;

19.3.2. What the limitations and capabilities of the respirator are;

19.3.3. How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions;

19.3.4. How to inspect, put on and remove, use, and check the seals of the respirator;

19.3.5. What the procedures are for maintenance and storage of the respirator;

19.3.6. How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators; and

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- 19.3.7. The general requirements of OSHA and the Company's safety program regarding safe use of respirators.
- 19.4. Each employee, upon assignment to an area requiring respirators, must be instructed by his superintendent, supervisor, foreman, or group leader relative to their responsibilities in the respiratory program. They are instructed in need, use, limitations, and care of their respirator(s).
- 19.5. There are basic components of training that are common to both workers and supervisors. Each person must have an opportunity to handle the respirator, check different fitting techniques, test face piece-to-face seal, and to wear the respirator in normal air prior to starting a job. In addition, there should be a discussion of engineering and administrative controls in use, and why respirators also are needed. The nature of the respiratory hazard and what happens if the respirator is not worn, or used improperly should be explained.
- 19.6. Employees are informed why a particular type of respirator has been selected and how to use respirators in emergencies and special operations.
- 19.7. Supervisors who oversee the daily activities of workers who wear respirators should be familiar with the following:
- 19.7.1. Work requirements and conditions necessitating the use of respirator protective equipment. These may include:
- 19.7.1.1. Time of exposure to a contaminant
  - 19.7.1.2. The activity and mobility of the worker
  - 19.7.1.3. Eye protection needed
  - 19.7.1.4. Temperature extremes
  - 19.7.1.5. Face piece-to-face seal of various types of equipment
  - 19.7.1.6. Nature and extent of hazards to which a worker may be exposed.
  - 19.7.1.7. Type of contaminant and its concentration
  - 19.7.1.8. Acute (short term) or chronic (long term) exposure potential
  - 19.7.1.9. The general operation of the program; maintenance and inspection of equipment, issuance of respirators, and control of their use.
  - 19.7.1.10. Legal requirements pertinent to the use of respirators in a capacity as supervisor.



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- 19.8. A Supervisor can get help and information from the Respirator Training Guide, Safety Data Sheets, or the Safety Director.
- 19.9. Since the worker is directly exposed to contaminants, he/she must know:
  - 19.9.1. The nature of the hazard and what might happen if a selected respirator is not worn.
  - 19.9.2. What control measures are being considered in addition to wearing personal protective equipment?
  - 19.9.3. Why a particular respirator was selected for that job?
  - 19.9.4. The limitations of a specific respirator.
  - 19.9.5. How to use any respirator assigned to him/her and to adjust the unit for a proper fit.
  - 19.9.6. Maintenance, storage and cleaning of respirators.
  - 19.9.7. How to recognize an emergency and use the proper equipment.
- 19.10. The supervisor provides training with help from the Safety Coordinator.
- 19.11. The most effective respiratory protective equipment is that equipment which is worn. The best way to ensure that the respirators will be worn is to handle objections to wearing the equipment. The worker must be motivated to wear the respirator by instilling in him the desire and need to wear the proper equipment. If objections to fit, size, type, etc., are handled, then there is a greater likelihood that the worker will wear the respirator provided.

## 20. Program evaluation

- 20.1. Cleveland Integrity Services conducts evaluations of the workplace to ensure that the written respiratory protection program is being properly implemented, and to consult employees to ensure that they are using the respirators properly.
- 20.2. The Company conducts evaluations of the workplace as necessary to ensure that the provisions of the current written program are being effectively implemented and that it continues to be effective.
- 20.3. The Company regularly consults employees required to use respirators to assess the employees' views on program effectiveness and to identify any problems. Any problems that are identified during this assessment will be corrected. Factors to be assessed include, but are not limited to:
  - 20.3.1. Respirator fit (including the ability to use the respirator without interfering with effective workplace performance);

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- 20.3.2. Appropriate respirator selection for the hazards to which the employee is exposed;
- 20.3.3. Proper respirator use under the workplace conditions the employee encounters; and
- 20.3.4. Proper respirator maintenance.

## 21. Recordkeeping

- 21.1. The Company has established and retained written information regarding medical evaluations, fit testing, employee training and the respirator program. This information facilitates employee involvement in the respirator program, assist the employer in auditing the adequacy of the program, and provide a record for compliance determinations by OSHA.
- 21.2. Records of medical evaluations required by this section are retained and made available in accordance with 29 CFR 1910.1020.
- 21.3. The employer establishes a record of the qualitative and quantitative fit tests administered to an employee including:
  - 21.3.1. The name or identification of the employee tested;
  - 21.3.2. Type of fit test performed;
  - 21.3.3. Specific make, model, style, and size of respirator tested;
  - 21.3.4. Date of test; and
  - 21.3.5. The pass/fail results for QLFTs or the fit factor and strip chart recording or other recording of the test results for QNFTs.
- 21.4. Fit test records are retained for respirator users until the next fit test is administered.
- 21.5. A written copy of the current respirator program is retained by the Safety Coordinator.
- 21.6. Written materials required to be retained under this program are made available upon request to affected employees and to the Assistant Secretary or designee for examination and copying.

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Applicable References: OSHA 29 CFR 1910.180, 1926.251, 1926.550; ASME B30.5-2004

## 1. Purpose & Scope

- 1.1. This program is intended to provide Cleveland Integrity Services personnel with a guideline for the safe operation, use and inspection of mobile cranes and hoists.
- 1.2. This policy applies to wheel mounted cranes of both truck and self-propelled wheel type, and any variations thereof that retain the same fundamental characteristics used at company-controlled work locations where company employees are performing work.

## 2. Definitions

- 2.1. *Accessory* -- A secondary part or assembly of parts which contributes to the overall function and usefulness of a machine.
- 2.2. *Angle Indicator* -- An accessory, generally mounted on the boom, which measures the angle of the boom to the horizontal.
- 2.3. *Axis of Rotation* -- The vertical axis around which the crane superstructure rotates.
- 2.4. *Base* -- The traveling base or carrier on which the rotating superstructure is mounted such as a car, truck, crawlers, or wheel platform.
- 2.5. *Boom* -- The crane member hinged to the front of the rotating superstructure with the outer end supported by ropes leading to a gantry or A-frame and used for supporting the hoisting tackle.
- 2.6. *Boom Angle* -- The angle between the horizontal and longitudinal centerline of the boom. The boom longitudinal centerline is a straight line between the boom foot pin (heel pin) centerline and boom point sheave pin centerline.
- 2.7. *Boom Hoist* -- A hoist drum and rope reeving system used to raise and lower the boom. The rope system may be all live reeving or a combination of live reeving and pendants.
- 2.8. *Boom Stop* -- A device used to limit the angle of the boom at the highest position.
- 2.9. *Brake* -- A device used for retarding or stopping motion by friction or power means.
- 2.10. *Cab* -- A housing which covers the rotating superstructure machinery and/or operator's station. On truck-crane trucks a separate cab covers the driver's station.
- 2.11. *Clutch* -- A friction, electromagnetic, hydraulic, pneumatic, or positive mechanical device for engagement or disengagement of power.
- 2.12. *Counterweight* -- A weight used to supplement the weight of the machine in providing stability for lifting working loads.
- 2.13. *Crane Safe Work Permit* -- The permit issued by the Site Supervisor or Crane Competent Person at the job site to the crane operator before any mobile hoisting work is performed.
- 2.14. *Critical Lift* -- A lift where:
  - 2.14.1. The load exceeds 80% of the crane's capacity.

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- 2.14.2. Weight of the lift exceeds 50% of the load chart rating of the equipment being used and the lift is over power lines, process equipment, piping, or personnel are being lifted.
- 2.14.3. Two booms are required.
- 2.14.4. Poles or derricks have been erected.
- 2.14.5. Personnel are being lifted.
- 2.14.6. Crane is traveling with load.
- 2.14.7. Any lift in a Critical Lift Area.
- 2.15. *Designated* -- Means selected or assigned by the Company or a representative of the Company as being qualified to perform specific duties.
- 2.16. *Drum* -- Cylindrical members around which ropes are wound for raising and lowering the load or boom.
- 2.17. *Dynamic* -- Means loads introduced into the machine or its components by forces in motion for hoisting and lowering loads.
- 2.18. *Gantry* -- Structural frame, extending above the superstructure, to which the boom support ropes are reeved.
- 2.19. *Jib* -- An extension attached to the boom point to provide added boom length for lifting specified loads. The jib may be in line with the boom or offset to various angles.
- 2.20. *Load (working)* -- Means the external load, in pounds, applied to the crane, including the weight of load-attaching equipment such as load blocks, shackles, and slings.
- 2.21. *Load block [lower]* -- Means the assembly of hook or shackle, swivel, sheaves, pins, and frame suspended by the hoisting ropes.
- 2.22. *Load block [upper]* -- Means the assembly of hook or shackle, swivel, sheaves, pins, and frame suspended from the boom point.
- 2.23. *Load hoist* -- A hoist drum and rope reeving system.
- 2.24. *Load Ratings* -- Crane ratings in pounds established by the manufacturer.
- 2.25. *Locomotive Crane* -- Consists of a rotating superstructure with power-plant, operating machinery and boom, mounted on a base or car equipped for travel on railroad track. It may be self-propelled or propelled by an outside source. Its function is to hoist and swing loads at various radii.
- 2.26. *Mobile Hoisting Equipment* -- Conventional rigid boom cranes, hydraulic cranes, and flex-lifts.
- 2.27. *Outriggers* -- Extendable or fixed metal arms, attached to the mounting base, which rest on supports at the outer ends.
- 2.28. *Reeving* -- A rope system in which the rope travels around drums and sheaves.
- 2.29. *Rigging* -- Any cables, chokes, slings, hooks, beams, spreaders, or other device used to attach or lift the load.
- 2.30. *Rope* -- Refers to a wire rope unless otherwise specified.

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- 2.31. *Side Loading* -- A load applied at an angle to the vertical plane of the boom.
- 2.32. *Superstructure* -- The rotating upper frame structure of the machine and the operating machinery mounted thereon.
- 2.33. *Swing* -- Means the rotation of the superstructure for movement of loads in a horizontal direction about the axis of rotation.
- 2.34. *Swing Mechanism* -- The machinery involved in providing rotation of the superstructure.
- 2.35. *Tackle* -- Assembly of ropes and sheaves arranged for hoisting and pulling.
- 2.36. *Truck Crane* -- Consists of a rotating superstructure with power plant, operating machinery and boom, mounted on an automotive truck equipped with a power plant for travel. Its function is to hoist and swing loads at various radii.
- 2.37. *Wheel Mounted Crane* -- Consists of a rotating superstructure with power plant, operating machinery and boom, mounted on a base or platform equipped with axles and rubber-tired wheels for travel. The base is usually propelled by the engine in the superstructure, but it may be equipped with a separate engine controlled from the superstructure. Its function is to hoist and swing loads at various radii.
- 2.38. *Whipline* -- A separate hoist rope system of lighter load capacity and higher speed than provided by the main hoist.
- 2.39. *Winch Head* -- A power driven spool for handling of loads by means of friction between fiber or wire rope and spool.

### 3. **Safety & Operational Requirements**

#### 3.1. Operator Qualification & Training

- 3.1.1. Only qualified operators and trainees, and specific persons who are authorized by a supervisor, may enter the cab of a crane. All persons enter a crane cab only when their work-related duties require them to do so, and then only with the knowledge of the operator or other appointed individuals.
- 3.1.2. Only personnel who are trained and qualified in accordance with this program operate a crane in the course and scope of work for the Company. Cleveland Integrity Services has adopted crane operator requirements specified in ASME B30.5-2004. Provisions explained in this program are intended to coordinate with this ASME standard.
- 3.1.3. The crane operator operates only the specific type of crane(s) for which he or she is qualified under this program. The operator is qualified through the successful completion of classroom and hands-on training and a written examination.
- 3.1.4. Experienced crane operators beginning employment with the Company provide written documentation of successful completion of such training and examination, as well as any prior certification(s) and crane operations experience, before operating a crane at work.
- 3.1.5. The equipment may only be used for the manner in which it was designed.
- 3.1.6. Each crane operator:

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- 3.1.6.1. Demonstrates his or her ability to read, write, comprehend, and use arithmetic and a load/capacity chart, in the language of the crane manufacturer's operation and maintenance instruction materials;
  - 3.1.6.2. Successfully passes a written examination that covers operational characteristics; routine control skills; emergency control skills (such as response to fire, power line contact, loss of stability, or control malfunction); and characteristic and performance questions appropriate to the crane type for which qualification is being sought;
  - 3.1.6.3. Successfully completes a combination written and verbal test on load/capacity chart usage that covers a selection of the configurations for the crane type for which qualification is being sought;
  - 3.1.6.4. Completes, with a satisfactory grade, an operation test demonstrating proficiency in handling the specific crane type, including both prestart and post-start inspection, maneuvering skills, shutdown, and securing procedures; and
  - 3.1.6.5. Demonstrates understanding of the applicable sections of the B30 Standard and federal, state, and local requirements.
- 3.2. Qualified operators for a specific crane type are required to re-qualify if supervision deems it necessary. Re-qualification includes, but not be limited to:
- 3.2.1. Showing evidence of successfully passing a current physical examination in accordance with this program's medical qualification requirements;
  - 3.2.2. Successful completion of written, verbal and operational testing as specified for initial qualification of crane operators.
- 3.3. Crane operator trainees operate cranes only in accordance with training procedures established by the Company and under the direct observation of a designated, qualified operator.
- 3.4. Qualification requirements for each trainee include, but are not limited to:
- 3.4.1. Successfully passing a physical examination by a qualified medical provider in accordance with this program;
  - 3.4.2. Satisfactory completion of a written examination that covers safety, operational characteristics and limitations, and controls of the crane type for which qualification is being sought;
  - 3.4.3. Demonstrated ability to read, write, comprehend, and use arithmetic and a load/capacity chart, in the language of the crane manufacturer's operations and maintenance instruction materials;
  - 3.4.4. Satisfactory completion of a combination written and verbal test on the use of a load/capacity chart covering various crane configurations.

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- 3.5. Qualification of operators and trainees, as well as the re-qualification of operators, is performed by an individual designated by the Company who is qualified by experience and training to perform this function.

#### 4. **Medical Qualifications**

- 4.1. As part of the required physical examination by a qualified medical provider, crane operators and operator trainees must meet physical qualifications as specified below:
  - 4.1.1. Vision of at least 20/30 in one eye and 20/50 in the other, with or without corrective lenses;
  - 4.1.2. Ability to distinguish colors, regardless of position, if color differentiation is required;
  - 4.1.3. Hearing that is adequate to meet operational demands, with or without use of a hearing aid;
  - 4.1.4. Strength, endurance, agility, coordination and reaction speed that are sufficient to meet the operational demands of the work;
  - 4.1.5. Normal depth perception, field of vision, reaction time, manual dexterity, coordination, and no tendencies to dizziness or similar undesirable characteristics;
  - 4.1.6. A negative result for a substance abuse test, with the type and level of testing as specified by the Company based on standard practices for the industry where the crane is employed (with testing and collection of the sample(s) done in accordance with the Company's written substance abuse program, and analysis performed by a NIDA-certified laboratory);
  - 4.1.7. No evidence of having physical defects or emotional instability that could render a hazard to the operator or others, or that in the opinion of the examiner could interfere with the operator's performance; and
  - 4.1.8. No evidence of being subject to seizures or loss of physical control.
- 4.2. Exception to the above qualifications is considered by the Company if it can be demonstrated that failure to meet a specific qualification will not affect the operation of the crane. Such demonstration may require specialized clinical or medical judgments and tests.
- 4.3. Physical examination of each crane operator by a qualified medical provider is required every three years, or more frequently if Company supervision deems it necessary.

#### 5. **Responsibilities**

- 5.1. Site Supervisor -- The Site Supervisor or his or her designate is responsible for assuring that:
  - 5.1.1. Employees know, understand, and comply with the requirements of this policy.
  - 5.1.2. Employees are trained in the procedures and use of equipment they are to use to complete the job.
  - 5.1.3. Audit and inspect for compliance of this policy.

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- 5.1.4. Each crane is on a regular (daily, monthly, annual) inspection schedule.
- 5.1.5. Proofs of regular inspections using the checklist in this policy are available.
- 5.1.6. Rental or leased cranes have a valid annual certification sticker or other documents prior to the use of the cranes.
- 5.1.7. Competent, qualified operators are used when lifting.
- 5.1.8. A Crane Safe Work Permit is issued for the following:
  - 5.1.8.1. All lifts with cranes having a capacity greater than 10 tons.
  - 5.1.8.2. All critical lifts.
- 5.1.9. Joint responsibility with the crane operator for the safe operation of the crane(s) and the safety of the lift is maintained.
- 5.1.10. Failure to comply with this policy will result in disciplinary action, up to and including discharge.
- 5.2. Crane Operators -- The crane operator is responsible for:
  - 5.2.1. Knowing, understanding, and complying with this policy.
  - 5.2.2. Inspecting cranes on a daily basis and reporting defects noted during these inspections.
  - 5.2.3. Reporting any unsafe conditions to supervision.
  - 5.2.4. Knowing the weight of loads PRIOR to lifting.
  - 5.2.5. Knowing the wind speed PRIOR to lifting.
  - 5.2.6. Performing a daily inspection using the Daily Operators Inspection Report at the beginning of each days' work PRIOR to the crane use. Any deficiencies that affect the safe operations of the crane are repaired PRIOR to use. Each daily inspection report remains with the operator during the operation of the crane and turned in at the end of the work day.
  - 5.2.7. Perform a lifting job specific pre-task assessment using Operators Lift Pre-Task Safety Assessment for each lift.
  - 5.2.8. Insure the load, rigging, procedures, and lifts are safe to use. The operator is responsible for the load and lift when the crane is connected to the load. Do not load rigging equipment beyond its recommended safe load rating. Attach load identification to the rigging.
  - 5.2.9. When the rigging equipment is not in use, it should be removed from the work area to ensure the safety of workers at the site.
  - 5.2.10. Assume joint responsibility with the Site Supervisor for the safe operation of the crane(s) and the safety of the lift.
  - 5.2.11. Understand that failure to comply with this policy will result in disciplinary action, up to and including discharge.

