



**SOUTHLAND**  
CONTRACTING

# **Safety, Health and Environmental Plan**

Revised: January 2020





## *Recognition of Regulations*

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Employees of SOUTHLAND CONTRACTING are required to adhere to the safety rules and regulations of State, Federal and local agencies, and the owner of the project. In various instances, this Safety Manual sets forth safety requirements that may exceed applicable OSHA Standards. In these circumstances, this manual is intended to be a guideline, and the standards herein may be modified on a case-by-case basis depending on actual field conditions. No deviation from these standards will be done without approval by the Safety Director, but shall not, in any instance, fail to meet the requirements of any applicable State, Federal and local agencies, or the owner of the project.



## ***PRESIDENT'S COMMITMENT***

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SOUTHLAND CONTRACTING (SCI) owes its success to the dedication, effort, and skill of its employees. Accordingly, we recognize a non-negotiable duty and moral responsibility to employ the best available resources to ensure our worker's protection to the highest degree feasible from dangers inherent to construction worksites. This duty is first and foremost amongst the principles on which we are founded. Our objective is that each employee arrives home safely and is able to share the success of SCI with their loved ones as well as with the community at large. In order to achieve this goal, we have implemented The Project Safety, Health, and Environmental Program which provides an administrative structure within which we and our Contractors may realize a record of **Zero Incidents and Accidents**. The Program provides for the safety and health of our employees, other individuals affected by their activities, and for the protection of property and the environment. Additionally, the Program provides for coordination among the various Contractors' individual programs, monitoring of Contractors' conformance with their individual programs, and initiation of corrective actions when non-conformance is identified. Administration and reporting will reveal the effectiveness of the Program. Key elements of the Program include:

- Safety Orientation and Training
- Pre-Project / Pre-Task Planning
- Alcohol and Substance Abuse Program
- Accident / Incident Investigations
- Safety Incentive Program

Our philosophy is simple: Safety performance is a function of education, commitment, and enforcement.

The key to our success is the talent and dedication of our Team Members. We believe in and promote excellence through continuous improvement and innovation. Each member of our team will be offered the opportunity to obtain and improve necessary skills, using the latest technology, to accomplish both professional and personal goals. Not only does this empower the individuals, but it also ensures that each team working is trained in state-of-the-art techniques, which will enhance our projects and create safe work environments.

Weekly Toolbox Safety Meetings and Daily Job Hazard Analysis (JHA) reinforce this philosophy. All team members, management, and craftsmen are held accountable for safety through effective performance evaluations. This assessment process encompasses project incentives, bonus opportunities and the potential for promotion and advancement. As a result, we have consistently realized hundreds of thousands of accident-free employee-hours. This commitment, paired with our efforts in education, has clearly demonstrated the effectiveness of our devotion to keeping SCI employees and work-sites safe.

It is our policy to provide a work environment that minimizes the accident risks inherent to construction site employment. With this policy in mind, our company has employed a full-time Safety Director since 1964. The training of supervisory personnel, the safety of equipment on site, personnel safety attire, project safety plans, and weekly toolbox meetings have all contributed to improving employee safety awareness and to the achievement of superior ratings for employee accident prevention on our projects.

The Safety Department of SCI stands ready to assist field management at all times to arrive at mutually acceptable procedures which will provide a safe workplace for our employees. We recognize that a well-managed project is one where safety is a significant factor in successful, on-time, within-budget completion.

SCI management teams shall strictly enforce project safety and health programs and all federal, state, and local safety laws.