## 6. General Requirements

### 6.1. Pre-Lift



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- 6.1.1. Manufacturer's lifting procedures and methods are observed at all times.
- 6.1.2. No modifications or additions which affect the capacity or safe operation of the equipment is made by Cleveland Integrity Services without the manufacturer's written approval. If such modifications or changes are made, the capacity, operation, and maintenance instruction plates, tags, or decals, are changed accordingly. In no case will the original safety factor of the equipment be reduced.
- 6.1.3. All cranes have a qualified competent operator. Unauthorized personnel may not ride on the equipment unless it is equipped to accommodate riders safely.
- 6.1.4. Inspect cranes when they arrive on site for mechanical integrity, load chart, operating manual and annual certification decal/sticker. The load rating chart is substantial and durable, with clearly legible letters and figures. A copy of the manufacturer's load rating chart is maintained in each crane, securely fixed to the crane cab in a location that is easily visible to the operator while seated at the control station. The load rating chart is not removed from the crane cab.
- 6.1.5. The crane operator must complete an Operator's Lift Pre-Task Assessment and Mobile Hoisting Safe Work Procedure PRIOR to lifting.
- 6.1.6. Rated load capacities, recommended operating speeds, special hazard warnings, or instructions are in a conspicuous place on all equipment, as required, and are visible to the operator while at the control station
- 6.1.7. Inspect all rigging devices before use. Follow manufacturer's capacities and recommendations. Never exceed ratings for rigging and material handling equipment. Remove any defective rigging material from service immediately.
- 6.1.8. Rigging is done only by qualified personnel who have successfully completed rigger training as approved by the Company, and who have the experience necessary to perform this work safely. Crane operators and inspectors do not perform rigging unless they are similarly trained and qualified.
- 6.1.9. Obtain a Crane Safe Work Permit for all cranes with capacities of 10 tons or more and critical lifts.
- 6.1.10. Work with lifts, cranes, or any hoisting equipment must be supervised at all times.
- 6.1.11. A qualified Signal Person must be provided.
- 6.1.12. Taglines must be used at all times
- 6.1.13. The operator must use access provided for entering and exiting the equipment. Never jump off the equipment.
- 6.1.14. Wooden pads on outriggers are used on all non-concrete surfaces. Mats are used as needed.
- 6.1.15. The rear of the rotating superstructure of a crane is barricaded to warn of the pinch point hazard.
- 6.1.16. The area where an overhead lift is made is barricaded if personnel can have access and walk under the load.

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- 6.1.17. Load block, headache ball, hooks, boom tip, and anti-2 block devices are marked with highly visible fluorescent orange paint.
- 6.1.18. Hooks on overhaul ball assemblies, lower load blocks or other attachment assemblies are of a type that can be closed and locked with a latch, eliminating the hook throat opening. Alternatively, an alloy anchor type shackle with a bolt, nut and retaining pin may be used.
- 6.1.19. All jibs have positive stops to prevent their movement of more than 5 degrees above the straight line of the jib and boom on conventional type crane booms. The use of cable type belly slings does not constitute compliance with this rule.
- 6.2. Lifting
  - 6.2.1. Lifting multiple loads, "Christmas treeing", is prohibited.
  - 6.2.2. Hand signals to crane operators are those prescribed by the applicable ANSI standard for the type of crane in use. An illustration of the signals is posted at the job site.
  - 6.2.3. All employees are kept clear of loads about to be lifted and of suspended loads.
  - 6.2.4. There is no sudden acceleration or deceleration of the moving load.
  - 6.2.5. Side loading of booms is limited to freely suspended loads. Cranes are not used for dragging loads sideways.
  - 6.2.6. No hoisting, lowering, swinging, or traveling is done while anyone is on the load or hook.
  - 6.2.7. On truck-mounted cranes, no loads are lifted over the front area except as approved by the crane manufacturer.
  - 6.2.8. The operator tests the brakes each time a load approaching the rated load is handled by raising it a few inches and applying the brakes.
  - 6.2.9. Outriggers are used when the load to be handled at that particular radius exceeds the rated load without outriggers as given by the manufacturer for that crane. Where floats are used, they are securely attached to the outriggers.
  - 6.2.10. Wood blocks used to support outriggers are:
    - 6.2.10.1. Strong enough to prevent crushing.
    - 6.2.10.2. Free from defects.
    - 6.2.10.3. Of sufficient width and length to prevent shifting or toppling under load.
  - 6.2.11. Neither the load nor the boom are lowered below the point where less than 2 full wraps of rope remain on their respective drums.
  - 6.2.12. When two or more cranes are used to lift one load, one designated person is responsible for the operation. He/she is required to analyze the operation

and instruct all personnel involved in the proper positioning, rigging of the load, and the movements to be made.

6.2.13. In transit, the following additional precautions are exercised:

6.2.14. The boom is carried in line with the direction of motion.

6.2.15. The superstructure is secured against rotation, except when negotiating turns when there is an operator in the cab or the boom is supported on a dolly.

6.2.16. The empty hook is lashed or otherwise restrained so that it cannot swing freely.

6.2.17. Before traveling a crane with load, a designated person is responsible for determining and controlling safety. Decisions such as position of load, boom location, ground support, travel route, and speed of movement are in accord with his determinations. Length, height or width are centered and secured without going above the established load limit for the vehicle.

6.2.18. A crane with or without load is not traveled with the boom so high that it may bounce back over the cab.

6.2.19. When rotating the crane, sudden starts and stops are avoided. Rotational speed is such that the load does not swing out beyond the radii at which it can be controlled. A tagline or restraint line is used when rotation of the load is hazardous, unless use of the tagline or restraint line would in itself create a hazard or unsafe situation.

6.2.20. When a crane is to be operated at a fixed radius, the boom-hoist pawl or other positive locking device is engaged.

6.2.21. Ropes are not handled on a winch head without the knowledge of the operator.

6.2.22. While a winch head is being used, the operator will be within convenient reach of the power unit control lever.

6.2.23. The operator is not permitted to leave his position at the controls while the load is suspended.

6.2.24. No person is permitted to stand or pass under a load on the hook.

6.2.25. If the load must remain suspended for any considerable length of time, the operator will hold the drum from rotating in the lowering direction by activating the positive controllable means of the operator's station.

### 6.3. Other Requirements

6.3.1. Cranes are not operated without the full amount of any ballast or counterweight in place as specified by the maker, but truck cranes that have dropped the ballast or counterweight may be operated temporarily with special care and only for light loads without full ballast or counterweight in place. The ballast or counterweight in place specified by the manufacturer is not exceeded.

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- 6.3.2. Necessary clothing and personal belongings are stored in such a manner as to not interfere with access or operation.
- 6.3.3. Tools, oil cans, waste, extra fuses, and other necessary articles are stored in the tool box and are not permitted to lie loose in or about the cab.
- 6.3.4. Refueling with small portable containers is done with an approved safety type can equipped with an automatic closing cap and flame arrester.
- 6.3.5. Machines are not refueled with the engine running.
- 6.3.6. No one will be on the vehicle during fuel operations except as specifically required by design.
- 6.3.7. There is no smoking nor should open flames be in the area while fueling is taking place.
- 6.3.8. When working in an enclosed area with a combustible engine, tests must be conducted and recorded to assure that the employees are not exposed to harmful gasses or oxygen deficient atmospheres.
- 6.3.9. A carbon dioxide, dry chemical or equivalent fire extinguisher is kept in the cab or vicinity of the crane.
- 6.3.10. Operating and maintenance personnel are made familiar with the use and care of the fire extinguishers provided.
- 6.3.11. Belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, chains, or other reciprocating, rotating, or other moving parts or equipment are guarded, if such parts are exposed to contact by employees, or otherwise create a hazard. Guarding will meet the requirements of the American National Standards Institute B 15.1-1958 Rev., Safety Code for Mechanical Power Transmission Apparatus.
- 6.3.12. All equipment has a working backup signal alarm.
- 6.3.13. Eye protection must be used if the equipment has no enclosed cab. If seatbelts are provided with the equipment, they must be used.
- 6.3.14. Accessible areas within the swing radius of the rear of the rotating superstructure of the crane, either permanently or temporarily mounted, are barricaded in such a manner as to prevent an employee from being struck or crushed by the crane.
- 6.3.15. All exhaust pipes are guarded or insulated in areas where contact by employees is possible in the performance of normal duties.
- 6.3.16. If rigging equipment is not being used, remove it from the area to avoid a potential trip and fall hazard.
- 6.4. Crane maintenance, repairs and “out of service” procedures
  - 6.4.1. Prior to making repairs or adjustments to a crane, specific procedures are followed, and precautions taken:
    - 6.4.1.1. Move the crane to be repaired to a place where it causes the least interference with other cranes and operations in the area.

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- 6.4.1.2. Set all controllers to the off position.
- 6.4.1.3. Open the main or emergency switch and lock it in the open position.
- 6.4.1.4. Place prominent warning or "out of order" signs on the crane so that they are in plain sight of workers in the area.
- 6.4.1.5. After repairs and adjustments are completed, replace all guards, reactivate all safety devices and remove maintenance equipment before operating the crane.

## 6.5. Operations Near Overhead Electrical Lines

- 6.5.1. Except where electrical distribution and transmission lines have been de-energized and visibly grounded at point of work or where insulating barriers, not a part of or an attachment to the equipment or machinery, have been erected to prevent physical contact with the lines, equipment or machines are operated proximate to power lines only in accordance with the following:
  - 6.5.1.1. For lines rated 50 kV. or below, minimum clearance between the lines and any part of the crane or load is 10 feet.
  - 6.5.1.2. For lines rated over 50 kV., minimum clearance between the lines and any part of the crane or load is 10 feet plus 0.4 inch for each 1 kV. over 50 kV., or twice the length of the line insulator, but never less than 10 feet.
  - 6.5.1.3. In transit with no load and boom lowered, the equipment clearance is a minimum of 4 feet for voltages less than 50 kV. and 10 feet for voltages over 50 kV. up to and including 345 kV. and 16 feet for voltages up to and including 750 kV.
- 6.5.2. A person is designated to observe clearance of the equipment and give timely warning for all operations where it is difficult for the operator to maintain the desired clearance by visual means.
- 6.5.3. Cage-type boom guards, insulating links, or proximity warning devices may be used on cranes, but the use of such devices will not alter the requirements of any other regulation of this part even if such device is required by law or regulation.
- 6.5.4. Any overhead wire is considered to be an energized line unless and until the person owning such line or the electrical utility authorities indicate that it is not an energized line and it has been visibly grounded.
- 6.5.5. Prior to work near transmitter towers where an electrical charge can be induced in the equipment or materials being handled, the transmitter is de-energized or tests are made to determine if electrical charge is induced on the crane.
- 6.5.6. The following precautions are taken when necessary to dissipate induced voltages:
  - 6.5.6.1. The equipment is provided with an electrical ground directly to the upper rotating structure supporting the boom; and
  - 6.5.6.2. Ground jumper cables are attached to materials being handled by boom equipment when electrical charge is induced while working

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near energized transmitters. Crews are provided with nonconductive poles having large alligator clips or other similar protection to attach the ground cable to the load.

6.5.6.3. Combustible and flammable materials are removed from the immediate area prior to operations.

6.5.6.4. The rated load of the crane is plainly marked on each side of the crane, and if the crane has more than one hoisting unit, each hoist has its rated load marked on it or its load block, and this marking is clearly legible from the ground or floor.

## 7. Inspection Requirements

- 7.1. The Crane Operator and the Crane Competent Person are responsible for performing inspections using Daily Operators Inspection Report -- Mobile Crane Operation, Monthly Hydraulic Crane Inspection Report and Monthly Inspection of Truck Cranes.
- 7.2. Inspection of critical components of the crane are performed at least monthly. Components inspected include crane hooks and safety latches; brakes and braking components; slings and ropes. Rigging equipment is inspected to ensure it is safe. Rigging equipment for material handling is inspected prior to use on each shift and as necessary during its use to ensure that it is safe.
- 7.3. Inspection records are filed and maintained by the Safety Coordinator at Cleveland Integrity Services's main office. Crane certification records include the inspection date, signature of the inspector, and identification of the component by serial number or another identifier. This certification record is maintained so that it is readily available for inspection and confirmation.
- 7.4. A written record is also maintained of reports showing rated load test procedures and confirming the adequacy of repairs or alterations.
- 7.5. Test loads will not exceed 110 percent of the rated load at any selected working radius.
- 7.6. If re-rating is required, crawler, truck, and wheel-mounted cranes are tested in accordance with SAE Recommended Practice, Crane Load Stability Test Code J765 (April 1961). Re-rating test reports are readily available.
- 7.7. No re-rating in excess of a crane's original load rating is performed unless the manufacturer or designated technician who is in charge of final assembly gives their approval in writing. Such written approval is maintained in a file by the Safety Coordinator.
- 7.8. A thorough annual inspection of the hoisting machinery is made by a competent person, or by a government or private agency recognized by the U.S. Department of Labor. Cleveland Integrity Services maintains a record of the dates and results of inspections and rated load tests for each hoisting machine and piece of equipment.
- 7.9. Any defects found are repaired by a qualified person before the crane is used.
- 7.10. Before a crane is placed in service for use, rope components are inspected by a qualified person for defects, damage and deformities and at least monthly thereafter. Certification of this inspection is done in writing and document: the date of inspection; inspector's name and signature; and identification number of the rope component inspected.

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## 8. Inspection of wire rope

- 8.1. Wire rope is taken out of service when any of the following conditions exist:
  - 8.1.1. In running ropes, 6 randomly distributed broken wires in 1 lay or 3 broken wires in one strand in one lay;
  - 8.1.2. Wear of 1/3 the original diameter of outside individual wires.
  - 8.1.3. Kinking, crushing, bird caging, or any other damage resulting in distortion of the rope structure;
  - 8.1.4. Evidence of any heat damage from any cause;
  - 8.1.5. Reductions from nominal diameter of more than 1/64 inch for diameters up to and including 5/16 inch, 1/32 inch for diameters 3/8 inch to and including 1/2 inch, 3/64 inch for diameters 9/16 inch to and including 3/4 inch, 1/16 inch for diameters 7/8 inch to 1 1/8 inches inclusive, 3/32 inch for diameters 1 1/4 to 1 1/2 inches inclusive;
  - 8.1.6. In standing ropes, more than 2 broken wires in 1 lay in sections beyond end connections or more than 1 broken wire at an end connection.
- 8.2. Wire rope safety factors are in accordance with American National Standards Institute B 30.5-1968 or SAE J959-1966.
- 8.3. Heavy wear and/or broken wires may occur in sections that have contact with equalizer sheaves or other sheaves (where rope travel is limited) or with saddles. Particular care is taken to inspect ropes at these locations.
- 8.4. If rope has not been used for a month or longer (i.e. due to shutdown or storage of a crane on which it is installed) this rope will be given a thorough inspection before it is used.
- 8.5. This inspection is made by a designated person who is authorized by the Company. This inspector examines rope for any kind of damage, deterioration or defect that might compromise the safety and specifications of the rope. Specific attention and care are given to the inspection of non-rotating rope.
- 8.6. Only this designated and authorized inspector gives approval for use of this rope following satisfactory safety inspection as described above.
- 8.7. A written record of the inspector's certification is maintained by the Safety Coordinator in a file and be readily available for review and confirmation. This certification includes the inspection date, name and signature of the inspector, and the identification number of the rope component that was inspected.

## 9. Inspection of hoist chains

- 9.1. Hoist chains and end connections are inspected daily for damage, deterioration, excessive wear, twist, distorted links interfering with proper function, or stretch beyond manufacturer's recommendations.
- 9.2. Chains are inspected visually by the operator each day or before first use.
- 9.3. Chains also are inspected monthly for safety certification. The written certification includes the date of inspection, name and signature of the inspector, and the

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identification number of the chain that was inspected. Written certification records are maintained by the Safety Coordinator in a file.

#### **10. Inspection of hooks and hook components**

- 10.1. Crane hooks and safety latches are visually inspected each day or at the beginning of a shift prior to use for damage, cracks or deformation.
- 10.2. Hooks and safety latches also are inspected monthly for safety certification. The written certification includes the date of inspection, name and signature of the inspector, and the identification number of the hook that was inspected. Written certification records are maintained by the Safety Coordinator in a file.
- 10.3. Hooks that have cracks or a throat opening that is greater than 15 percent in excess of normal, or more than 10-degree twist from the plane of the unbent hook are discarded.

#### **11. Preventive maintenance**

- 11.1. The Company has implemented a preventive maintenance program to help ensure the safety of cranes, hoists, rigging and related equipment. Preventive maintenance is performed in accordance with manufacturer's recommendations. Each crane has a written record of preventive maintenance that is maintained by the Safety Coordinator.

#### **12. Inspection and safe use of slings**

- 12.1. Slings are inspected prior to each use to ensure that they are not damaged, defective or otherwise unsafe.
- 12.2. Synthetic web slings are not used with loads in excess of the rated load capacities.
- 12.3. Slings are used only in accordance with sling manufacturer's recommendations.
- 12.4. Each sling is marked to show rated capacities for each type of hitch and type of synthetic material.
- 12.5. Each sling is marked for inspection identification.
- 12.6. Webbing is of uniform thickness and width and selvage edges are not split from the webbing's width.
- 12.7. Inspect fittings to ensure that they have no sharp edges or projections that could damage the sling.
- 12.8. Stitching is the only method of attachment of fittings to webbing and to form eyes.
- 12.9. The following restrictions apply:
  - 12.9.1. Nylon web slings are not to be used where fumes, vapors, sprays, mists, or liquids of acids or phenolics are present.
  - 12.9.2. Polyester and polypropylene web slings are not to be used where fumes, vapors, sprays, mists, or liquids of caustics are present.
  - 12.9.3. Web slings with aluminum fittings are not used.
- 12.10. Synthetic web slings of polyester or nylon will not be used at temperatures in excess of 180°F. Polypropylene web slings are not used at temperatures in excess of 200°F.



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- 12.11. Repaired synthetic web slings are not to be used unless the repair is done by the sling manufacturer or an equivalent entity.
- 12.12. Each repaired sling is proof tested to twice the rated capacity by the sling manufacturer or an equivalent entity prior to returning to service.
- 12.13. The certificate of the proof test is maintained for the life of the sling.
- 12.14. Synthetic web slings are immediately removed from service if any of the following conditions exist:
  - 12.14.1. Snags, punctures, cuts or tears,
  - 12.14.2. Broken or worn stitches,
  - 12.14.3. Distorted fittings.

### **13. Training Requirements**

- 13.1. Employees who perform crane, hoist and rigging operations are qualified through both experience and training as specified by the Company.
- 13.2. Training includes classroom instruction, hands-on experience and familiarization with components including rigging systems and parts; cables; chokes; slings; hooks; beams; spreaders or other device used to attach or lift the load.
- 13.3. Classroom training includes instruction on:
  - 13.3.1. Concepts and practices of pre-planning a lift;
  - 13.3.2. Identifying both specific and potential hazards;
  - 13.3.3. Safe rigging, balance and lift procedures;
  - 13.3.4. Standard signaling procedures;
  - 13.3.5. Use of fire extinguishers;
  - 13.3.6. Equipment and inspection procedures; and
  - 13.3.7. Other subject matter that pertains to the actual type or types of rigging and lifting operations to be performed in the Company workplace.
- 13.4. Hands-on training and observations address the pre-use inspection of all components; proper selection and use of rigging components; familiarization with and proper use of lift equipment.
- 13.5. Additionally, training is conducted annually on the requirements of this policy, and also whenever this policy is revised.
- 13.6. All new crane operators and rigging crew members review this policy as part of their training prior to starting work.
- 13.7. Crane operators and the rigging crew review this policy prior to lifts.
- 13.8. If the job involves multiple types of lifts, this policy is reviewed prior to starting each such lift. This helps ensure that safety situations specific to the type of lift are considered.

<b>Risk Assessment (Hazard Identification)</b>	<b>Page 1</b>
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Applicable Standard: Owner Requirement

## 1 Purpose, Applicability and Scope

- 1.1 Cleveland Integrity Services has established this written safety policy and implemented procedures to ensure that hazard identification and risk assessment will be part of routine safety procedures in the Company workplace.
- 1.2 This program outlines methods for the identification of hazards and the assessment and control of health and safety risks in the Company workplace.
- 1.3 This policy applies to management, supervisors and employees during the course and scope of Company workplace operations.