Frank Renda  
President



## *Contents*

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<b>RECOGNITION OF REGULATIONS</b>	<b>1</b>
<b>PRESIDENT’S COMMITMENT</b>	<b>3</b>
<b>CONTENTS</b>	<b>5</b>
<b>SECTION 1</b>	<b>9</b>
ADMINISTRATION AND ORGANIZATION: General	9
SAFETY MANAGEMENT TECHNIQUES	11
SAFETY SUPERVISOR DUTIES	13
REPRIMAND POLICY AND PROCEDURES	15
EMPLOYEE WARNING FORM	17
EMPLOYEE WARNING INSTRUCTIONS	18
SUBCONTRACTOR ORGANIZATION AND RESPONSIBILITIES	19
<b>SECTION 2</b>	<b>20</b>
TRAINING and EDUCATION: General	20
EMPLOYEE ORIENTATION AND TRAINING	21
WEEKLY SAFETY TOOLBOX MEETING REPORT	23
SUPERVISOR ORIENTATION	29
VISITOR and VENDOR ORIENTATION	31
VISITOR ORIENTATION CHECKLIST	32
OPERATING PROCEDURES FOR LIGHT VEHICLES	33
JOB HAZARD ANALYSIS (JHA)	34
DAILY Job hazard analysis form (JHA)	35
JOB SAFETY ANALYSIS (JSA)	37
ATTABOY PROGRAM	42
<b>SECTION 3</b>	<b>43</b>
HAZARD COMMUNICATION PLAN: General	43
LEAD IN CONSTRUCTION—SUMMARY OF REGULATIONS	53
<b>SECTION 4</b>	<b>58</b>
REGULATORY COMPLIANCE – CONFINED ENTRY PROGRAM	58
CONFINED SPACE ENTRY PROGRAM - TABLE #1	68
WORKING CONFINED SPACE CHECKLIST	69
ENTRY PERMIT	70
GAS INSTRUMENT READINGS	71
NON-PERMIT ENTRY	72
<b>SECTION 5</b>	<b>73</b>
FALL PROTECTION PROGRAM: General	73
<b>SECTION 6</b>	<b>82</b>
FIRE PREVENTION AND PROTECTION	82
<b>SECTION 7</b>	<b>85</b>
EQUIPMENT OPERATION: General	85
OPERATOR VERIFICATION	86
CRANE OPERATOR VERIFICATION	87
TRAFFIC CONTROL	88
EQUIPMENT MOBILIZATION	89
CRANES	90
CRITICAL LIFTS and DUAL CRANE LIFTS	93
CRITICAL LIFT WORKSHEET	94
DUAL CRANE LIFTS POLICY	96
AERIAL LIFTS	97
FORKLIFT	98

<b>SECTION 8</b>	<b>104</b>
JOBSITE SECURITY PLAN: General	104
THEFT AND VANDALISM POLICY	105
THEFT REPORT	107
VANDALISM REPORT	108
SEMI-ANNUAL PROJECT SECURITY AUDIT	109
<b>SECTION 9</b>	<b>111</b>
EMERGENCY PROGRAM: General	111
BOMB THREAT PROCEDURE	112
BOMB THREAT – What to Ask	114
THUNDERSTORM, LIGHTNING & TORNADO STORM PROCEDURE	116
HURRICANE DAMAGE PREVENTION PROGRAM	118
HURRICANE DAMAGE PREVENTION CHECKLIST	120
<b>SECTION 10 - SAFE WORK PRACTICES</b>	<b>121</b>
STOP WORK AUTHORITY	121
SAFE WORK PRACTICES: General	123
HEAT RELATED ILLNESS (SIGNS AND PREVENTION)	136
ELECTRICAL SAFETY and GFCI PROGRAM	141
LOCKOUT / TAG-OUT PROGRAM	148
SPECIFIC EQUIPMENT LOCKOUT PROCEDURES	154
CELL PHONE & RADIO HEADSET POLICY	155
RESPIRATOR PROGRAM	157
RESPIRATORY PROGRAM FIT TEST	171
VOLUNTARY RESPIRATOR USE POLICY	172
EXCAVATION STANDARD	173
WELDING/HOT WORK	181
HAND AND POWER TOOLS	189
LADDERS	196
HEARING CONSERVATION	200
BLASTING PROGRAM	203
TUNNEL SAFETY PROGRAM	208
PERSONAL PROTECTIVE EQUIPMENT	214
PILE DRIVING	220
MARINE OPERATIONS	226
SCAFFOLD TAGGING PROCEDURE	232
<b>SECTION 11</b>	<b>237</b>
SAFETY AND HEALTH INSPECTIONS: General	237
ON-SITE SAFETY REVIEW	238
<b>SECTION 12</b>	<b>241</b>
ENVIRONMENTAL CONTROL PLAN: General	241
ALERT, RESCUE, AND NOTIFY	243
SPILL RESPONSE FLOWCHART	244
EXCESS PRODUCT DISPOSAL POLICY	246
POLLUTION CONTROL PLAN	248
PETROLEUM CONTAMINATED WATER CLEANUP	249
<b>SECTION 13</b>	<b>250</b>
CONTROLLED SUBSTANCE PROGRAM: General	250
INITIAL SCREEN	265
EVIDENTIAL POSITIVE	266
POST-ACCIDENT DRUG AND ALCOHOL TESTING	267
<b>SECTION 14</b>	<b>268</b>
ACCIDENT REPORTING AND INVESTIGATIONS: General	268
OSHA INSPECTION PROCEDURES	269