## 2 Definitions

- 2.1 "Hazard" is the potential to cause harm to a person or to the natural environment.
- 2.2 "Risk" means a combination of the severity and likelihood of harm arising from a hazard.
- 2.3 "Risk assessment" is the process of evaluating the severity and likelihood of harm arising from a hazard.
- 2.4 "Risk control" is the process of implementing measures to reduce the risk associated with a hazard. The control process must follow the control hierarchy, in order, as prescribed in Company safety procedures and in accordance with federal and state OSHA requirements. It is important that control measures do not introduce new hazards, and that the ongoing effectiveness of the controls is monitored.
- 2.5 "Risk control hierarchy" ranks risk control measures in decreasing order of effectiveness:
  - 2.5.1 Elimination of hazard;
  - 2.5.2 Substitution of hazardous processes or materials with safer ones;
  - 2.5.3 Engineering controls;
  - 2.5.4 Administrative controls; and
  - 2.5.5 Personal protective equipment.

The risk control measures implemented for the hazards identified should always aim to be as high in the list as practicable.
- 2.6 "Superintendent," "Supervisor" and "Manager" are terms that apply to any employee who plans, organizes or supervises assignments and activities of other employees or contractors in the course and scope of Company work.

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- 2.7 "New" is used to describe Company work situations, tasks or assignments that have not previously been undertaken; and chemical products that have not previously been used or located in the Company workplace. The term also may apply to changing work situations, quantities or uses of chemicals that apply to or have been previously used at the work location, but in ways that are different and have the potential to present new hazards or risk.
- 2.8 "Workplace" means the location where employees, machinery, equipment and/or resources are being utilized in the course and scope of a Company project or work assignment.
- 2.9 "Substance" covers all chemicals and materials, in any physical form (liquid, solid, powder, gas, mixtures, etc.), used in the course of employees' or contractors' work. The term includes, but is not limited to: chemicals, compressed gases, solvents, radioactive substances, building materials, pesticides, welding materials, fuels, lubricants, cleaning and other products for which a Safety Data Sheet (SDS) is required. It excludes first-aid products and pharmaceuticals.

### 3 Actions

- 3.1 Regarding hazard evaluation and risk assessment in present or upcoming Company locations, superintendent, supervisor or manager in charge will:
  - 3.1.1 Consult with Cleveland Integrity Services's Safety Coordinator and ensure that a written *Job Hazard Analysis (JHA)* is conducted prior to beginning work. This is done in accordance with procedures as specified in the Company's written *Accident Prevention Plan*;
  - 3.1.2 If applicable, complete a *Work Location Chemical Product Checklist* prior to beginning work. This is done in accordance with procedures as specified in the Company's written *Accident Prevention Plan* to ensure that chemical products to be used or stored at the work location are communicated, managed and controlled in accordance with the procedures specified in the Company's written *Master Safety & Health Program*, and specifically the Company's written *Hazard Communication and Chemical Safety Program*;
  - 3.1.3 Conduct follow-up or additional evaluation whenever change is introduced in a Company workplace or with work activities, situations or environment, where there is a potential to create or increase hazards or risk.
 

This generally is determined through investigation, gathering relevant information, and consultation with affected employees and knowledgeable sources about whether the change may reasonably be expected to affect the health or safety of any person.
  - 3.1.4 Conduct *Job Safety Analysis (JSA)* as an ongoing tool for hazard and risk evaluation. This is done in accordance with procedures as specified in the Company's written *Accident Prevention Plan* and *Master Safety & Health Programs*.

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- 3.1.5 JSAs are utilized on a schedule and in the manner determined in coordination with the Company's management and Safety Coordinator, as well as the host employers or general contractor's designated person(s) for site safety management.
- 3.1.6 Employees and contractor personnel will utilize and be actively involved in processes for identifying workplace hazards and evaluating risk in accordance with this program and the procedures specified herein.
- 3.1.7 JSA and other hazard/risk evaluation processes are utilized for both routine and non-routine work operations, as well as whenever there is a change or supplement to procedures in place that could impact the safety and health of employees and other persons at the work location.

#### **4 Classification and Prioritizing of Hazards**

- 4.1 Hazards identified through processes in this program are classified and corrective actions are prioritized based on potential severity and estimated probability.
- 4.2 All identified hazards are corrected or mitigated in a timely, appropriate manner. Those that are most severe and/or have the highest likelihood of occurrence are given priority.
- 4.3 These processes are performed in cooperation with and under review of Cleveland Integrity Services's Company Safety Coordinator prior to taking any hazard abatement or mitigation action. This prior review may include consultation with persons knowledgeable and experienced with the specific hazard or risk situation to help ensure that proposed actions will not inadvertently create other hazards or risks.
- 4.4 Corrective actions to an identified hazard are tracked, confirmed and documented by the project superintendent, supervisor or manager in accordance with procedures specified in the Company's written *Accident Prevention Plan*.
- 4.5 The Company Safety Coordinator reviews reports and documentations of corrective actions taken. This will be done to help confirm that the hazard has been effectively eliminated or mitigated.

#### **5 Documentation and Recordkeeping**

- 5.1 Written documentation is made and maintained in accordance with the Company's written *Accident Prevention Plan* and *Master Safety & Health Programs*.
- 5.2 The Company Safety Coordinator is responsible for reviewing and maintaining these documents in a file.

#### **6 Training**

- 6.1 Cleveland Integrity Services's Safety Coordinator, with assistance from Superintendents, Supervisors, Managers and other qualified personnel as designated by the Safety Coordinator, are responsible for developing and delivering site-specific training on how to implement this program effectively.

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- 6.2 Training includes instruction in the proper selection and use of personal protective equipment (PPE), regarding both hazards under evaluation, and also as may be required for abatement or mitigation activities. All employees are trained on the hazard identification and risk assessment process.
- 6.3 Individual training is documented in writing with: date, time and place of training; the names of personnel trained; the name of the person(s) presenting the training; and a copy of the training material.
- 6.4 This training documentation becomes part of the project safety file in accordance with Company recordkeeping procedures.

<b>Safe Return to Work Policy</b>	<b>Page 1</b>
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## 1. Purpose

- 1.1. Cleveland Integrity Services has implemented a Safe Return to Work program to provide accommodations to an employee who is temporarily unable to return to their duties as a result of an occupational injury or illness.
- 1.2. The program provides opportunities to perform the regular job with modifications or, when available, to perform alternate temporary work that meets the injured employee's functional abilities.
- 1.3. The purpose of this program is to return an injured employee to work as soon as possible following an injury.
- 1.4. Benefits of the Safe Return to Work program include, but are not limited to, improved morale, reduced worker compensation cost, and improved employee retention

## 2. Responsibilities

### 2.1. Management

- 2.1.1. Utilize employee orientation presentation to help them be aware that we have a program in place.
- 2.1.2. Place posters describing the program in locations easily accessible to employees
- 2.1.3. Provide a packet describing the program at employee orientation
- 2.1.4. Provide healthcare providers utilized by the company with a letter describing the program
- 2.1.5. Provide injured employee with a letter to take to their personal healthcare provider, if that is where he receives treatment, describing the program and contact information if there are questions
- 2.1.6. Ensure that when modified work plan is developed, that it is consistent with healthcare provider restrictions placed on injured or ill employee
- 2.1.7. Meet with employees' assigned modified duty during the first week and as often thereafter to ensure that employee is following the guidelines for the assigned task.
- 2.1.8. Supervisors must be made aware of the restrictions to ensure the modified work meets the physician's orders.

### 2.2. Employees

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- 2.2.1. Report injury or illness immediately
- 2.2.2. If medical attention is needed, inform your healthcare provider that the company has a Safe Return to Work program
- 2.2.3. Obtain the necessary documentation from the healthcare provider so a Safe Return to Work plan can be implemented
- 2.2.4. Know and follow all safe work policies and procedures

### **3. Program Guidelines**

- 3.1. A list of jobs that can be considered for Safe Return to Work will be developed
  - 3.1.1. All jobs that are on the list shall have a Physical Demands Analysis (PDA) description developed
  - 3.1.2. Safe Return to Work assignments shall be consistent with the PDA and restrictions listed by the healthcare provider

### **4. Recordkeeping**

- 4.1. Written records regarding the incident investigation, communications with employee regarding the offer of Safe Return to Work, as well as medical records shall be maintained in a central location. Release of any information shall be on a need to know basis. Medical records shall be treated as confidential and maintained in a locked file.

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Applicable OSHA Standard: 29 CFR 1926 Subpart L

## 1. Purpose

- 1.1. The purpose of this program is to provide directions and instructions for Cleveland Integrity Services requirements to be implemented with the construction, erection, and dismantling of scaffolds and ladders.

## 2. Scope

- 2.1. The scope of this program applies to all Cleveland Integrity Services jobsite locations where scaffolds and ladders may be used. The requirements, as set forth in this program, should be implemented to the fullest extent possible.

## 3. Responsibilities

- 3.1.1. The primary responsibility for the implementation of the requirements of this program rests with the Site Supervisor.
- 3.1.2. The Company Safety Representative or designee is responsible to provide for the monitoring of work activities to assure compliance to the requirements of this program and compliance to the Customer/Client safety requirements.
- 3.1.3. The Site Supervisor and Company management is responsible for the enforcement and disciplinary action resulting from violation or failure of assigned persons to implement the requirements of this program.

## 4. Requirements

- 4.1. A competent person ensures that scaffolds are safe prior to and during use. If unsafe equipment or conditions are observed, these are tagged out by the competent person. All employees will comply with the tagout. Scaffolding that is tagged out as being unsafe will not be used.
- 4.2. Employees are prohibited from working on scaffolds covered with snow, ice, or other slippery material except as necessary for removal of such materials. Work on or from scaffolds is prohibited during storms or high winds unless a competent person has determined that it is safe for employees to be on the scaffold and those employees are protected by a personal fall arrest system or wind screens
- 4.3. Only qualified and competent personnel are allowed to modify scaffolding systems. Non-qualified personnel may create hazards and unsafe situations and are therefore prohibited from attempting to modify a scaffolding system.
- 4.4. The following requirements are applicable to all scaffolds:
  - 4.4.1. Guardrails and Toeboards:



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- 4.4.1.1. Guardrails are constructed of 2" X 4" lumber, ½-inch wire rope, angle iron or the prefabricated rail(s) supplied by the scaffold manufacturer.
- 4.4.1.2. Toprails are approximately 42 inches above the working surface.
- 4.4.1.3. Midrails are approximately 21 inches above the working surface.
- 4.4.1.4. Wire rope toprails and midrails are stretched tight with no more than an approximate 2-inch deflection.
- 4.4.1.5. Toeboards extend a minimum of 4 inches above the working surface.
- 4.4.1.6. When the placement of the scaffold work platform prevents the installation of guardrails, other fall protection equipment is used.
- 4.4.1.7. Guardrails and toeboards are installed on all open sides and ends of scaffolds.
- 4.4.1.8. Scaffolds and work platforms 4 feet to 10 feet high with a working surface of less than 45 inches have standard guardrails installed on all open sides and ends of the scaffold or platform.

#### 4.5. Working Surfaces:

- 4.5.1. Working surfaces are constructed of scaffold plank, aluminum deck boards or 3/4" construction grade plywood.
- 4.5.2. Scaffold planking is of scaffold grade or equivalent, as recognized by approved grading rules for the species of wood used under the American Lumber Standards. Lumber sizes, when used in this program, refer to nominal size/thickness except where otherwise stated.
- 4.5.3. Working surfaces are secured by nails, double wrap of #9 wire or cleats.
- 4.5.4. Scaffold planks extend a minimum of 6 inches and a maximum of 12 inches over the end supports.
- 4.5.5. If required, an access/egress ladder is provided.
- 4.5.6. Scaffold planks will not span more than 8 feet between supports/vertical legs.
- 4.5.7. Scaffold planks and plywood are free of splits and burns.

#### 4.6. Scaffold Footing and Anchorage

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- 4.6.1. The footing or anchorage is capable of carrying the maximum intended load without settling or displacement.
- 4.6.2. The uprights/vertical legs will be plumb and securely braced to prevent swaying and displacement. NOTE: The requirements for specific types of scaffolds and ladders are described below.
  - 4.6.2.1. Tubular Welded Frame:
    - 4.6.2.1.1. Scaffold is cross-braced to assure scaffold is plumb, square, and rigid.
    - 4.6.2.1.2. Stacking pins are only secured with the manufacturer's pins or recommended bolts.
    - 4.6.2.1.3. Cross braces are secured, as designed by the manufacturer.
    - 4.6.2.1.4. Stationary scaffolds must be secured horizontally, every 26 feet of height and 30 feet horizontally, to prevent tipping.
    - 4.6.2.1.5. The height of rolling scaffolds, measured from the ground to the toprail, are no more than four times the minimum base dimension (length times the width).
    - 4.6.2.1.6. All wheels/casters are the same size, equipped with a positive locking device, and in good working condition. Wheels are locked while personnel are working from the scaffold.
    - 4.6.2.1.7. Personnel are not permitted on mobile scaffold while the scaffold is being moved.
  - 4.6.2.2. Tube and Coupler (Tube-Lock):
    - 4.6.2.2.1. Uprights have a maximum spacing of 8 feet.
    - 4.6.2.2.2. Uprights are placed on secure bases and maintained plumb.
    - 4.6.2.2.3. Scaffolds are limited in heights and working levels to those permitted in Tables 2-10, 11, and 12 of OSHA 29 CFR 1926.451.
    - 4.6.2.2.4. Horizontal braces are installed completely around all exterior uprights and between interior uprights. Braces will be installed every 6 feet of height.

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- 4.6.2.2.5. Platform supports are coupled/clamped directly to the horizontal braces and extend 4 inches to 12 inches beyond the horizontal braces.
- 4.6.2.2.6. All horizontal bracing is coupled/clamped directly to the uprights.
- 4.6.2.2.7. Diagonal bracing is installed at alternating 45 degree angles beginning with the corner upright and repeating every 5th upright on the perimeter. An alternating bracing pattern should be used.
- 4.6.2.3. One and Two Point Suspension Scaffolds:
  - 4.6.2.3.1. Cable is securely anchored and softeners are used when necessary.
  - 4.6.2.3.2. Cable is insulated at the anchor point from the motor to 4 feet above the motor and wherever the cable comes in contact with metal to prevent electrical arcing.
  - 4.6.2.3.3. Two-point suspension scaffold platforms will remain level while being raised or lowered.
  - 4.6.2.3.4. Each employee wears a full body harness and is tied off to an independent lifeline. A lifeline is supplied for each employee.
- 4.6.2.4. Knee Brace/Cantilever:
  - 4.6.2.4.1. Knee brace/cantilever scaffolding is welded by a qualified welder and visually inspected before use.
- 4.6.2.5. Ladders:
  - 4.6.2.5.1. Ladders extend 36 inches above the landing.
  - 4.6.2.5.2. Extension and job-built ladders are secured to prevent movement or falling.
  - 4.6.2.5.3. Manufactured ladders are Class I or Class IA with properly working feet.
  - 4.6.2.5.4. The slope of the ladder from the base of the support is one (1) foot for every four (4) feet of ladder length.
  - 4.6.2.5.5. All ladders are set on a firm base to prevent shifting and tipping.

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- 4.6.2.5.6. Ladders with broken or missing rungs or steps, broken or split side rails, or faulty or defective construction, are not used.
- 4.6.2.5.7. Metal ladders are not used.
- 4.6.2.5.8. Step ladders are not used as a leaning ladder.
- 4.6.2.5.9. Employees do not work off the top two steps of a stepladder.
- 4.6.2.5.10. Personnel have both hands free of tools, materials, or equipment, while climbing and descending ladders.
- 4.6.2.5.11. Personnel face the ladder when climbing and descending.

## 5. Training Requirements

- 5.1. Cleveland Integrity Services has each employee who performs work while on a scaffold trained by a person qualified in the subject matter to recognize the hazards associated with the type of scaffold being used and to understand the procedures to control or minimize those hazards. The training includes the following areas, as applicable:
  - 5.1.1. The nature of any electrical hazards, fall hazards and falling object hazards in the work area;
  - 5.1.2. The correct procedures for dealing with electrical hazards and for erecting, maintaining, and disassembling the fall protection systems and falling object protection systems being used;
  - 5.1.3. The proper use of the scaffold, and the proper handling of materials on the scaffold;
  - 5.1.4. The maximum intended load and the load-carrying capacities of the scaffolds used; and
  - 5.1.5. Any other pertinent requirements.
- 5.2. The Company has each employee who is involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting a scaffold trained by a competent person to recognize any hazards associated with the work in question. The training includes the following topics, as applicable:
  - 5.2.1. The nature of scaffold hazards;
  - 5.2.2. The correct procedures for erecting, disassembling, moving, operating, repairing, inspecting, and maintaining the type of scaffold in question;

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- 5.2.3. Each scaffold and scaffold component will be capable of supporting, without failure, its own weight and at least 4 times the maximum intended load applied or transmitted to it. This is considered the safe working capacity;
- 5.2.4. Any other pertinent requirements.
- 5.3. When the Company has reason to believe that an employee lacks the skill or understanding needed for safe work involving the erection, use or dismantling of scaffolds, the Company will retrain each such employee so that the requisite proficiency is regained. Retraining is required in at least the following situations:
  - 5.3.1. Where changes at the worksite present a hazard about which an employee has not been previously trained; or
  - 5.3.2. Where changes in the types of scaffolds, fall protection, falling object protection, or other equipment present a hazard about which an employee has not been previously trained; or
  - 5.3.3. Where inadequacies in an affected employee's work involving scaffolds indicate that the employee has not retained the requisite proficiency.
- 5.4. The Site Supervisor is responsible for implementing the employee training and information program. The format for the program may include classroom instruction, safety tool box meetings, and other forms of group or singular instructions. Instructions are normally communicated verbally or in writing through the employee's Supervisor.
- 5.5. The Site Supervisor is responsible for assuring Supervisors are qualified or competent in the following areas:
  - 5.5.1. Fall hazards and falling object hazards.
  - 5.5.2. Electrical hazards (protection from electrical hazards for erecting, maintaining, and dismantling).
  - 5.5.3. Fall protection and protection systems.
  - 5.5.4. Proper and safe handling of materials.
  - 5.5.5. Trained in the maximum intended loads and load-carrying capacities.
  - 5.5.6. Any other pertinent requirements.
- 5.6. All Cleveland Integrity Services employees are trained in the above mentioned, along with any additional basic or site requirements. Cleveland Integrity Services ensures that each employee follows the safety guidelines as set forth in Safe Work Practices.

## 6. Inspection & Tagging Procedures

- 6.1. A *competent person* tags all scaffolds, including a single plank working platform.

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- 6.2. A *competent person* must inspect scaffolds and components before each work shift use and after any incident that could weaken it. A scaffold inspection form is included later in this section.
- 6.3. All scaffolds will be tagged with a **Red**, **Yellow**, or **Green** tag. Sample tags are included later in this program. In the event that the scaffold is modified or repaired in any way, the date of modification is entered on the appropriate scaffold inspection tag.
  - 6.3.1. **RED** means the scaffold is unsafe or is under construction, and is not to be used.
  - 6.3.2. **YELLOW** means the scaffold does not meet all requirements, and special equipment or rules are required in order to use the scaffold. These requirements must be posted (for example, 100% fall protection required for work performed on the scaffold).
  - 6.3.3. **GREEN** means that the scaffold is **SAFE FOR USE** and meets all OSHA standards and can be used without any additional rules or equipment. This scaffold meets all load and level requirements, and is tagged with a *competent person* name and contact number.
- 6.4. ***If there is no tag, no one is allowed on scaffold.***
- 6.5. The following must be completed for each tag:
  - 6.5.1. Date erected / tagged
  - 6.5.2. Inspected by (name of *competent person* -- printed name and signature)
  - 6.5.3. Inspection date
  - 6.5.4. Company responsible for erection/maintaining/dismantling
- 6.6. ***GREEN TAG requirements***
  - 6.6.1. Green tags are hung on scaffolds that have been inspected and are safe for use.
  - 6.6.2. A green **SAFE FOR USE** tag is attached to the scaffold at each access point after the initial inspection is complete.
- 6.7. ***YELLOW TAG requirements***
  - 6.7.1. Yellow **CAUTION** tag(s) replaces all green **SAFE FOR USE** tag(s) whenever the scaffold has been modified to meet work requirements, and as a result could present a hazard to the user.
  - 6.7.2. This tag indicates special requirements are necessary for the scaffold to be used safely. Therefore, the tag should be considered a *supervisory tag* and, as such, is managed by Cleveland Integrity Services with regard to

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employees who will work on the scaffolding, as well as the host employer and/or the scaffold erector.

- 6.7.3. The yellow *CAUTION* tag as a minimum requirement has:
  - 6.7.3.1. The unusual or potential hazard marked on the reverse.
  - 6.7.3.2. The preventative measures that must be taken prior to use to mitigate the hazard marked on the reverse.
  - 6.7.3.3. The name of the competent person authorizing the use of the yellow-tagged scaffold.
- 6.7.4. The yellow tag will not to be removed until the scaffold has been returned to a safe condition and an inspection by a *competent person* has been completed. Based on the results of that inspection the appropriate tag (red or green) will be hung on the scaffold and the yellow tag removed.
- 6.7.5. All scaffolds that have been "*Yellow Tagged*" for *CAUTION* must still comply with the other provisions of this scaffold safety program and OSHA requirements.
- 6.7.6. NOTE: Use of the "yellow tag" status is not intended to override the green tag system. All efforts should be made to return the scaffold to a *Green Tag* status as soon as possible.
- 6.8. ***RED TAG requirements***
  - 6.8.1. A red ***DANGER - UNSAFE FOR USE*** tag is used during erection or dismantling when the scaffold is left unattended and replace all green *SAFE FOR USE* tags or yellow *CAUTION* tags in the event a scaffold has been deemed unfit for use.
  - 6.8.2. The red tag information, as a minimum requirement, includes:
    - 6.8.2.1. The work order number or project number, the inspection date and the name of the person who performed the inspection filled in on the front of the card.
    - 6.8.2.2. The designation, under erection, being dismantled, repairs required or overhead protection only, marked on the reverse.
- 6.9. Scaffold re-inspection
  - 6.9.1. Scaffold re-inspections must be completed any time when conditions may have changed causing the integrity of the scaffold to be suspect, or at a frequency determined by the *competent person* or the host employer.
  - 6.9.2. This is in addition to the required initial inspection before each shift.

## SCAFFOLDING INSPECTION REPORT

Client: \_\_\_\_\_

Job No: \_\_\_\_\_ Date: \_\_\_\_\_

Scaffold Location: \_\_\_\_\_ Time: \_\_\_\_:\_\_\_\_ AM PM

Inspected by: \_\_\_\_\_

NOTE: Scaffold will not be used unless these items are found satisfactory.

SECTION 1.	Yes	No	Comments
1. Base plates/screw jacks on firm contact with sills/deck to prevent settling.	_____	_____	_____
2. Scaffold appears to be level and verticals are plumb.	_____	_____	_____
3. Safe, proper access and egress provided to all work platforms.	_____	_____	_____
4. All platforms properly/tightly planked and secured from movement.	_____	_____	_____
5. All toeboards secured in place.	_____	_____	_____
6. All guardrails and midrails in place.	_____	_____	_____
7. Are vertical legs rigidly braced to prevent swaying.	_____	_____	_____
8. Scaffold anchored or equalized (4 to 1) to prevent movement (butts/ties installed).	_____	_____	_____
9. No energized, unprotected electrical is within 12 feet of the scaffold.	_____	_____	_____
10. Has the scaffold been tagged and has not been altered.	_____	_____	_____

SECTION 2.	Yes	No	Comments
1. Scaffold planks construction grade lumber and in sound condition.	_____	_____	_____
2. Are all planking and toeboards in place and secured.	_____	_____	_____
3. All guardrails and midrails in place and secured.	_____	_____	_____



		Yes	No	Comments
4.	All tools and material raised and lowered to locations just carried by employees.	_____	_____	_____
5.	Working platforms clear of all loose tools, cords, material, etc.	_____	_____	_____
6.	Exit ways and ladders clear and unobstructed.	_____	_____	_____
7.	Stair and planks free of debris or slippery surface.	_____	_____	_____
8.	Work being performed on the scaffold in accordance with load ratings.	_____	_____	_____
9.	Have barricades been installed, scaffold tags been placed properly.	_____	_____	_____

Inspector: \_\_\_\_\_  
Print \_\_\_\_\_  
 Sign

Supervisor: \_\_\_\_\_  
Print \_\_\_\_\_  
 Sign

Scaffold Size: \_\_\_\_\_

NOTES:

Scaffold identification tag information for the **FRONT** of **ALL TAGS** (GREEN, YELLOW & RED)

## SCAFFOLDING IDENTIFICATION TAG

Scaffold ID# \_\_\_\_\_

Date Erected D / M / Y	Expected Removal Date D / M / Y
<b>Project Name / Number / Scaffold Identification</b>	
<p>I have inspected and approved the scaffold build or erected, to which this tag is attached, and consider it to be _____ <b>SAFE</b> for completion of work as specified</p> <p>_____ <b>CAUTION</b> – Potential or Unusual Hazard</p> <p><b>INSPECTED BY:</b> _____ <b>UNSAFE FOR USE</b> – Keep off scaffold</p>	
Inspector's name <b>PRINTED</b> _____	Inspector's <b>SIGNATURE</b> _____
<b>Date inspected</b> _____	<b>Time</b> _____ <b>AM PM</b>

**RE-INSPECTED**

Name _____ Date _____	Name _____ Date _____	Name _____ Date _____
Name _____ Date _____	Name _____ Date _____	Name _____ Date _____
Name _____ Date _____	Name _____ Date _____	Name _____ Date _____

**MODIFICATION**

Name _____ Date _____	Name _____ Date _____	Name _____ Date _____
Name _____ Date _____	Name _____ Date _____	Name _____ Date _____

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Scaffold identification for **BACK** of **GREEN TAGS** (Safe for Use)

SCAFFOLDING IDENTIFICATION TAG

The following Contractor / Company  
has erected this scaffold:

---

**SAFE  
FOR  
USE**

DO NOT ALTER  
DO NOT OVERLOAD

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Scaffold identification for back of **YELLOW TAGS** (Caution -- Potential or Unusual Hazard)

# SCAFFOLDING IDENTIFICATION TAG

**The following Competent Person authorizes the use of this scaffold subject to fulfillment of the conditions listed under the preventive measures section of this tag.**

Name: \_\_\_\_\_

# CAUTION

## Potential or Unusual Hazard

**What is the Potential or Unusual Hazard** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Preventive Measures to be Taken** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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Scaffold identification for **BACK** of **RED TAGS** (Danger – Do Not Use)

**SCAFFOLDING IDENTIFICATION TAG**  
**The following Contractor / Company**  
**has erected this scaffold:**

**DANGER**  
**UNSAFE**  
**FOR USE**

<input type="checkbox"/> <b>UNDER ERECTION</b>	<input type="checkbox"/> <b>BEING DISMANTLED</b>
<input type="checkbox"/> <b>REPAIRS REQUIRED</b>	<input type="checkbox"/> <b>OVERHEAD PROTECTION ONLY</b>

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## **Applicable Standard: 29 CFR 1926.1153**

### **1. Purpose**

- 1.1. The purpose of this program is to outline prevention and protective measures which should be taken by Cleveland Integrity Services employees who will be performing work activities that could create silica dust. This plan is made available to employees, where copies may be available electronically or physically, upon request.
- 1.2. This program is reviewed at least annually to ensure its effectiveness in controlling employee exposure. Reevaluation may be necessary in cases of updates to the silica rule, changes in equipment or exposure incidents.

### **2. Scope**

- 2.1. This program applies to all Company employees who are performing job activities or in areas where there is a potential for airborne concentrations of silica to be present. This program is made available for examination to all employees of Cleveland Integrity Services

### **3. Definitions**

- 3.1. Action Level – a concentration of airborne respirable crystalline silica of 25  $\mu\text{g}/\text{m}^3$ , calculated as an 8-hour TWA
- 3.2. Competent Person – an individual who is capable of identifying existing and foreseeable respirable crystalline silica hazards in the workplace and who has authorization to take prompt corrective measures to eliminate or minimize them
- 3.3. Employee Exposure – the exposure to airborne respirable crystalline silica that would occur if the employee were not using a respirator
- 3.4. High-Efficiency Particulate Air (HEPA) Filter – a filter that is at least 99.97 percent efficient in removing mono-dispersed particles of 0.3 micrometers in diameter
- 3.5. Physician or Other Licensed Health Care Professional (PLHCP) – an individual whose legally permitted scope of practice allows him or her to independently provide or be delegated the responsibility to provide some or all of the required health care services
- 3.6. Respirable Crystalline Silica – any quartz, cristobalite and/or tridymite contained in airborne particles that are determined to be respirable by a sampling device

### **4. Requirements**

- 4.1. Cleveland Integrity Services will provide training to all employees on program requirements prior to working or entering an area where work activities could result in airborne concentrations of silica being created.
  - 4.1.1. Refresher training shall be conducted on an annual basis to ensure that employees will have the most updated information to protect them from potential exposure. Training records shall be maintained at the central office location.

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- 4.2. Work activities that are performed will be evaluated for their potential to create airborne Silica
- 4.3. SDS shall be onsite for every product that contains Silica at a level at or above the exposure permitted by OSHA. Effective June 23, 2016, the PEL for Silica will be reduced to 50 micrograms per cubic meter of air (50 µg/m<sup>3</sup>) as an eight-hour time-weighted average and requires employers to implement specific measures to protect workers. The required measures include:
  - 4.3.1. Engineering controls;
  - 4.3.2. Respiratory Protection;
  - 4.3.3. Medical surveillance;
  - 4.3.4. Hazard communication; and
  - 4.3.5. Recordkeeping.
- 4.4. Each employee will be made aware of the health effects of Silica. These include the following
  - 4.4.1. Lung Cancer
  - 4.4.2. Pulmonary Tuberculosis
  - 4.4.3. Chronic obstructive pulmonary disorder
  - 4.4.4. Silicosis
  - 4.4.5. Employees are reminded that there may not be symptoms in the early stages of exposure.
- 4.5. Exposure monitoring for Silica shall be conducted on a routine basis
  - 4.5.1. It shall be representative of the regular exposure of Silica the employee will experience in daily activities
  - 4.5.2. Monitoring will be conducted utilizing recognized measuring methods
  - 4.5.3. Records of monitoring results will be maintained at the central office for the time period required by OSHA.
  - 4.5.4. The employer shall reassess exposures whenever a change in the production, process, control equipment, personnel or work practices may reasonably be expected to result in new or additional exposures at or above the action level, or when the employer has any reason to believe that new or additional exposure at or above the action level have occurred.

## 5. Controlling exposure of airborne Silica dust

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- 5.1. The employer shall use engineering and work practice controls to reduce and maintain employee exposure to respirable crystalline silica to or below the TWA, unless the employer can demonstrate that such controls are not feasible.
- 5.2. Engineering controls shall include ventilation of the area where work activities create Silica
- 5.3. Housekeeping measures are implemented to restrict exposure to respirable crystalline silica, where possible. These methods include processes such as:
  - 5.3.1. Wet methods shall be utilized where work activity permits
  - 5.3.2. Tools with dust-collecting systems shall be used where appropriate
- 5.4. Every effort will be made where possible to substitute materials that have no crystalline Silica. Where an employee's exposure to airborne concentrations of respirable crystalline silica is, or can reasonably be expected to be, in excess of the PEL, the employer shall establish a regulated area.
- 5.5. Exposure of each employee who is expected to be exposed to respirable crystalline silica at or above the action level must be assessed. This assessment can be in the form of employee monitoring either individually or by taking a representative sample amongst all employees.

## **6. Personal Protective Equipment**

- 6.1. Where administrative controls and engineering controls are unable to reduce the level below the PEL then the following PPE is required and shall be utilized by employees exposed to silica:
  - 6.1.1. Gloves,
  - 6.1.2. Coveralls,
  - 6.1.3. Eye protection, and
  - 6.1.4. Respirators.
- 6.2. Only respirators that provide protection for the level of Silica exposure shall be utilized.
- 6.3. Respiratory protection is required during tasks for which Cleveland Integrity Services has implemented all feasible engineering and work practice controls and such controls are not sufficient to reduce exposure to or below the action level, where respirators are required.

## **7. Sampling Methods and Assessment Results**

- 7.1. The employer will ensure that samples taken are evaluated by a laboratory that analyzes air samples for respirable crystalline silica in accordance with established procedures.



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- 7.2. Within five working days after completing an exposure assessment, the employer shall individually notify each affected employee in writing of the results of that assessment or post the results in an appropriate location accessible to all affected employees.
- 7.3. When an exposure assessment indicates that the employee exposure is above the PEL, the employer shall describe in the written notification the corrective action being taken to reduce employee exposure to or below the PEL.
- 7.4. Employees will be provided with the opportunity to observe any monitoring of employee exposure to respirable crystalline silica.
  - 7.4.1. When observation of monitoring requires entry into an area where the use of PPE is required for any workplace hazard, the employer shall provide the observer with PPE at no cost and shall ensure that the observer uses such clothing and equipment.

## **8. Medical Surveillance & Examinations**

- 8.1. The employer shall make medical surveillance available at no cost to the employee, and at a reasonable time and place, for each employee who will be required to use a respirator for 30 or more days per year.
- 8.2. The employer shall ensure that all medical examinations and procedures required by this section are performed by a PLHCP.
- 8.3. The employer shall make available an initial (baseline) medical examination within 30 days after initial assignment which will consist of:
  - 8.3.1. A medical and work history;
  - 8.3.2. A physical exam with emphasis on the respiratory system;
  - 8.3.3. A chest X-ray;
  - 8.3.4. A pulmonary function test;
  - 8.3.5. Testing for latent tuberculosis; and
  - 8.3.6. Any other tested deemed necessary by the PLHCP.
- 8.4. The employer shall make available medical examinations at least every three (3) years, or more frequently if recommended by the PLHCP.
- 8.5. The employer shall ensure that the examining PLHCP is provided with the following information:
  - 8.5.1. A description of the employee's former, current and anticipated duties as they relate to occupational exposure to respirable crystalline silica;
  - 8.5.2. The employees former, current and anticipated levels of occupational exposure to respirable crystalline silica; and
  - 8.5.3. A description of any PPE used or to be used by the employee.

8.6. Results of the medical examination shall be explained to the employee and the employee shall be provided with a written medical report within 30 days of each medical exam performed.

**9. Specified Exposure Control Methods**

Equipment / Task	Engineering & Work Practice Control	Respiratory Protection	
		≤ 4 hrs/shift	> 4 hrs/shift
Stationary masonry saws	Use saw equipped with integrated water delivery system; operate and maintain tool in accordance with manufacturer's instructions	None	None
Handheld power saws	Use saw equipped with integrated water delivery system; operate and maintain tool in accordance with manufacturer's instructions; Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency	Outdoors: None Indoors: APF 10	APF 10
Walk-behind saws	Use saw equipped with integrated water delivery system; operate and maintain tool in accordance with manufacturer's instructions	Outdoors: None Indoors: APF 10	Outdoors: None Indoors: APF 10
Drivable saws	For tasks outdoor only; Use saw equipped with integrated water delivery system; operate and maintain tool in accordance with manufacturer's instructions	None	None
Rig-mounted core saws/drills	Use saw equipped with integrated water delivery system; operate and maintain tool in accordance with manufacturer's instructions	None	None
Handheld and stand-mounted drills	Use saw equipped with integrated water delivery system; operate and maintain tool in accordance with manufacturer's instructions; use a HEPA-filtered vacuum when cleaning holes	None	None
Dowel drilling rigs for concrete	For tasks performed outdoors only; use a HEPA-filtered vacuum when clearing holes	APF 10	APF 10
Vehicle-mounted drilling rigs for rock and concrete	Use dust collection system with closed capture hood or shroud around drill bit with a low-flow water spray to wet the dust at the discharge point; or operate from within an enclosed cab and use water for dust suppression	None	None

Jackhammers and handheld powered chipping tools	Use tool with water delivery system that supplies a continuous stream or spray of water at point of impact; use tool equipped with commercially available shroud and dust collection system; operate and maintain tool in accordance with manufacturer's instructions to minimize dust	Outdoors: None Indoors: APF 10	Outdoors: APF 10 Indoors: APF 10
Handheld grinders for mortar removal	Use tool equipped with commercially available shroud and dust collection system; operate and maintain tool in accordance with manufacturer's instructions to minimize dust; dust collector must provide 25 cubic feet/minute or greater of airflow per inch of wheel diameter	APF 10	APF 25
Walk-behind milling machines and floor grinders	Use machine integrated with water delivery system; operate and maintain tool to minimize dust; use machine with dust collection system; dust collector must provide air flow recommended by manufacturer or greater; when used indoors, use a HEPA-filtered vacuum to remove loose dust	None	None
Small drivable milling machine	Use machine equipped with supplemental water sprays meant to suppress dust – must be combined with surfactant; operate and maintain machine to minimize dust	None	None
Large drivable milling machine	Use machine with exhaust ventilation on drum enclosure and supplemental water sprays; operate and maintain machine to minimize dust	None	None
Crushing machines	Use equipment designed to deliver water spray or mist for dust suppression; operate and maintain machine to minimize dust; use a ventilated booth that provides fresh climate-controlled air to the operator	None	None
Heavy Equipment used to abrade/fracture silica-containing materials	Operate equipment from within an enclosed cab; when employees outside of cab are engaged in task, apply water and/or dust suppressants to minimize dust	None	None
Heavy Equipment used for grading and excavating	Apply water and/or dust suppressants to minimize dust; when equipment operator is only one performing task, operate from within an enclosed cab	None	None

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## **Applicable Standards: Owner Requirement**

### **1. Scope & Purpose**

- 1.1. Cleveland Integrity Services has developed this program to safely store and prevent spills of chemical products used in the course and scope of work. This program also establishes procedures for responding to a chemical spill in the workplace.
- 1.2. The Company's objective is to train supervisors, employees and any contractors working for the Company at a job site in these spill prevention and response procedures.
- 1.3. All initiatives established by this program are intended to protect employees, contractor personnel, host employers, the community and environment.