OSHA WAS HERE	271
SERIOUS, MULTIPLE and FATAL ACCIDENTS	272
TREATMENT AUTHORIZATION FORM	273
EMPLOYEE REPORTS	274
SUPERVISOR’S INVESTIGATION OF ACCIDENT or NEAR MISS	275
LOST WORKDAY CASES	278
<b>SECTION 15</b>	<b>279</b>
TREATMENT OF INJURED: General	279
EMERGENCY TELEPHONE NUMBERS	280
PROJECT SPECIFIC EMERGENCY MAP	281
SNAKE BITE PROCEDURE	282
BLOODBORNE PATHOGENS	283
RETURN TO WORK PROGRAM	287
<b>SECTION 16</b>	<b>289</b>
MATERIAL HANDLING – RIGGING PROGRAM	289
<b>SECTION 17</b>	<b>293</b>
RESPRIABLE SILICA CONTROL	293
<b>SECTION 18</b>	<b>306</b>
SAFE OPERATING PRACTICES FOR HOT MIX	306



## ***SECTION 1***

### ***ADMINISTRATION AND ORGANIZATION: General***

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#### **COMMITMENT**

It is the goal of SCI to provide a safe workplace for its employees. This Safety Action Plan combined with our Project Safety Forms and Procedures Manual and the Project Safety and Health Plan is designed to assist our Project Management team in maintaining a safe worksite.

#### **RESPONSIBILITY**

The Management will oversee the project and will assure that Safety and Health Plan implementation in its entirety. Other responsibilities include:

1. Monitor SCI and all subcontractors to ensure compliance with all State, Federal and local regulations.
2. Coordinate and assist in pre-mobilization meetings for subcontractors before the commencement of any work activities.
3. Conduct Safety Coordination Meetings with subcontractor representatives.
4. Conduct Weekly Safety Meetings with Project Management personnel.
5. Assure that updated Project Safety and Health Manuals have been issued and are available.
6. Review all accident investigations and ensure corrective action implementation.

The SCI Supervisory personnel will be responsible for the leadership role in seeing that this plan is fully implemented and adhered to in its entirety. See 1.0.2 for a listing of the Site Safety Supervisor's duties and responsibilities.

Others within our organization who also have a definite responsibility in seeing that this Plan complies with include:

Senior Vice President

Area Manager

Project Manager

Superintendent

Quality Control Manager

Office Engineer

Office Manager

Maintenance Manager

Safety Director

Human Resources Director

All other SCI supervisory personnel assigned to this project.

SCI holds regularly scheduled meetings during which upper management reviews loss activity on all projects and the controls in place to reduce losses.

#### **ENFORCEMENT**

All employees within SCI are required to follow the policies and procedures contained and referenced in this Safety Action Plan. Employees will also comply with all applicable laws, regulations, and directives of OSHA and other agencies.

Failure to comply will result in a written reprimand to the affected employee(s). See 1.0.4 and 1.0.5 for further information on our written Employee Warning Program that includes safety violations.

### **REGULATORY COMPLIANCE**

OSHA Standards – This Project will comply with all applicable laws, regulations, and directives of OSHA and other agencies with similar jurisdiction.

A current copy of the applicable OSHA regulations shall be at each project location. Also along with copies of our Safety and Health Plan, Right to Know Program and Forms and Procedures Manual, all of which contain compliance procedures.

### **ENVIRONMENTAL ISSUES**

It is the goal of SCI not to disturb and adversely affect the environment in which we build our projects. Refer to Section 12.0 for the Environmental Control Plan for the SCI Excess Product Disposal Policy and Pollution Control Plan.