### **2. Introduction**

- 2.1. When Company employees work with or around a chemical product, there is a potential for spilling the chemical and causing injury, disruption of work, damage to facilities and the environment.
- 2.2. Proper planning, training and safe work procedures are essential for preventing chemical spills.

### **3. Common causes of chemical spills**

- 3.1. Based on investigation reports of major chemical spill incidents experienced by other employers, here are some of the most common causes:
  - Improper storage of chemicals / not following SDS instructions
  - Lack of standard operating procedures to handle hazardous chemicals
  - Lack of hazard analysis prior to startup
  - Insufficient training of employees who handle hazardous chemicals
  - Failure to adequately plan for use and spill response prior to using a chemical product

### **4. Access control**

- 4.1. The first step for preventing chemical spills is to make sure that only authorized employees have access to the chemicals. Only the individuals assigned to obtain, mix, use, store and otherwise work with chemical products will have access to these products.
- 4.2. Chemical products used at a work location will be stored and secured so that unauthorized employees have not have access to these supplies or materials.

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## **5. Proper Storage of Chemical Products**

- 5.1. Chemical products will be stored in proper containers to minimize the potential for a spill.
- 5.2. Whenever possible, chemicals will be kept in closed containers.
- 5.3. Chemical containers will be stored so that they are not adjacent to drains or storm sewers, or where exposed to storm water.
- 5.4. Areas where chemicals may be used and stored will be maintained using good housekeeping management practices. This includes, but is not limited to:
  - 5.4.1. Clean and organized storage
  - 5.4.2. Proper labeling of each chemical product
  - 5.4.3. Secondary containment as required for the specific chemical product

## **6. Training**

- 6.1. Employees who are assigned to work with a chemical product will be trained in the safe use of the product in accordance with Cleveland Integrity Services' written Hazard Communication (HAZCOM) Program.
- 6.2. Chemical products will be properly labeled as to contents in accordance with the HAZCOM program.
- 6.3. Training will include review of the product's Safety Data Sheet (SDS) and manufacturer's instructions on how the product should be stored.
- 6.4. Training will include instruction on the proper response procedures for the type and quantity of chemical product involved in the spill, use of spill response kit supplies, and disposal methods for chemical-contaminated materials from the response and clean-up operation.
- 6.5. Employees will be trained in the communication and reporting procedures for a chemical spill. Training will be based on Company and Host Employer spill response procedures and requirements, as well as site-specific situations.

## **7. Safety and spill response equipment**

- 7.1. Prior to commencing work with any chemicals, employees will make sure that they have the necessary personal protective equipment (PPE), safety and spill response equipment as required or indicated by the SDS and/or product label.
- 7.2. PPE, safety and spill response equipment will be regularly checked, with maintenance performed as necessary to make sure that protective and safety equipment provides proper chemical protection.

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- 7.3. The spill response kit will contain appropriate supplies for the specific chemical product(s) that are subject to spilling in the work area.
- 7.4. Both the type and quantity of the chemical product(s) will be considered and evaluated to ensure that there is an adequate quantity of the proper supplies for addressing a spill in the work area.
- 7.5. The spill response kit and associated supplies will be readily accessible in the work area in the event of a chemical spill.

## **8. Assignment of planning and preparation responsibilities**

- 8.1. At each work location, a Cleveland Integrity Services site supervisor or foreman will check the SDS for chemical use, storage and spill response requirements, and any restrictions for chemicals to be used at the job site.
- 8.2. Affected employees will be involved in the preparation of procedures or plans to handle hazardous chemicals.
- 8.3. Review the EPA's *List of Lists* for any assigned statutory or regulatory reportable quantities (RQs) of chemical products to be used or stored at the work location. Spilling more than the RQ of a substance will trigger a federal reporting obligation that involves calling the National Response Center (NRC) at 1-800-242-8802. Any such reporting will be coordinated with the Company's Safety Coordinator and the Host Employer's designated contact person or safety, health and environmental contact(s).
- 8.4. Look for high-hazard areas or situations during the pre-work walk-around. Identify any areas that pose a risk of spills. These include drum storage areas, storm drains, propane tanks, ammonia tanks, chlorine cylinders, aboveground chemical storage tanks, etc.
- 8.5. Chemical products will not be stored in the open air near any storm drains.
- 8.6. Make sure that there is sufficient secondary containment capacity as required by the specific type of chemical product to capture any spill.
- 8.7. Make sure there is a system in place to replenish spill control materials (i.e. sorbent material) as required after a spill incident.
- 8.8. Prior to using a chemical product at the work location, evaluate the need for outside help in the event of a spill. When working at a Host Employer location, this will be done in coordination with the Host Employer's designated environmental and spill response personnel.
- 8.9. The site supervisor or foreman will consult with the Company's Safety Coordinator regarding the availability and need for an outside emergency spill response service in the event of a spill during the project.

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8.10. The Company Safety Coordinator will be responsible for maintaining, overseeing and updating the master and site-specific chemical spill contingency plans and *Spill Prevention Control and Countermeasures* (SPCC) plans.

## **9. Communication and reporting of a chemical spill**

- 9.1. Site-specific communication and reporting procedures for a chemical spill in the workplace will be established, in place and coordinated with Host Employer personnel prior to commencing work.
- 9.2. Communication and reporting procedures will be based on the type and quantity of the chemical product(s) involved.
- 9.3. Any chemical spill will be reported to a Cleveland Integrity Services site supervisor or foreman, who in turn will report the incident to the Host Employer's designated contact and the Company's Safety Coordinator without delay.

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## 1. Purpose

- 1.1. The purpose of this procedure is to ensure that all employees are given the responsibility and authority to stop work when employees believe that a situation exists that places them, their coworker(s), contracted personnel, or the public at risk or in danger; could adversely affect the safe operation or cause damage to the facility; or result in a release of radiological or chemical effluents to the environment above regulatory requirements or approvals; and provides a method.
- 1.2. This procedure extends the authority to stop work to situations where an employee believes there is a risk of danger at the jobsite.

## 2. Scope

- 2.1. This procedure is applicable to all contractors and subcontract personnel working at any site.

## 3. Responsibilities

### 3.1. Employees

- 3.1.1. In supporting safe execution of work, all personnel, have the following responsibilities:
  - 3.1.1.1. The responsibility and authority to stop work or decline to perform an assigned task without fear of reprisal, to discuss and resolve work and safety concerns. The Stop Work may include discussions with co-workers, supervision, or safety representative to resolve work related issues, address potential unsafe conditions, clarify work instructions, propose additional controls, etc.
  - 3.1.1.2. The responsibility and authority to initiate a Stop Work **IMMEDIATELY**, without fear of reprisal, when the employee believes a situation exists which places himself/herself, a coworker, or the environment in danger or at risk.
  - 3.1.1.3. The responsibility to report any activity or condition the employee believes is unsafe or for which they have initiated a Stop Work. Notification should be made to the affected workers and to the supervisor or their supervisor's designee at the location where the activity or condition exists.
  - 3.1.1.4. The responsibility to notify their supervisor if a raised Stop Work issue has not been resolved to their satisfaction through established channels prior to the resumption of work.



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- 3.1.1.5. Employee can contact their safety representative or union safety representative with a concern or to initiate a stop work, if the employee prefers to remain anonymous.

### 3.2. Management/Supervisor/Person in Charge / Field Work Supervisor

- 3.2.1. Management and supervision are committed to promptly resolve issues resulting from an employee-raised Stop Work. Supervisors responsibilities are to:

- 3.2.1.1. Resolve any issues that have resulted in an individual stopping a specific task or activity.

- 3.2.1.2. Provide feedback to individual/s and the affected work group who have exercised their Stop Work responsibility on the resolution of their concern prior to resuming work. If the employee that issued a stop work is not available due to reasons such as vacation, PTB, PTO, shift change, or training then the supervisor provides the feedback to the Safety Coordinator and the host facility representative before resuming work.

- 3.2.1.3. Notify the employer's Safety Representative when bargaining unit personnel are affected, if a raised stop work issue has not been resolved.

- 3.2.1.4. Ensure no actions are taken as reprisal or retribution against individuals who raise safety concerns or stop an activity they believe is unsafe.

### 3.3. Safety Representatives are Responsible to:

- 3.3.1. Assist employees, supervision and management in the resolution of safety issues and concerns.

- 3.3.2. Immediately contact management and work to resolve issues when an employee has called a situation to their attention that has not been resolved.

- 3.3.3. Discuss resolution with employees involved in a work stoppage where resolution was completed after their shift or when they were unavailable, or where he/she acted as their representative in reaching resolution.

- 3.3.4. Work as the agent of an employee that prefers to remain anonymous to work directly in the resolution of the stop work.

## 4. Implementation

- 4.1. Immediately

## 5. Stop Work Authority Process

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## 5.1. Employee

5.1.1. Stop work if an activity or condition is believed to be unsafe, such as:

5.1.1.1. A situation exists that places them, their coworkers, contracted personnel, or the public at risk or in danger;

5.1.1.2. A situation could adversely affect the safe operation or cause damage to the facility; or

5.1.1.3. A situation could result in a release of radiological or chemical effluents to the environment above regulatory requirements or approvals.

5.1.1.4. To clarify work instructions or to propose additional controls.

5.1.2. Ensure the work/activity is in or placed in a safe condition and immediately notify supervision/management and affected workers when you stop work or decline to perform an activity.

## 5.2. Supervisor and Management

5.2.1. Resolve any issues that have resulted in an employee stopping work or an activity. Involve individuals who initiated the Stop Work or their appropriate safety representatives if the individual is not available, in reaching mutual agreement on the resolution or proposed actions necessary to return to work.

5.2.2. Be sure any necessary corrective or compensatory actions are taken before resuming an activity and are documented in accordance with Contractor procedures (logbook or other established method of reporting/tracking/communicating safety issues and corrective action management).

5.2.3. If a Stop Work has not been resolved to the mutual agreement of manager and employee, then the stop work remains in place and the Supervisor/PIC/FWS will notify the appropriate company management, safety representative and union safety representative. Resolution of the stop work resides with the union safety representative and company management to resolve and/or propose actions necessary to return to work. Work may be resumed when union safety representation and management agree that the issue has been resolved. The objective is to reach resolution at the lowest levels of engagement. Notify the DOE Facility Representative that a Stop Work has resulted in an unresolved issue.

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- 5.2.4. Review the Stop Work reports to measure participation, determine the quality of intervention and follow up, find common issues, find ways of improvement and share learning with others.

## **6. Steps in Stop Work Authority Implementation**

6.1. Stop work authority is a several step process. These steps consist of the following:

- 6.1.1. Stop – When an employee perceives conditions or behaviors that pose imminent danger, he or she must immediately initiate a stop work intervention, as described above.
- 6.1.2. Notify – The employee or supervisor invoking stop work authority must notify affected personnel and supervision of the stop work action.
- 6.1.3. Investigate – Affected personnel will discuss the situation and come to an agreement on the stop work action.
- 6.1.4. Correct – Corrective actions will be made according to the corrections agreed upon in the investigation. No disciplinary action will be taken against the employee who invoked the stop work authority.
- 6.1.5. Resume – All affected employees will be notified of what corrective actions were implemented and work will recommence by personnel when notified by their supervising staff. Work will not resume until all stop work concerns have been addressed and the designated individual with restart authority has determined that the imminent risk no longer exists or was properly mitigated.
- 6.1.6. Follow-Up – A root cause analysis to the stop work will be completed to identify any potential opportunities for improvement.

6.2. All stop work incidents are to be documented and records maintained in the event of a future, similar event. Actions and resulting corrective actions will also be documents and retained with the original stop work order.

## **7. Training**

- 7.1. All employees of Cleveland Integrity Services must be trained in Stop Work Authority prior to their initial work assignment.
- 7.2. The training must be documented with the employees' name, date, topic and trainer.

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Applicable OSHA Standards: 29 CFR 1926.650, 651, 652

## 1. Purpose & Scope

- 1.1. The purpose of this policy is to comply with the OSHA standard guidelines for the protection of Cleveland Integrity Services employees working in and around excavations and trenches.
- 1.2. This program applies to all of work locations that are controlled by the Company where some employee or subcontract personnel may be occupationally exposed to excavations and trenches.
- 1.3. Compliance is mandatory to ensure employee protection when working in or around excavations. The programs in this manual on confined space, hazard communication, lockout/tagout, respiratory protection, and any other safety programs or procedures deemed essential for employee protection, are to be used in conjunction with this program.

## 2. Responsibilities

- 2.1. It is the responsibility of management and each Site Supervisor to implement and maintain the procedures and steps set forth in this program. Each employee involved with excavation and trenching work is responsible to comply with all applicable safety procedures and requirements of this program.

## 3. Definitions

- 3.1. **BENCHING** - A method of protecting employees from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near vertical surfaces between levels.
- 3.2. **CAVE-IN** - The separation of a mass of soil or rock material from the side of an excavation, or the loss of soil from under a trench shield or support system, and its sudden movement into the excavation, either by failing or sliding, in sufficient quantity so that it could entrap, bury, or otherwise injure and immobilize a person.
- 3.3. **COMPETENT PERSON** - 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 authorization to take prompt corrective measures to eliminate them.
- 3.4. **DURATION OF EXPOSURE** - The longer an excavation is open, the longer the other factors have to work on causing it to collapse.
- 3.5. **EXCAVATION** - Any man-made cut, trench, or depression in an earth surface, formed by earth removal.

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- 3.6. HAZARDOUS ATMOSPHERE - An atmosphere which by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen deficient, toxic, or otherwise harmful, may cause death, illness, or injury.
- 3.7. PROTECTIVE SYSTEM - A method of protecting employees from cave-ins, from material that could fall or roll from an excavation, or from the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield systems, and other systems that provide necessary protection.
- 3.8. SHIELD - A structure that is capable of withstanding the forces imposed on it by a cave-in and thereby protects employees within the structure. Shields can be permanent structures or can be designed to be portable and moved along as work progresses. Shields can be pre-manufactured or job-built in accordance with 1926.652(c)(3) or (c)(4). Shields are also referred to as "trench boxes" or "trench shields."
- 3.9. SLOPING - A method of protecting workers from cave-ins by excavating to form sides of an excavation that are inclined away from the excavation to prevent cave-ins. The angle of incline required to prevent a cave-in varies with differences such as soil type, length of exposure, and application of surcharge loads.
- 3.10. SURCHARGE LOADS - Generated by the weight of anything in proximity to the excavation, push starts for a cave-in (anything up top pushing down). Common surcharge loads:
  - 3.10.1. Weight of spoil pile
  - 3.10.2. Weight of nearby buildings, poles, pavement, or other structural objects.
  - 3.10.3. Weight of material and equipment
- 3.11. TRENCH - A narrow excavation below the surface of the ground, less than 15 feet wide, with a depth no greater than the width.
- 3.12. UNDERMINING - Undermining can be caused by such things as leaking, leaching, caving or over-digging. Undermined walls can be very dangerous.
- 3.13. VIBRATION - A force present on construction sites and must be considered. The vibrations caused by backhoes, dump trucks, compactors and traffic on job sites can be substantial.

**4. General Requirements**

- 4.1. The program establishes an excavation and trenching safety plan.
- 4.2. All surface encumbrances that are located at the excavation or trenching area so as to create a hazard to employees are removed or supported, as necessary, to safeguard employees.

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- 4.3. The estimated location of utility installations, such as sewer, telephone, fuel, electric, water lines, or any other underground installations that reasonably may be expected to be encountered during excavation work, is determined prior to opening an excavation.
- 4.4. Utility companies or owners are contacted within established or customary local response times, advised of the proposed work, and asked to establish the location of the utility underground installations prior to the start of actual excavation.
- 4.5. When utility companies or owners cannot respond to a request to locate underground utility installations within 24 hours (unless a longer period is required by state or local law), or cannot establish the exact location of these installations, the Company may proceed, provided the Company does so with caution, and provided detection equipment or other acceptable means to locate utility installations are used.
- 4.6. When excavation operations approach the estimated location of underground installations, the exact location of the installations is determined by safe and acceptable means.
- 4.7. While the excavation is open, underground installations are protected, supported or removed as necessary to safeguard employees.
- 4.8. Structural ramps that are used solely by employees as a means of access or egress from excavations are designed by a competent person. Structural ramps used for access or egress of equipment are designed by a competent person qualified in structural design and are constructed in accordance with the design.
- 4.9. Ramps and runways constructed of two or more structural members have the structural members connected together to prevent displacement.
- 4.10. Structural members used for ramps and runways are of uniform thickness.
- 4.11. Cleats or other appropriate means used to connect runway structural members are attached to the bottom of the runway or are attached in a manner to prevent tripping.
- 4.12. Structural ramps used in lieu of steps are provided with cleats or other surface treatments on the top surface to prevent slipping.
- 4.13. Means of egress from trench excavations are provided. A stairway, ladder, ramp or other safe means of egress is located in trench excavations that are 4 feet (1.22 m) or more in depth so as to require no more than 25 feet (7.62 m) of lateral travel for employees.
- 4.14. Employees exposed to public vehicular traffic are provided with and will wear warning vests or other suitable garments marked with or made of reflector or high-visibility material.

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- 4.15. No employee is permitted underneath loads handled by lifting or digging equipment. Employees are required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials. Operators may remain in the cabs of vehicles being loaded or unloaded when the vehicles are equipped, in accordance with 1926.601(b)(6), to provide adequate protection for the operator during loading and unloading operations.
- 4.16. Daily inspections of excavations, the adjacent areas, and protective systems are made by a competent person for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions.
- 4.17. An inspection is conducted by the competent person prior to the start of work and as needed throughout the shift. Inspections are also made after every rainstorm or other hazard increasing occurrence. These inspections are only required when employee exposure can be reasonably anticipated.
- 4.18. Where the competent person finds evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed employees are removed from the hazardous area until the necessary precautions have been taken to ensure their safety.
- 4.19. Walkways are provided where employees or equipment are required or permitted to cross over excavations. Guardrails which comply with 1926.502(b) are provided where walkways are 6 feet (1.8 m) or more above lower levels.

## 5. Safe Work Procedures

- 5.1. Before any work is performed and before any employees enter the excavation, a number of items must be checked and insured:
  - 5.1.1. Before any excavation, underground installations must be determined. This can be accomplished by either contacting the local utility companies or the local "one-call" center for the area. All underground utility locations must be documented on the proper forms. All overhead hazards (surface encumbrances) that create a hazard to employees must be removed or supported to eliminate the hazard.
  - 5.1.2. If the excavation is to be over 20 feet deep, it must be designed by a professional engineer who is registered in the state where work will be performed.
  - 5.1.3. Adequate protective systems are utilized to protect employees. This can be accomplished through sloping, shoring, or shielding.
  - 5.1.4. The worksite must be analyzed in order to design adequate protection systems and prevent cave-ins. There must also be an excavation safety plan developed to protect employees.