## ***ADMINISTRATION AND ORGANIZATION***

### **SAFETY MANAGEMENT TECHNIQUES**

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#### **PURPOSE**

To provide an overview of the loss control methods used by SCI to prevent injuries and losses on our projects.

#### **SCOPE**

Applies to all companies, areas, projects, and employees within ORC.

#### **RESPONSIBILITIES**

Every employee is responsible for safety on SCI projects. The Safety Department is responsible for the development of safety management techniques. The Supervisory Personnel will ensure implementation at the project level.

#### **PROCEDURES**

Common safety management techniques and activities within our organization include:

1. Safety Management regularly reviews at Executive Management Operational Review Meetings. Participation includes our President, Vice President, Regional Managers, and Safety Manager.
2. Monthly documented Safety Reviews by Site Safety Supervisor assigned to each project.
3. Projects conduct Weekly Toolbox Meetings.
4. Our Safety Incentive Program recognizes personal project safety achievements. This incentive program also includes Project management personnel.
5. Written Safety Action programs custom tailored to the needs of each Project.
6. Periodic publications are distributed throughout the organization to keep management and employees aware of new concepts and developments.
7. Regional and Project Management are held individually accountable for their accidents and losses.
8. Accidents will be investigated using cause analysis to determine necessary corrective actions.
9. A Safety Reprimand Program is in place and administered to employees not following company policies and procedures.
10. Numerous field personnel trained in first aid.
11. Company safety personnel will conduct project dinner safety meetings.
12. Detailed pictures are taken of neighboring property before our construction work begins.
13. Produce formal traffic control set-up and documented maintenance plans for all applicable projects.
14. Electronic security equipment is commonly placed on projects to protect construction property and equipment.
15. Formal Personal Protective Equipment (PPE) Program is enforced.
16. Seismic readings typically are obtained while working near a private property or public property.
17. For defensive purposes, field managers and safety staff obtain numerous pictures whenever there is an accident or property loss that is, or could be, associated with our operations.
18. Regularly produce a computerized measurement of safety performance per division and project.

19. Company instruments such as sound meter, oxygen-combustible-carbon monoxide monitor, Multi-Gas Detector samplers are used to analyze work site atmospheres by the Safety Department and site personnel.

SCI is proud of its loss control achievements and realizes the need to continue to extend every effort to curb injury and losses, particularly in this liberal claims-conscious climate. In so doing, we believe we strengthen the competitive edge of product and performance over our contemporaries.

## ***ADMINISTRATION AND ORGANIZATION***

### **SAFETY SUPERVISOR DUTIES**

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#### **PURPOSE**

To define the duties of the person responsible for coordinating job site safety

#### **SCOPE**

Applies to all companies, areas, projects, and employees within ORC.

#### **RESPONSIBILITIES**

The Project Manager or Superintendent will either assume these duties or delegate them to another Competent Person. In the case of multiple-group jobs, Regional Management will assign these duties to an on-site individual.

#### **PROCEDURES**

1. The SCI Project Site Safety Supervisor's essential responsibilities are to coordinate and perform the following duties.
2. Implementing of the Safety Plan for the Project in its entirety.
3. Assure that the employee-training plan is carried out and orientation of all new employees.
4. Conduct hazard communication training for all new employees and new materials or substances brought onto the project. Also ensure that Safety Data Sheets are on the job site, up-to-date, and available to team members.
5. Conduct weekly Toolbox Meetings and attend any other safety meetings associated with the project.
6. Document all training for employees on appropriate forms or logs.
7. Review and approve all work plans and methods. Use the SCI pre-job evaluation form as a guideline for this Job Safety Analysis.
8. Frequently inspect and document construction activities. Findings shall be written on the On-Site Safety Review form and submitted to the Safety Department. Follow-up attention is also a vital part of this duty.
9. Coordinate safety compliance with all subcontractors. Also, review their operations to ensure they are operating by Health and Safety standards.
10. Ensure that the documentation of specific programs such as Monthly Crane and Backhoe Inspections, Safety Harness and Lanyard Inspections, Security Audits, and all deficiencies are corrected.
11. Investigate all accidents, equipment damage, general liabilities, theft, vandalism and any near miss accidents.
12. The Site Safety Supervisor will submit appropriate loss reports to the Safety Department.
13. Coordinate and obtain pictures and on-site investigation reports, i.e., police and fire department, subcontractor, etc. Maintain all information on the Project site with copies sent to the Safety Department.
14. Assure that two employees are trained in first aid and CPR and are available for each shift. Check and update first aid supplies regularly.

15. Coordinate special health exams, pre-employment physicals, etc., including post-accident drug testing for all employees.
16. Assure that the Project complies with all regulatory Standards including OSHA and Environmental Standards.
17. Handle and escort any regulatory compliance inspectors coming onto the project.
18. Keep the Safety Department advised of safety or security assistance needed for the project.
19. Coordinate security controls including electronic security systems, lighting, locks, fences, etc.
20. Coordinate and stock safety supplies as needed for the job.
21. Take pictures of traffic control setups and new road openings.



## ***ADMINISTRATION AND ORGANIZATION***

### **REPRIMAND POLICY AND PROCEDURES**

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#### **PURPOSE**

To hold all SCI Team Members accountable for their actions

#### **SCOPE**

Applies to all companies, areas, projects, and employees within ORC

#### **RESPONSIBILITIES**

It is the responsibility of every person employed by SCI to work safely and efficiently. The safety system provides guidelines and procedures to help ensure the use of safe work practices. If any employee violates provisions of the SCI safety system or works in a manner that threatens their health and safety or the health and safety of the employees around them, they will be subject to disciplinary action, up to and including termination of employment.

The safety manager, operations managers, supervisors, and foremen are responsible for enforcing the safety system and for issuing disciplinary action as required by this section of the safety manual.

SCI is committed to safety, and senior management holds all supervisory staff responsible and accountable for safety within their respective areas.

Physical inspections by SCI officials or insurance representatives that indicate violations showing overall lack of commitment to SCI safety goals shall be under the same level of disciplinary actions.

#### **PROCEDURES**

The following procedures will be followed:

1. Any employee violating company rules will be issued an employee warning notice as illustrated in 1.0.4. Distribute copies as indicated on the form.
2. The first offense will result in a written reprimand and additional training if necessary. The reprimand will be written on the standard Safety Reprimand form (see below) and will describe the unsafe activity or behavior that needs correction. Refer to the violated section of the safety program (when applicable). The employee receiving the reprimand has the right to submit a written rebuttal to the reprimand. The employee must sign the reprimand. The reprimand and any rebuttal will become a part of the employee's employment records.
3. The second offense will result in another written reprimand (using the standard form) and suspension, the duration of which will be decided at the time of the disciplinary action and is to be weighed by the severity of the offense but shall not be less than three days. Again, the employee may submit a written rebuttal to the reprimand. The employee must sign the reprimand. The reprimand and any rebuttal will become a part of the employee's employment records.
4. The third offense may result in the termination of the offending employee.

The above actions are on a sliding thirty-six-month scale. The employee does not have to commit the same violation each time to receive further reprimands. They could receive a reprimand for smoking in a no smoking area on their first offense and get an additional reprimand for their second offense which might be a forklift violation and yet another for failing to use the proper personal protective equipment. Termination occurs for their third offense in the last thirty-six months.

In the case of serious safety violations such as by-passing guarding or other unsafe activities that put the violator or other employees at serious risk of injury, the manager may move the violator directly to the

second or third warning level. If the violator's actions put him or others at risk of death or dismemberment, the manager has the option to terminate him with no further warning.

**SCI CORPORATION, a SOUTHLAND COMPANY**  
**EMPLOYEE WARNING FORM**

EMPLOYEE NAME: \_\_\_\_\_ DATE OF WARNING: \_\_\_\_\_

EMPLOYEE: \_\_\_\_\_ FOREMAN: \_\_\_\_\_ SUPERINTENDENT: \_\_\_\_\_ PROJECT MANAGER: \_\_\_\_\_

PROJECT: \_\_\_\_\_

TYPE OF VIOLATION	1 <sup>st</sup> Offense	2nd Offense	3rd Offense
ATTENDANCE			
TARDINESS/ EARLY QUIT			
INSUBORDINATION			
LEAVING WORK AREA			
WORK QUALITY			
LOW PRODUCTIVITY			
CARELESSNESS			
WORKING ON PERSONAL MATTERS			
ABUSE OF PROPERTY			
SAFETY VIOLATION			
NOT FOLLOWING COMPANY PROCEDURES			
OTHER			