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- 5.1.5. Workers must be supplied with and wear any personal protective equipment deemed necessary to assure their protection.
- 5.1.6. All spoil piles are stored a minimum of 2 feet from the sides of the excavation. The spoil pile must not block the safe means of egress.
- 5.1.7. If a trench or excavation is 4 feet or deeper, stairways, ramps, or ladders are used as a safe means of access and egress. For trenches, the employee must not have to travel any more than 25 feet of lateral travel to reach the stairway, ramp, or ladder.
- 5.1.8. No employee works in an excavation where water is accumulating unless adequate measures are used to protect the employees.
  - 5.1.8.1. A competent person inspects all excavations and trenches daily, prior to employee exposure or entry, and after any rainfall, soil change, or any other time needed during the shift. The competent person must take prompt measures to eliminate any and all hazards.
  - 5.1.8.2. Excavations and trenches 4 feet or deeper that have the potential for toxic substances or hazardous atmospheres are tested at least daily. Documentation of test data is maintained throughout the course of the project. If the atmosphere is inadequate, protective systems are utilized.
  - 5.1.8.3. If work is in or around traffic, employees must be supplied with and wear orange reflective vests. Signs and barricades must be utilized to ensure the safety of employees, vehicular traffic, and pedestrians.

## **6. Competent Person Responsibilities**

- 6.1. In most work situations, the Site Supervisor is the competent person for excavation and trenching operations.
- 6.2. The OSHA Standards require that the competent person must be capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and have authorization to take prompt corrective measures to eliminate them and, if necessary, to stop the work.
- 6.3. A competent person is required to:
  - 6.3.1. Have a complete understanding of the applicable safety standards and any other data provided.
  - 6.3.2. Identify the proper locations of underground installations or utilities, and ensure that the proper utility companies have been contacted.
  - 6.3.3. Conduct and document soil classification tests and reclassify soil after any condition changes.



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- 6.3.4. Determine adequate protective systems (sloping, shoring, or shielding systems) for employee protection.
- 6.3.5. Conduct and document all air monitoring for potential hazardous atmospheres.
- 6.3.6. Conduct and document daily and periodic inspections of excavations and trenches.
- 6.3.7. Approve design of structural ramps, if used.

## **7. Excavation Safety Plan**

- 7.1. An excavation safety plan is required in written form. This plan is to be developed to the level necessary to ensure complete compliance with the OSHA Excavation Safety Standard and state and local safety standards.
- 7.2. Excavation safety plan factors:
  - 7.2.1. Utilization of the local one-call system
  - 7.2.2. Determination of locations of all underground utilities
  - 7.2.3. Consideration of confined space atmosphere potential
  - 7.2.4. Proper soil protection systems and personal protective equipment and clothing
  - 7.2.5. Determination of soil composition and classification
  - 7.2.6. Determination of surface and subsurface water
  - 7.2.7. Depth of excavation and length of time it will remain open
  - 7.2.8. Emergency rescue system/procedure
  - 7.2.9. Proper adherence to all other applicable OSHA Standards, this Excavation and Trenching Safety Program, and any other coinciding safety programs.

## **8. Soil Classification and Identification**

- 8.1. The OSHA Standards define soil classifications within the Simplified Soil Classification Systems, which consist of four categories: Stable Rock, Type A, Type B, and Type C. Stability is greatest in Stable Rock and decreases through Type A and B to Type C, which is the least stable. Appendix A of the Standard provides soil mechanics terms and types of field tests used to determine soil classifications.
- 8.2. Stable Rock is defined as:

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- 8.2.1. Natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed.
- 8.3. Type A soil is defined as:
  - 8.3.1. Cohesive soils with an unconfined compressive strength of 1.5 tons per square foot (TSF) or greater.
  - 8.3.2. Cemented soils like caliches and hardpan are considered Type A.
  - 8.3.3. Soil is NOT Type A if:
    - 8.3.3.1. It is fissured.
    - 8.3.3.2. The soil is subject to vibration from heavy traffic, pile driving or similar effects.
    - 8.3.3.3. The soil has been previously disturbed.
    - 8.3.3.4. The material is subject to other factors that would require it to be classified as a less stable material.
    - 8.3.3.5. The exclusions for Type A most generally eliminate it from most construction situations.
- 8.4. Type B soil is defined as:
  - 8.4.1. Cohesive soil with an unconfined compressive strength greater than .5 TSF, but less than 1.5 TSF.
  - 8.4.2. Granular cohesion less soil including angular gravel, silt, silt loam, and sandy loam.
  - 8.4.3. The soil has been previously disturbed except that soil classified as Type C soil.
  - 8.4.4. Soil that meets the unconfined compressive strength requirements of Type A soil, but is fissured or subject to vibration.
  - 8.4.5. Dry rock that is unstable.
- 8.5. Type C soil is defined as:
  - 8.5.1. Cohesive soil with an unconfined compressive strength of .5 TSF or less.
  - 8.5.2. Granular soils including gravel, sand and loamy sand.
  - 8.5.3. Submerged soil or soil from which water is freely seeping.

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8.5.4. Submerged rock that is not stable.

## 9. Soil Test and Identification

- 9.1. The competent person will classify the soil type in accordance with the definitions in Appendix A of the Standard on the basis of at least 1 visual and 1 manual analysis. These tests should be run on freshly excavated samples from the excavation and are designed to determine stability based on a number of criteria: the cohesiveness, the presence of fissures, the presence and amount of water, the unconfined compressive strength, and the duration of exposure, undermining, and the presence of layering, prior excavation and vibration.
- 9.2. The cohesion tests are based on methods to determine the presence of clay. Clay, silt, and sand are size classifications, with clay being the smallest sized particles, silt intermediate and sand the largest. Clay minerals exhibit good cohesion and plasticity (can be molded). Sand exhibits no elasticity and virtually no cohesion unless surface wetting is present. The degree of cohesiveness and plasticity depend on the amounts of all three types and water.
- 9.3. When examining the soil, 3 questions must be asked: Is the sample granular or cohesive? Fissured or non-fissured? What is the unconfined compressive strength measured in TSF?

## 10. Methods of testing soils

- 10.1. Visual test: If the excavated soil is in clumps, it is cohesive. If it breaks up easily, not staying in clumps, it is granular.
- 10.2. Wet manual test: Wet your fingers and work the soil between them. Clay is a slick paste when wet, meaning it is cohesive. If the clump falls apart in grains, it is granular.
- 10.3. Dry strength test: Try to crumble the sample in your hands with your fingers. If it crumbles into grains, it is granular. Clay will not crumble into grains, only into smaller chunks.
- 10.4. Pocket penetrometer test: This instrument is most accurate when soil is nearly saturated. This instrument will give unconfined compressive strength in tons per square foot. The spring-operated device uses a piston that is pushed into a coil up to a calibration groove. An indicator sleeve marks and retains the reading until it is read. The reading is calibrated in tons per square foot (TSF) or kilograms per cubic centimeter.
- 10.5. Thumb penetration test: The competent person attempts to penetrate a fresh sample with thumb pressure. If the sample can be dented, but penetrated only with great effort, it is Type A. If it can be penetrated several inches and molded by light pressure, it is Type C. Type B can be penetrated with effort and molded.

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- 10.6. Shear vane: Measures the approximate shear strength of saturated cohesive soils. The blades of the vane are pressed into a flat section of undisturbed soil, and the knob is turned slowly until soil failure. The dial is read directly when using the standard vane. The results are in tons per square foot or kilograms per cubic centimeter.
- 10.7. The competent person will perform several tests along the depth and length of the excavation to obtain consistent, supporting data. The soil is subject to change several times within the scope of an excavation and the moisture content will vary with weather and job conditions. The competent person must also determine the level of protection based on what conditions exist at the time of the test, and allow for changing conditions.

## 11. Hazardous Atmospheres

- 11.1. To prevent exposure to harmful levels of atmospheric contaminants and to assure acceptable atmospheric conditions, the following requirements apply:
  - 11.1.1. Where oxygen deficiency (atmospheres containing less than 19.5 percent oxygen) or a hazardous atmosphere exists or could reasonably be expected to exist, such as in excavations in landfill areas or excavations in areas where hazardous substances are stored nearby, the atmospheres in the excavation will be tested before employees enter excavations greater than 4 feet (1.22 m) in depth.
  - 11.1.2. Adequate precautions are taken to prevent employee exposure to atmospheres containing less than 19.5 percent oxygen and other hazardous atmospheres. These precautions include providing proper respiratory protection or ventilation.
  - 11.1.3. Adequate precaution is taken such as providing ventilation, to prevent employee exposure to an atmosphere containing a concentration of a flammable gas in excess of 20 percent of the lower flammable limit of the gas.
  - 11.1.4. When controls are used that are intended to reduce the level of atmospheric contaminants to acceptable levels, testing is conducted as often as necessary to ensure that the atmosphere remains safe.
  - 11.1.5. Emergency rescue equipment, such as breathing apparatus, a safety harness and line, or a basket stretcher, is readily available where hazardous atmospheric conditions exist or may reasonably be expected to develop during work in an excavation. This equipment is attended when in use.
  - 11.1.6. Employees entering bell-bottom pier holes, or other similar deep and confined footing excavations, wear a harness with a lifeline securely attached to it. The lifeline is separate from any line used to handle materials and is individually attended at all times while the employee wearing the lifeline is in the excavation.

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## 12. Water Accumulation

- 12.1. Employees do not work in excavations in which there is accumulated water, or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation. The precautions necessary to protect employees adequately vary with each situation, but could include special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water, or use of a safety harness and lifeline.
- 12.2. If water is controlled or prevented from accumulating by the use of water removal equipment, the water removal equipment and operations are monitored by a competent person to ensure proper operation.
- 12.3. If excavation work interrupts the natural drainage of surface water (such as streams), diversion ditches, dikes, or other suitable means are used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation. Excavations subject to runoff from heavy rains require an inspection by a competent person and compliance with provisions of the two paragraphs above.

## 13. Excavation Protection Systems

- 13.1. The three basic protective systems for excavations and trenches are sloping and benching systems, shoring, and shields.
- 13.2. The protective systems have the capacity to resist without failure all loads that are intended or could reasonably be expected to be applied to or transmitted to the system. Every employee in an excavation is protected from cave-ins by an adequate protective system.
- 13.3. Exceptions to using protective system:
  - 13.3.1. Excavations are made entirely in stable rock
  - 13.3.2. Excavations are less than 5 feet deep and declared safe by a competent person
- 13.4. Sloping and Benching Systems
  - 13.4.1. There are 4 options for sloping:
    - 13.4.1.1. Slope to the angle required by the Standard for Type C soil, which is the most unstable soil type.
    - 13.4.1.2. The table provided in Appendix B of the Standard may be used to determine the maximum allowable angle (after determining the soil type).
    - 13.4.1.3. Tabulated data prepared by a registered professional engineer can be utilized.

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- 13.4.1.4. A registered professional engineer can design a sloping plan for a specific job.
- 13.4.2. Sloping and benching systems for excavations 5 to 20 feet in depth must be constructed under the instruction of a designated competent person.
- 13.4.3. Sloping and benching systems for excavations greater than 20 feet must be designed and stamped by a registered professional engineer.
- 13.4.4. Sloping and benching specifications can be found in Appendix B of the Standard.

#### **14. Shoring Systems**

- 14.1. Shoring is another protective system or support system. Shoring utilizes a framework of vertical members (uprights), horizontal members (whales), and cross braces to support the sides of the excavation to prevent a cave-in. Metal hydraulic, mechanical or timber shorings are common examples.
- 14.2. Different examples of shoring are found in the OSHA Standard under these appendices:
  - 14.2.1. Appendix C - Timber Shoring for Trenches
  - 14.2.2. Appendix D - Aluminum Hydraulic Shoring for Trenches
  - 14.2.3. Appendix E - Alternatives to Timber Shoring

#### **15. Shield Systems (Trench Boxes)**

- 15.1. Shielding is the third method of providing a safe workplace. Unlike sloping and shoring, shielding does not prevent a cave-in. Shields are designed to withstand the soil forces caused by a cave-in and protect the employees inside the structure. Most shields consist of 2 flat, parallel metal walls that are held apart by metal cross braces. Shielding design and construction is not covered in the OSHA Standards. Shields must be certified in design by a registered professional engineer and must have either a registration plate on the shield or registration papers from the manufacturer on file at the jobsite office.
- 15.2. Any repairs or modifications **MUST** be approved by the manufacturer!
  - 15.2.1. Safety Precautions for Shield Systems
    - 15.2.1.1. Shields must not have any lateral movement when installed.
    - 15.2.1.2. Employees are protected from cave-ins when entering and exiting the shield (examples - ladder within the shield or a properly sloped ramp at the end).

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- 15.2.1.3. Employees are not allowed in the shield during installation, removal, or during any vertical movement.
- 15.2.1.4. Shields can be 2 ft. above the bottom of an excavation if they are designed to resist loads at the full depth and if there are no indications of caving under or behind the shield.
- 15.2.1.5. The shield must extend at least 18 inches above the point where proper sloping begins (the height of the shield must be greater than the depth of the excavation).
- 15.2.1.6. The open end of the shield must be protected from the exposed excavation wall. The wall must be sloped, shored, or shielded. Engineer designed end plates can be mounted on the ends of the shield to prevent cave-ins.

## **16. Personal Protective Equipment**

- 16.1. It is the policy of Cleveland Integrity Services to wear a hard hat, safety glasses, and work boots on the jobsite. Because of the potential hazards involved with excavations, other personal protective equipment may be necessary (examples - goggles, gloves, safety harness and lifeline, and respiratory equipment).

## **17. Inspections**

- 17.1. Daily inspection of excavations, the adjacent areas and protective systems are made by the competent person for evidence of a situation that could result in a cave-in, indications of failure of protective systems, hazardous atmospheres or other hazardous conditions.
- 17.2. All inspections are conducted by the competent person prior to the start of work and as needed throughout the shift.
- 17.3. Inspections are made after every rainstorm or any other increasing hazard.
- 17.4. All documented inspections are kept on file in the jobsite safety files

## **18. Training**

- 18.1. When the Company is not initiating the excavation or trenching operation, basic awareness training is provided by communicating all elements of this program to employees at the work location.
- 18.2. The competent person(s) must be trained in accordance with the OSHA Excavation Standard, and all other programs that may apply (examples Hazard Communication, Confined Space, and Respiratory Protection), and must demonstrate a thorough understanding and knowledge of the programs and the hazards associated.

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18.3. All other employees working in and around the excavation must be trained in the recognition of hazards associated with trenching and excavating.



Applicable OSHA Standard: 29 CFR 1910 Subpart Q

**1. Purpose & Scope**

- 1.1. This policy is intended as a guide for the safe use of welding and burning equipment.
- 1.2. This policy applies to all employees and subcontractors working within Cleveland Integrity Services controlled job sites.

**2. General**

- 2.1. "Hot work" means riveting, welding, flame cutting or other fire or spark-producing operation.
- 2.2. Only properly trained and instructed employees are permitted to use electric, oxygen and fuel gas welding, burning and cutting equipment. Supervisors are also trained in these safety requirements so that they can effectively oversee, manage and enforce safe work operations. Employees operating or maintaining equipment must be familiar with 29 CFR 1910.252 (a-c) and 29 CFR 1910.254.
- 2.3. Employees are protected from radiant energy eye hazards by spectacles, cup goggles, helmets, hand shields or face shields with filter lenses. Filter lenses have an appropriate shade number, as indicated in the following table for the work performed. Variations of one or two shade numbers are permissible to suit individual preferences.

Operation	Shade No.
Soldering	2
Torch Brazing	3 or 4
Light cutting, up to 1 inch	3 or 4
Medium cutting, 1-6 inches	4 or 5
Heavy cutting, over 6 inches	5 or 6
Light gas welding, up to 1/8"	4 or 5
Medium gas welding, 1/8 – 1/2"	5 or 6
Heavy gas welding, over 1/2"	6 or 8
Shielded Metal-Arc Welding 1/16 to 5/32 - inch electrodes.	10
Inert-gas Metal-Arc Welding (Non-ferrous) 1/16 - to 5/32 - inch electrodes.	11
Shielded Metal-Arc Welding: 3/16 to 1/4 - inch electrodes	12
5/16 - and 3/8 - inch electrodes	14

- 2.4. Authorization from the Site Supervisor or, in the shop, the supervisor in charge, before cutting or welding is permitted. The area where hot work will be performed is

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inspected by the Site Supervisor or the supervisor in charge. The supervisor designates precautions to be followed in granting authorization to proceed preferably in the form of a written permit.

- 2.5. To the extent possible, hot work is performed in designated locations that are free of hazards.
- 2.6. Hot work is not performed in flammable or potentially flammable atmospheres, on or in equipment or tanks that have contained flammable gas or liquid or combustible liquid or dust-producing material, until a designated person has tested the atmosphere inside the equipment or tanks and determined that it is not hazardous.
- 2.7. Regarding fire hazards, if the object to be welded or cut cannot readily be moved, all movable fire hazards in the vicinity are taken to a safe place.
- 2.8. When hot work must be performed in a location that is not free of fire hazards, all necessary precautions are taken to confine heat, sparks, and slag so that they cannot contact flammable or combustible material. If the object to be welded or cut cannot be moved and if all the fire hazards cannot be removed, then guards are used to confine the heat sparks and slag and to protect the immovable fire hazards.
- 2.9. If the safety requirements specified in this program cannot be followed, then welding and cutting may not be performed until it can be done safely and in compliance with company safety rules.
- 2.10. Drums and containers which contain or have contained flammable or combustible liquids are kept closed. Empty containers are removed from the hot work area.
- 2.11. Inspect all leads torches, hoses, gauges and other equipment daily before use.
- 2.12. The operator reports any equipment defect or safety hazard to his supervisor and the use of the equipment is discontinued until its safety has been assured. Repairs will be made only by qualified personnel.
- 2.13. Always check around and below before commencing hot work operations. Use blankets or other protective devices where required. Cover electrical wires to prevent damage.
- 2.14. Wear an approved respirator or assure some means of local exhaust ventilation when performing hot work in an area subject to accumulation of fumes and vapor. When in doubt, ask the Site Safety Supervisor/Representative for assistance. Any employee exposed to the same atmosphere as the welder or burner is protected by the same type of respiratory and other protective equipment as that worn by the welder or burner.
- 2.15. Hot work activities requiring local ventilation and/or respirators include:
- 2.16. Zinc bearing base or filler metal or metals coated with zinc bearing materials.

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- 2.16.1. Lead based metals; metals containing lead other than as an impurity or metals coated with lead bearing materials.
- 2.16.2. Cadmium bearing filler materials; or cadmium coated base materials.
- 2.16.3. Chromium bearing metals or metals coated with chromium bearing materials.
- 2.16.4. Beryllium containing base or filler metals. Because of its high toxicity, work involving beryllium will be done with both local exhaust ventilation and air supplied respirators.
- 2.17. Adequate spark containment methods or barricades are used when welding burning or cutting overhead.
- 2.18. Never heat an object lying flat on a concrete floor. Be sure to provide an air space between the material and the floor, as concrete will explode under extreme heat.

### **3. Electric Arc Welding and Cutting**

- 3.1. Personnel of Cleveland Integrity Services designated to operate arc welding equipment have been properly instructed and qualified to operate such equipment. Personnel assigned to operate or maintain arc welding equipment are acquainted with both company safety rules and OSHA requirements under Part 1910 Subpart Q - Welding, Cutting, and Brazing.
- 3.2. Personnel performing gas-shielded arc welding comply with Recommended Safe Practices for Gas-Shielded Arc Welding, A6.1-1966, American Welding Society.
- 3.3. All work has a separate and adequate ground.
- 3.4. Welding leads are not placed in aisles, stairways or landings where they will present tripping hazards. Excessive leads and hoses should be avoided.
- 3.5. Only manual electrode holders intended for arc welding and cutting and capable of handling the maximum current required for such welding or cutting will be used.
- 3.6. Current-carrying parts passing through those portions of the holder gripped by the user and through the outer surfaces of the jaws of the holder is insulated against the maximum voltage to ground.
- 3.7. Arc welding and cutting cables are insulated, flexible and capable of handling the maximum current required by the operations, taking into account the duty cycles.
- 3.8. Only cable free from repair or splice for 10 feet (3 m) from the electrode holder are used unless insulated connectors or splices with insulating quality equal to that of the cable are provided.

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- 3.9. Insulated connectors of equivalent capacity are used for connecting or splicing cable. Cable lugs, where used as connectors, provide electrical contact. Exposed metal parts are insulated.
- 3.10. Ground return cables have current-carrying capacity equal to or exceeding the total maximum output capacities of the welding or cutting units served.
- 3.11. Before use, arc welding and cutting machine frames are grounded, either through a third wire in the cable containing the circuit conductor or through a separate wire at the source of the current. Grounding circuits have resistance low enough to permit sufficient current to flow to cause the fuse or circuit breaker to interrupt the current.
- 3.12. When electrode holders are left unattended, electrodes are removed and holders placed to prevent employee injury.
- 3.13. Hot electrode holders are not dipped in water.
- 3.14. When arc welders or cutters leave or stop work or when machines are moved, the power supply switch is kept in the off position.
- 3.15. Arc welding or cutting equipment having a functional defect is not used.
- 3.16. Arc welding and cutting operations are separated from other operations by shields, screens, or curtains to protect employees in the vicinity from the direct rays and sparks of the arc.

#### 4. **Gas Welding & Cutting**

- 4.1. Compressed gas cylinders:
  - 4.1.2. Have valve protection caps in place except when in use, hooked up or secured for movement. Oil will not be used to lubricate caps;
  - 4.1.3. Are hoisted only while secured, as on a cradle or pallet, and are not hoisted by mallet, choker sling or cylinder caps;
  - 4.1.4. Are moved only by tilting or rolling on their bottom edges;
  - 4.1.5. Are secured when moved by vehicle;
  - 4.1.6. Are secured while in use;
  - 4.1.7. Have valves closed when cylinders are empty, being moved or stored;
- 4.2. Are secured upright except when hoisted or carried;
- 4.3. Are not freed when frozen by prying the valves or caps with bars or by hitting the valve with a tool;

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- 4.4. Are not thawed by boiling water;
  - 4.5. Are not exposed to spark, hot slag, or flame;
  - 4.6. Are kept away from radiators and other sources of heat;
  - 4.7. Are not permitted to become part of electrical circuits or have electrodes struck against them to strike arcs;
  - 4.8. Are not used as rollers or supports;
  - 4.9. Do not have contents used for purposes not authorized by the supplier;
  - 4.10. Are not used if damaged or defective;
  - 4.11. Do not have gases mixed within, except by gas suppliers;
  - 4.12. Are stored so that oxygen cylinders are separated from fuel gas cylinders and combustible materials by either a minimum distance of 20 feet (6 m) or a barrier having a fire-resistance rating of 30 minutes;
  - 4.13. Do not have objects that might either damage the safety device or obstruct the valve placed on top of the cylinder when in use.
- 4.2. Fuel gas is used only as follows:
- 4.2.1. Before regulators are connected to cylinder valves, the valves are opened slightly (cracked) and closed immediately to clear away dust or dirt. Valves are not cracked if gas could reach possible sources of ignition;
  - 4.2.2. Cylinder valves are opened slowly to prevent regulator damage and are not opened more than 1 1/2 turns. Any special wrench required for emergency closing is positioned on the valve stem during cylinder use. For “manifolded” or coupled cylinders, at least one wrench is immediately available. Nothing is placed on top of a cylinder or associated parts when the cylinder is in use.
  - 4.2.3. Pressure-reducing regulators are attached to cylinder valves when cylinders are supplying torches or devices equipped with shut-off valves;
  - 4.2.4. Cylinder valves are closed and gas released from the regulator or manifold before regulators are removed;
  - 4.2.5. Leaking fuel gas cylinder valves are closed and the gland nut tightened. If the leak continues, the cylinder is tagged, removed from service, and moved to a location where the leak will not be hazardous. If a regulator attached to a valve stops a leak, the cylinder need not be removed from the workplace but is tagged and may not be used again before it is repaired;

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- 4.2.6. If a plug or safety device leaks, the cylinder is tagged, removed from service, and moved to a location where the leak will not be hazardous.
- 4.3. Fuel gas and oxygen hoses are easily distinguishable from each other by color or sense of touch. Oxygen and fuel hoses are not interchangeable. Hoses having more than one gas passage are not used.
- 4.4. When oxygen and fuel gas hoses are taped together, not more than four (4) of each 12 inches (10.2 cm of each 30.5 cm) are taped.
- 4.5. Hoses are inspected before use. Hose subjected to flashback or showing evidence of severe wear or damage is tested to twice the normal working pressure but not less than 200 p.s.i. (1378.96 kPa) before reuse. Defective hoses are not used.
- 4.6. Hose coupling does not unlock or disconnect without rotary motion.
- 4.7. Hose connections are clamped or securely fastened to withstand twice the normal working pressure but not less than 300 p.s.i. (2068.44 kPa) without leaking.
- 4.8. Gas hose storage boxes are ventilated.
- 4.9. Torch tip openings are only cleaned with devices designed for that purpose.
- 4.10. Torches are inspected before each use for leaking shut-off valves, hose couplings and tip connections. Torches with such defects are not used.
- 4.11. Personnel in charge of the oxygen or fuel-gas supply equipment, including generators, and oxygen or fuel-gas distribution piping systems are instructed and judged competent by their employers for this important work before being left in charge. Rules and instructions covering the operation and maintenance of oxygen or fuel-gas supply equipment including generators, and oxygen or fuel-gas distribution piping systems are readily available.

## 5. Fire Watch Requirements

- 5.1. Fire watchers are required whenever welding or cutting is performed in locations where other than a minor fire might develop, or any of the following conditions exist:
  - 5.1.1. Appreciable combustible material, in building construction or contents, closer than 35 feet (10.7 m) to the point of operation.
  - 5.1.2. Appreciable combustibles are more than 35 feet (10.7 m) away but are easily ignited by sparks.
  - 5.1.3. Wall or floor openings within a 35-foot (10.7 m) radius expose combustible material in adjacent areas including concealed spaces in walls or floors.
  - 5.1.4. Combustible materials are adjacent to the opposite side of metal partitions, walls, ceilings, or roofs and are likely to be ignited by conduction or radiation.

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- 5.2. Fire watchers have fire extinguishing equipment readily available and are trained in its use. They are familiar with facilities for sounding an alarm in the event of a fire. They watch for fires in all exposed areas, try to extinguish them only when obviously within the capacity of the equipment available, or otherwise sound the alarm. A fire watch is maintained for at least a half hour after completion of welding or cutting operations to detect and extinguish possible smoldering fires.
- 5.3. Fire Watches are trained at the worksite by the Site Supervisor. Training is documented and employees training files updated to reflect the training.
- 5.4. Training is done when employees are initially hired and annually thereafter.
- 5.5. Refer to Appendix 1 of this section for specific policies and procedures regarding Fire Watch assignment and responsibilities.

## 6. **Working in Confined Spaces**

- 6.1. When hot work, welding, cutting or brazing must be performed in a confined space, only personnel who have successfully completed the company's safety training program and certification for confined space entry will perform such work; and then only with prior authorization from the Site Supervisor utilizing written permit procedures as specified in Cleveland Integrity Services's Confined Space Entry written safety program.
- 6.2. For purposes of this section, a confined space means a relatively small or restricted space (with comparative examples cited by OSHA being a tank, boiler, pressure vessel, or small compartment of a ship).
- 6.3. Ventilation is a prerequisite to work in confined spaces.
- 6.4. When welding or cutting is being performed in any confined spaces the gas cylinders and welding machines is left on the outside. Before operations are started, heavy portable equipment mounted on wheels are securely blocked to prevent accidental movement.
- 6.5. Where a welder must enter a confined space through a manhole or other small opening, means are provided for quickly removing him in case of emergency. When safety belts and lifelines are used for this purpose they are attached to the welder's body so that his body cannot be jammed in a small exit opening. An attendant with a preplanned rescue procedure is stationed outside to observe the welder at all times and capable of putting rescue operations into effect.
- 6.6. When arc welding is to be suspended for any substantial period of time, such as during lunch or overnight, all electrodes are removed from the holders and the holders carefully located so that accidental contact cannot occur and the machine disconnected from the power source.

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- 6.7. In order to eliminate the possibility of gas escaping through leaks of improperly closed valves, when gas welding or cutting, the torch valves are closed and the fuel-gas and oxygen supply to the torch positively shut off at some point outside the confined area whenever the torch is not to be used for a substantial period of time, such as during lunch hour or overnight.
- 6.8. Where practicable the torch and hose is also removed from the confined space.
- 6.9. After welding operations are completed, the welder marks the hot metal or provide some other means of warning other workers.

## **7. Health Precautions & Ventilation**

- 7.1. The following requirements have been established on the basis of the following three factors in arc and gas welding which govern the amount of contamination to which welders may be exposed:
  - 7.1.1. Dimensions of space in which welding is to be done (with special regard to height of ceiling).
    - 7.1.1.1. Number of welders.
    - 7.1.1.2. Possible evolution of hazardous fumes, gases, or dust according to the metals involved.
- 7.2. When welding must be performed in a space entirely screened on all sides, the screens are arranged so that no serious restriction of ventilation exists. It is desirable to have the screens so mounted that they are about 2 feet (0.61 m) above the floor unless the work is performed at so low a level that the screen must be extended nearer to the floor to protect nearby workers from the glare of welding.
- 7.3. Local exhaust or general ventilating systems are provided and arranged to keep the amount of toxic fumes, gases, or dusts below the maximum concentration allowed by OSHA.
- 7.4. A number of potentially hazardous materials are employed in fluxes, coatings, coverings, and filler metals used in welding and cutting or are released to the atmosphere during welding and cutting. The suppliers of welding materials determine the hazard, if any, associated with the use of their materials in welding, cutting, etc.
- 7.5. All filler metals and fusible granular materials carry the following notice, as a minimum, on tags, boxes, or other containers:



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**CAUTION**

**Welding may produce fumes and gases hazardous to health.  
Avoid breathing these fumes and gases. Use adequate ventilation.  
See ANSI Z49.1-1967 Safety in Welding and Cutting published by the  
American Welding Society.**

- 7.6. Brazing (welding) filler metals containing cadmium in significant amounts carry the following notice on tags, boxes, or other containers:

**WARNING**

**CONTAINS CADMIUM -- POISONOUS FUMES  
MAY BE FORMED ON HEATING**

**Do not breathe fumes. Use only with adequate ventilation such as fume  
collectors, exhaust ventilators, or air-supplied respirators.  
See ANSI Z49.1-1967. If chest pain, cough, or fever develops  
after use, call physician immediately.**

- 7.7. Brazing and gas welding fluxes containing fluorine compounds have a cautionary wording to indicate that they contain fluorine compounds. One such cautionary wording recommended by the American Welding Society for brazing and gas welding fluxes reads as follows:

**CAUTION**

**CONTAINS FLUORIDES**

**This flux when heated gives off fumes that may irritate eyes, nose and throat.  
Avoid fumes - use only in well-ventilated spaces.  
Avoid contact of flux with eyes or skin.  
Do not take internally.**

- 7.8. Ventilation for general welding and cutting

- 7.8.1. Special safety procedures are taken when welding, cutting or hot work are performed involving fluorine compounds, zinc, lead, beryllium, cadmium, mercury, cleaning compounds, stainless steel, or other exotic metals or paints that release toxic fumes during hot work.
- 7.8.2. When other metals are welded or cut through hot work, mechanical ventilation is provided:
- 7.8.2.1. In a space of less than 10,000 cubic feet (284 m<sup>3</sup>) per welder.
- 7.8.2.2. In a room having a ceiling height of less than 16 feet (5 m).
- 7.8.2.3. In confined spaces or where the welding space contains partitions, balconies, or other structural barriers to the extent that they significantly obstruct cross ventilation.

7.8.3. Minimum rate. Such ventilation is at the minimum rate of 2,000 cubic feet (57 m<sup>3</sup>) per minute per welder, except where appropriate local exhaust hoods and booths, or airline respirators approved by the U.S. Bureau of Mines for such purposes are provided. Natural ventilation is considered sufficient for welding or cutting operations, except for hot work involving fluorine compounds, zinc, lead, beryllium, cadmium, mercury, cleaning compounds, stainless steel or other exotic metals or paints that release toxic fumes during hot work.

7.8.4. Mechanical local exhaust ventilation may be by means of either of the following:

7.8.4.1. Freely movable hoods intended to be placed by the welder as near as practicable to the work being welded and provided with a rate of air-flow sufficient to maintain a velocity in the direction of the hood of 100 linear feet (30 m) per minute in the zone of welding when the hood is at its most remote distance from the point of welding. The rates of ventilation required to accomplish this control velocity using a 3-inch (7.6 cm) wide flanged suction opening are shown in the following table:

<b>Welding Zone</b>	<b>Minimum air flow (1) cubic feet / minutes</b>	<b>Duct diameter, inches (2)</b>
4 to 6 inches from arc or torch	150	3
6 to 8 inches from arc or torch	275	3 1/2
8 to 10 inches from arc or torch	425	4 1/2
10 to 12 inches from arc or torch	600	5 1/2
Footnote (1) When brazing with cadmium bearing materials or when cutting on such materials increased rates of ventilation may be required.		
Footnote (2) Nearest half-inch duct diameter based on 4,000 feet per minute velocity in pipe.		

7.8.5. A fixed enclosure with a top and not less than two sides which surround the welding or cutting operations and with a rate of airflow sufficient to maintain a velocity away from the welder of not less than 100 linear feet (30 m) per minute.

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7.9. Ventilation in confined spaces.

7.9.1. Air replacement. All welding and cutting operations carried on in confined spaces are adequately ventilated to prevent the accumulation of toxic materials or possible oxygen deficiency. This applies not only to the welder but also to helpers and other personnel in the immediate vicinity. All air replacing that withdrawn is clean and respirable.

7.9.2. Airline respirators. In circumstances for which it is impossible to provide such ventilation, airline respirators or hose masks approved for this purpose by the National Institute for Occupational Safety and Health (NIOSH) under 42 CFR part 84 must be used.

7.9.3. In areas immediately hazardous to life, a full-face piece, pressure-demand, self-contained breathing apparatus or a combination full-face piece, pressure-demand supplied-air respirator with an auxiliary, self-contained air supply approved by NIOSH under 42 CFR part 84 must be used.

7.9.4. Where welding operations are carried on in confined spaces and where welders and helpers are provided with hose masks, hose masks with blowers or self-contained breathing equipment approved by the Mine Safety and Health Administration and the National Institute for Occupational Safety and Health, a worker is stationed on the outside of such confined spaces to insure the safety of those working within.

7.9.5. Oxygen is NEVER used for ventilation.

**8. First Aid**

8.1. First aid equipment is available at all times in areas where hot work, welding, cutting or brazing are being performed.

8.2. All injuries are reported as soon as possible for medical attention.

8.3. First aid is rendered until medical attention can be provided.

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## APPENDIX 1

# Fire Watch & Fire Protection Training

Applicable OSHA Standards: 29 CFR 1910 Subpart L, 1926 Subpart F

### 1. Purpose & Scope

- 1.1. To establish methods and guidelines for the training of personnel in fire watch and fire protection.
- 1.2. This policy applies to all employees and subcontractors working within Cleveland Integrity Services controlled job sites.

### 2. Introduction

- 2.1. Cleveland Integrity Services is responsible for the development and maintenance of an effective fire protection and prevention program at each job site throughout all phases of the construction, repair, alteration, or any demolition work. This training policy/module is intended for personnel working as Fire Watch during burning or welding performed during these activities.

### 3. Requirements

- 3.1. Fire Watches are trained at the worksite by the Site Supervisor.
- 3.2. Training is documented and employees training files updated to reflect the training.
- 3.3. Training is done when employees are initially hired and annually thereafter.

### 4. Training Program Content

#### 4.1. Cause and Prevention:

- 4.1.1. Fires do not just happen. They are caused by carelessness in operating equipment, handling hazardous materials and personal habits, such as smoking. Even though these actions are not usually deliberate, this still does not lessen the results.
- 4.1.2. Only individual employees can protect themselves against these hazards by learning carefully how to prevent fires.

#### 4.2. The three main components of fire prevention are:

- 4.2.1. Be alert for trouble before a fire starts.
- 4.2.2. Eliminate unsafe habits that can lead to fires.
- 4.2.3. Conduct a fire prevention investigation of your work area prior to work start to remove any potential fire hazards.

#### 4.3. General Fire Prevention Rules:

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- 4.3.1. Employees must become familiar with the four classes of fire, their burning characteristics and the proper extinguishing agent for each:
  - 4.3.1.1. **Class A** fires involve normal combustibles such as wood or paper. Water is a proper extinguisher.
  - 4.3.1.2. **Class B** fires involves oils and flammable liquids. CO2 and dry chemicals are the correct extinguishers.
  - 4.3.1.3. **Class C** fires involve electrical equipment. CO2 and dry chemicals are the correct extinguishers. Never use water on fires involving energized electrical equipment to avoid electrical shock and spreading of fire.
  - 4.3.1.4. **Class D** fires involve combustible metals and require special approved extinguishing agents.
- 4.4. Employees must never tamper with or move fire fighting equipment except for actual use.
- 4.5. Report any equipment defects to your supervisor.
- 4.6. Employees must know the location and proper operation of all protective fire equipment in the vicinity of their work areas.
- 4.7. Material and supplies are stored carefully to prevent falling, spilling, etc.
- 4.8. All chemicals and solvents are kept in properly labeled and approved containers.
- 4.9. Used rags are kept in metal or metal lined containers having metal covers.
- 4.10. Flammable liquids are NEVER used for cleaning purposes.
- 4.11. Before using solvents, discuss needed precautions with your supervisor and other parties involved.
- 4.12. To extinguish a clothing fire on yourself or another person, DROP to the ground AND ROLL to cause a smothering effect or use a fire blanket or other means if available.
- 4.13. Know primary and secondary exit routes from your area. When an alarm sounds, evacuate immediately. Know site specific codes for emergency pages.

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## 5. Fire Extinguisher & Other General Information

**NOTE: DO NOT ATTEMPT TO FIGHT A FIRE IF:**

- You do not know what is burning;
- The fire is spreading rapidly out of control;
- The fire is between you and your exit or escape path;
- You don't have adequate equipment; or
- You might inhale toxic smoke.

Only trained and qualified personnel are permitted to fight fires. Your training covers only small smolders and fires that are easily put out with a fire extinguisher.

- 5.1. Employees whose work assignment may require them to use a fire extinguisher are trained in such use prior to the job assignment. Training information and instructions on how to use a fire extinguisher safely are explained in Section 7 below.
- 5.2. All fire extinguishers are placed in conspicuous locations near the work area. Know where the nearest fire extinguisher is located, the type of fire it should be used on and how to operate it.
- 5.3. A fire extinguisher is within 20-30 feet of flame or ignition type operations in progress.
- 5.4. All fires, whether they are ignitions or smolders, are reported to the Site Supervisor, so that an investigation can be initiated to determine cause.
- 5.5. Any fire extinguisher that has been used is returned to the Site Supervisor for replacement.
- 5.6. Supervisors make sure that all employees under their supervision understand the proper use of a fire extinguisher.
- 5.7. Keep work areas clean and orderly, free of trash and scrap materials as this could prevent small fires from becoming major disasters.
- 5.8. Keep all passageways, work areas and aisles clean to facilitate evacuation should a fire start.
- 5.9. Equipment must never be refueled while running or when hot.

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- 5.10. If the piece to be welded or cut cannot be moved to an area free of fire hazards, that hazard is removed from the hot work area prior to commencing work. All combustible materials under or near welding or burning operations are moved to a safe distance away or covered with fire retardant material.
- 5.11. Guarding is used if the object to be welded or cut cannot be moved and if all the fire hazards cannot be removed. Guarding effectively confines the heat, sparks, and slag, and to protect the immovable fire hazards.
- 5.12. Smoking is not allowed on the project except in areas designated as smoking areas. Discard butts in approved containers, not on the floor or in trash cans.
- 5.13. All fires start because of a combination of ignition source, heat, fuel, and oxygen.
- 5.14. The primary cause of workplace fires is electrical equipment. These include:
  - 5.14.1. Damaged electrical cords
  - 5.14.2. Loose electrical connections
  - 5.14.3. Overloaded circuits
  - 5.14.4. Defective power tools
- 5.15. Other common causes of workplace fires include:
  - 5.15.1. Welding and cutting operations
  - 5.15.2. Chemical reactions
  - 5.15.3. Heaters

## **6. Fire Watch for Welding & Cutting Operations**

- 6.1. Fire Watch personnel must be aware that that welding sparks can travel as far as 35 feet. Safe procedures prior to and during welding operations are:
  - 6.1.1. Ensure that the area has been checked by an authorized person with a meter for flammable gases and vapors;
  - 6.1.2. Remove any combustibles such as paper, rags, etc;
  - 6.1.3. Have a fire extinguisher and misting hose (if required) on hand;
  - 6.1.4. Assure that proper PPE is on hand and being used; and
  - 6.1.5. Remain 30 minutes after spark producing and welding operations are over to assure that no smoldering or fires break out.

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## 7. How to Safely Use a Fire Extinguisher (Instruction for employees)

- 7.1. First rule of thumb is “DON’T PANIC.” Keep your calm and wits about you, do not let an adrenaline rush cause you to lose control.
- 7.2. Use the extinguisher only for incipient stage fires. In this situation, incipient is defined as the initial or beginning stage when a fire can be controlled or extinguished by portable fire extinguishers.
- 7.3. Remain at least 8 to 12 feet from the fire as protection from the extinguisher stream blowing hot or burning material to where it could come back at you.
- 7.4. Remember the word PASS, which stands for Pull the pin, Aim, Squeeze, and Sweep:
  - 7.4.1. **PULL THE PIN** - This will allow you to use the extinguisher.
  - 7.4.2. **AIM AT THE BASE OF THE FIRE** - In order to extinguish a fire you must put out the ignition source at the base of the fire. Stand eight to ten feet from the blaze (if you believe this is a safe-enough distance so that sparks, embers and burning residue will not blow back at you due to the pressure of the extinguisher chemical stream).
  - 7.4.3. **SQUEEZE THE TOP HANDLE OR LEVER** - This releases the pressurized extinguishing agent in the extinguisher.
  - 7.4.4. **SWEEP FROM SIDE TO SIDE** - Until the fire is completely out. Do not sweep up and down. Then move a safe distance away until you are sure the fire is out.
- 7.5. Hands-on instruction is used for demonstration.

## 8. Testing Requirements

- 8.1. On completion of training, participants are given a written test to support and help ensure their understanding of the information presented.
- 8.2. A score of 80% to 99% requires a review of missed questions, with the score corrected to 100% for successful completion of training.
- 8.3. A score of below 80% requires complete retraining and re-testing.



<b>Work Performed On or Near Overhead Lines</b>	<b>Page 1</b>
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Applicable OSHA Standard: 29 CFR 1910.269(q)

## 1. Purpose

- 1.1. Cleveland Integrity Services has designed and adopted this program to prevent electrically related injuries to personnel resulting from either direct or indirect electrical contacts, or damage to company property and client facilities when work is performed near or on equipment or circuits which are or may be energized.
- 1.2. This program also provides for proper training of site supervisors to ensure they have the required knowledge and understanding of electrical work practices and procedures. Employees shall be trained in and familiar with the safety-related work practices that pertain to their respective job assignments.
- 1.3. Only employees who are qualified to perform electrical work, knowledgeable about this program, and authorized by the company are allowed to perform the required tasks.
- 1.4. Electricity has long been recognized as a serious workplace hazard, exposing employees to such dangers as electric shock, electrocution, fires and explosions. References: NFPA 70E, Electrical Safety Requirements for Employee Workplaces, National Electrical Code (NEC) and OSHA Standard (Electrical Safety) 29 CFR 1910 Subpart S - Electrical.
- 1.5. Safe work practices regarding electricity shall be followed by employees as they relate to specific job assignments. Specific safety-related work practices shall be consistent with the nature and extent of the associated electrical hazards.

## 2. Responsibilities

### 2.1. Management

- 2.1.1. Provide training for qualified and unqualified employees
- 2.1.2. Conduct inspections to identify electrical safety deficiencies in facilities and at job sites
- 2.1.3. Guard and correct all electrical deficiencies promptly
- 2.1.4. Ensure all new electrical installations meet codes and regulations

### 2.2. Employees

- 2.2.1. Complete all required training prior to performing work on or near overhead lines
- 2.2.2. DO NOT work on or near overhead lines unless authorized and trained

- 2.2.3. Properly inspect all equipment prior to use

### 3. Training

#### 3.1. Unqualified persons

- 3.1.1. Employees who face a risk of electric shock that is not reduced to a safe level by electrical installation requirements and who are not qualified persons shall also be trained in and be familiar with any electrically related safety practices that are necessary for their safety.

#### 3.2. Qualified persons

- 3.2.1. Qualified persons (i.e. those permitted to work on or near exposed energized parts) shall, at a minimum, be trained in and familiar with the following:

- 3.2.1.1. The skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment.

- 3.2.1.2. The skills and techniques necessary to determine the nominal voltage of exposed live parts, and

- 3.2.1.3. The clearance distances specified in 1910.269 Tables R-6 through R-10

- 3.2.2. An employee must have successfully completed the training required in this program for a qualified person in order to be so considered.

- 3.2.3. Qualified persons whose work on energized equipment involves either direct contact or contact by means of tools or materials shall also have training to make them capable of working safely on energized circuits and shall be familiar with the proper use of special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools.

- 3.2.4. The required training shall be of the classroom or on-the-job type. The degree of training provided shall be determined by the risk to the employee.

- 3.2.5. For purposes of general comparison, typical occupational employee categories that face a higher than normal risk of electrical accident include blue collar supervisors; electrical and electronic engineers; electrical and electronic equipment assemblers; electrical and electronic technicians; electricians; industrial machine operators; material handling equipment operators; mechanics and repairers; painters; riggers and roustabouts; stationary engineers; and welders.

- 3.3. Workers in these groups or with comparable job assignments do not need to be trained if their work or the work of those they supervise does not bring them or the employees they supervise close enough to exposed parts of electric circuits operating at 50 volts or more to ground for a hazard to exist.

#### 4. Overhead lines

- 4.1. Before allowing employees to subject elevated structures, such as poles or towers, to such stresses as climbing or the installation or removal of equipment may impose, the employer shall ascertain that the structures are capable of sustaining the additional or unbalanced stresses. If the pole or other structure cannot withstand the expected loads, the employer shall brace or otherwise support the pole or structure so as to prevent failure. Methods used for testing shall be in accordance with Appendix D of 1910.269
- 4.2. When a pole is set, moved, or removed near an exposed energized overhead conductor, employees shall wear electrical protective equipment or use insulated devices when handling the pole. No employee shall contact the pole with insulated parts of his/her body.
- 4.3. Open holes waiting for pole placement shall be physically guarded or attended by employees when work is being performed nearby
- 4.4. When installing or removing overhead lines, tension stringing method, barriers or other approved methods to minimize the possibility that conductors and cables being installed or removed will come in contact with energized powerlines or equipment.
- 4.5. Reel handling equipment, including pulling and tensioning devices shall be in safe operating condition and shall be leveled and aligned.
- 4.6. Load ratings of stringing lines, pulling lines, conductor grips, load bearing hardware and accessories, rigging and hoists may not be exceeded.
  - 4.6.1. Pulling lines and accessories shall be replaced or repaired when damaged
  - 4.6.2. Conductor grips may not be used on wire ropes unless the grip is specifically designed for this application
- 4.7. Work may not be performed when adverse weather conditions would make the work hazardous even after safe work practices required by 1910.129 (q) are in place.
- 4.8. Live line bare hand work will not be performed by this company so the requirements of 1910.269(q)(3) are not a part of this program.

<b>Safety for Working Over or Near Water</b>	<b>Page 1</b>
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## 1. Scope and application

- 1.1. Cleveland Integrity Services has established this safety program to protect employees who work over or near water or mud from hazards and dangers that can result in drowning. Policies and procedures in the program give guidance on how to work safely near water or mud in both tidal and non tidal waters.
- 1.2. This program is intended to provide Company employees with information and instruction on:
  - 1.2.1. Recognizing drowning hazard situations when working near or over water and mud in the workplace;
  - 1.2.2. Safe work procedures for such work;
  - 1.2.3. Requirements for the use of buoyant work vests, life preservers and other protective devices and measures to prevent drowning;
  - 1.2.4. Methods and procedures for safety orientation and site-specific training as required for effective implementation of this program
- 1.3. This program applies to all Company employees in situations or job assignments when they perform work over or near water.

## 2. Hazards of working over or near water/mud

- 2.1. Working near or over water or mud can be highly dangerous. Drowning deaths and near-drowning injuries occur every year in both tidal and non tidal waters. Casualties are often experienced in the environment. However, the volatile nature of water and mud – especially when linked to weather -- can create unforeseen and deadly hazards.
- 2.2. It is hazardous for employees to enter or work in areas where water or mud exists – especially in the dark. Cold weather, floodwater and icy water exacerbate this danger.
- 2.3. It can be dangerous for employees to work near or over water or mud without appropriate protective equipment and training.
- 2.4. The Company does not expect or require any employee to enter water or mud to rescue another person under any circumstances. Such rescue efforts require training and equipment so that the individual attempting the rescue does not become an additional victim. Employees should not place themselves in unnecessary danger by trying to affect a rescue that they are not trained or equipped to undertake.
- 2.5. There are a number of significant health risks from waterborne contaminants that should be considered when planning work over or near water. These contaminants include chemical substances and biological agents found in and around water.

<b>Safety for Working Over or Near Water</b>	<b>Page 2</b>
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### 3. Definitions

- 3.1. **Working near water** means any environment where the staff member is in close proximity to water, whether tidal or non tidal, where there is any potential for the member entering that water, either voluntarily or not. This includes working in, on, near and over water.
- 3.2. **Tidal water** means any water that is affected by the position of the moon and sun, i.e. the depth and/or flow of current increases/decreases as a result of the tidal effects at the coast.
- 3.3. **Non-tidal water** means any water that is not affected by the sun and moon, i.e. the depth and/or flow of current is unaffected by tidal affects. This includes all upper river areas, streams, ponds, canals, lakes, swimming pools etc.
- 3.4. **Floodwater** means any area of water that in normal circumstances does not exist and incorporates any water that is formed as a result of heavy rainfall and/or overflow water from any normal source of water, e.g. rivers, canals etc.
- 3.5. **Marina** means a location comprising of a quayside with pontoons designed for the mooring of watercraft.
- 3.6. **Pontoon** means any structure, whether floating or fixed to the ground, that allows access by foot or vehicle to watercraft on moorings, whether or not watercraft are present.
- 3.7. **Watercraft** means any vessel that floats and is designed to carry people or equipment. This could be a simple raft used as a working platform, or a ship. It could also include inflatable vessels, including commercial rigid inflatable boats (RIBs).
- 3.8. **Ice** refers to any water whilst in a frozen state, note that salt water freezes at a lower temperature than fresh water.
- 3.9. **Mud** means any area of mud/sand/slurry that cannot be easily assessed as being safe, i.e. it is of an unknown depth or consistency. It will often be linked to mud flats at the coast, but could equally be a deep area of mud in a shore-side work environment, or a slurry pit or containment.
- 3.10. **Weather** means the combined affects of temperature, wind speed and direction and rain.
- 3.11. **Bank** means all land abutting the edge of any river, canal or enclosed water such as a pond or lake.
- 3.12. **Protective equipment** means buoyant vests and life preservers, attachment line, components and associated devices.

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#### 4. Pre-Planned Operations

- 4.1. When work activities will involve being near or over water or mud, potential site-specific hazards will be evaluated and considered during pre-planning of duties, assignments and how work will be performed. This will be done on a written hazard assessment.
- 4.2. A employees on the crew performing work near or over water/mud each will sign the completed written hazard assessment.
- 4.3. Company safe work procedures will be followed for all work that places employee near or over water or mud where there is a potential for entrapment and/or drowning.
- 4.4. Work activities where there is a known risk of falling into water and drowning, or being entrapped in mud and suffocated, include:
  - 4.4.1. Inspecting pipeline or facilities near a river, lake, waterway or ocean;
  - 4.4.2. Working on or near a dock or platform that extends out over water;
  - 4.4.3. Performing work on bridges or other structures that are over water;
  - 4.4.4. Transferring from watercraft to watercraft;
  - 4.4.5. Working on, over or near pools or containments where the depth of water is unknown, or when the depth is known to present a drowning hazard.

NOTE: The above list is for illustration and example only, and does not include all potential water-related and mud hazards that could be encountered at a work location.

#### 5. Assessing the Risks

- 5.1. A risk and hazard assessment will be performed prior to beginning a work assignment near or over water or mud.
- 5.2. In identifying and establishing risks, the following will be considered:
  - 5.2.1. Is there suitable safe access?
  - 5.2.2. Is there suitable edge protection to prevent falling into the water?
  - 5.2.3. Is the structure/bank/material to be stood on or used sufficiently strong enough to hold the weight?
  - 5.2.4. Are there trip hazards present?

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- 5.2.5. Is there a risk of being pushed into the water/mud as a result of specific work operations?
- 5.2.6. The duration of the work and the proximity to the water/mud.
- 5.2.7. The equipment to be used for the operation.
- 5.2.8. Safety equipment available (i.e. life jackets, buoyant flotation devices, life preservers, throwing lines, first aid kits and CPR equipment/PPE).
- 5.2.9. Do employees assigned to the near-water/mud task need special training, (i.e. proper use of flotation devices and throw lines; fast water rescue; boat handling; first aid/CPR)?
- 5.2.10. Are there safe escape routes if things go wrong?
- 5.2.11. Have emergency response procedures and contact information for calling emergency responders been established, confirmed and communicated to employees assigned to the near-water/mud work?
- 5.2.12. relevant agencies been notified of the work, e.g. Fire and Rescue, Ambulance etc.
- 5.2.13. What are the specific-specific and job-specific risks of falling into the mud/water? NOTE: This may be determined as part of the pre-work Job Hazard Analysis or daily Job Safety Analysis.
- 5.2.14. Weather conditions, including wind.
- 5.2.15. Tidal effects which can cause strong currents or strand people.
- 5.2.16. Temperature of the water/mud.
- 5.2.17. Ability of assigned individuals to swim, as well as their physical ability to do the work.
- 5.2.18. The condition of any watercraft to be utilized.
- 5.2.19. Suitable employee job-site support provisions (i.e. capability to provide hot/cold drinks, food, sun screen and rest during protracted work operations).

## 6. **Unplanned Work Activities**

- 6.1. Unplanned work activities are those where it was not known that there is water or mud at the work location until employee arrive at the job site. In such circumstances, a dynamic risk assessment should be carried out (see Item 5 above).

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## 7. Safe Work Procedures

- 7.1. Employees who cannot swim must not enter deep water.
- 7.2. Employees must not go onto frozen water. The foregoing paragraphs relating to dynamic risk assessments apply.
- 7.3. Employees working over or near water, where the danger of drowning exists, will be provided with U.S. Coast Guard-approved life jacket or buoyant work vests.
- 7.4. Before and after each use, employees will inspect buoyant work vests or life preservers for defects which would alter their strength or buoyancy.
- 7.5. Damaged or defective buoyant vests, life preservers, attachment line, components or associated equipment:
  - 7.5.1. Will not be used by employees;
  - 7.5.2. Will be taken out of service immediately so that the damaged or defective item(s) will not be available to others for use; and
  - 7.5.3. Will be replaced and made available to employees so that effective methods of protection are available to employees during work over or near water.
- 7.6. Ring buoys with at least 90 feet of line will be provided and readily available for emergency rescue operations. Distance between ring buoys will not exceed 200 feet.
- 7.7. At least one lifesaving skiff will be immediately available at locations where employees are working over or adjacent to water.
- 7.8. Employees are prohibited from working alone over or near water/mud.
- 7.9. Non-swimmers should not enter onto any pontoon, marina or watercraft without suitable life preservers (i.e. life jacket, life vest or buoyancy aid).
- 7.10. No employee should ever undertake work near or over water/mud until they are trained in accordance with this program.
- 7.11. No employee should ever undertake work near or over water/mud when they are not completely satisfied that they can suitably make a dynamic risk assessment and be satisfied for their own safety.

## 8. General Safety & Operations Information

- 8.1. Clothing worn when working on or near water/mud should cover the torso, upper arms and legs. Clothes should fit well and be in good condition without tears or snags.



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- 8.2. Whenever transported over water or when working in an area that does not have safety rails, employees will wear a well-fitted Coast Guard-approved personal flotation device (PFD).
- 8.2.1. A *Type 1 PFD, or Off-Shore Life Jacket* provides the most buoyancy. It is effective for all waters, especially open, rough or remote waters where rescue may be delayed. It is designed to turn most unconscious wearers in the water to a face-up position. Illustration shows this jacket un-inflated at left and inflated at right.
- 8.2.2. A *TYPE V, Inflatable PFD with Safety Harness* is approved as a Type V PFD because its use to prevent falls overboard presents several risks. The Coast Guard has not assessed potential for personal injury as a result of fall arrest. The safety harnesses are designed to be worn at the chest area, to reduce injury potential due to shock loads. Thus, the harness belt must always be worn at least 2 inches above the lowest rib measured from the bottom of the harness belt and adjusted to a tight personal fit. In case of capsizing, or sinking, the boat may take you down, resulting in death. *DO NOT* attach to boat unless being worn with tether of less than 6.5 feet in length and with quick-release-under-load hardware. *READ SAFETY HARNESS SECTION OF OWNER'S MANUAL* for intended use.
- 8.3. Do not jump directly into the water unless there is no other way to evacuate a watercraft or work location over or near water/mud.
- 8.4. When in the water with others awaiting rescue, stay together as a group to assist and support each other. It is important to conserve energy and restrict the loss of body warmth as much as possible.