DETAILS OF VIOLATION: \_\_\_\_\_

\_\_\_\_\_

WARNING ISSUED BY: \_\_\_\_\_ TITLE: \_\_\_\_\_

EMPLOYEE'S SIGNATURE: \_\_\_\_\_

DISCIPLINARY ACTION TAKEN: \_\_\_\_\_ NO: \_\_\_\_\_ YES. IF "YES", DESCRIBE: \_\_\_\_\_

COMMENTS: \_\_\_\_\_

ORIGINAL: OFFICE                      DISTRIBUTION:  
 COPY: EMPLOYEE                      COPY: SAFETY & HR

## **ADMINISTRATION AND ORGANIZATION**

### **EMPLOYEE WARNING INSTRUCTIONS**

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#### **A. ISSUED AGAINST:**

**Employee:** When their performance is not to standard or in violation of company policy and government regulations.

**Foreman:** When they violate or does not take action and allows the violation of policy/rules to continue.

**Superintendent:** When they violate company policy/rules or does not take action against an employee or a Foreman who violates company policy/rules.

**Project Manager:** When they violate company policy/rules or does not take action against a Superintendent who violates company policy/rules.

#### **B. WHO SHOULD USE:**

The Project Superintendent should typically be the person to issue a warning formally. When a Foreman witnesses an employee action that deserves a warning, he/she should review this with the Superintendent for issuance. If the Superintendent is not available, then the Foreman must issue and provide the Superintendent with a copy.

For all other warnings, the Supervisor responsible for the employee (in violation) should issue the warning, i.e., Project Manager to Superintendent, or Superintendent to Foreman, etc.

#### **C. HOW TO USE:**

1. Fill in the appropriate blanks
2. Check off type of violation and whether it was 1st, 2nd, or 3rd offense.
3. Give a detailed explanation of violation.
  - a. For example: absent 2 of the past 10 days
  - b. For example: not tied off while exposed to a fall higher than 6 feet
  - c. For example: not following instructions by not putting tools away at the end of day
4. If the employee refuses to sign the warning or leaves it blank; ideally, have a witness to this refusal.
5. Depending on your judgment of how severe the violation is, take whatever disciplinary action is necessary. Below are suggested guidelines:
  - a. 1st Offense - issue a written reprimand with no time off
  - b. 2nd Offense - issue a written reprimand and suspend the employee for three days
  - c. 3rd Offense - probable termination

In the case of a severe violation of policy/rules on the site, you may have to immediately terminate an employee: for example, if the employee is drinking on the job or has come to work intoxicated.

**Duration** – Written reprimands will be kept in personnel folders for thirty-six months. However, the company does reserve the right to take previous records into account when deemed necessary.

Once completed, keep the original in the records at the project site. Issue copies to the employee, and the Human Resource Department.

## ***ADMINISTRATION AND ORGANIZATION***

### ***SUBCONTRACTOR ORGANIZATION AND RESPONSIBILITIES***

---

#### **PURPOSE**

To delegate subcontractor's responsibilities for developing and aligning their Safety, Health, and Environmental Plan with SCI SHE Plan and project specific guidelines.

#### **SCOPE**

These rules apply to all subcontractors, sub-subcontractors, service contractors and vendors with on-site personnel.

#### **RESPONSIBILITIES**

Advising Subcontractors of the established project safety standards and procedures, owner requirements, and other applicable regulations; furthermore, they will be required to comply with SCI SHE program, as well as their program, to the extent they apply to the project work. Subcontractors are responsible for initiating, maintaining, and supervising and enforcing the safety requirements even though the requirements may be above and beyond the Subcontractor's specific safety policies and federal and state OSHA requirements.

#### **PROCEDURES**

Consistent with contractual obligations, subcontractors are responsible for the following:

1. For the implementation of a site-specific Safety Plan.
2. Aligning and implementing the site Safety Plan as well as the subcontractor's own Safety Plan.
3. To produce a safe and healthful working environment for their employees.
4. Attending subcontractor pre-mobilization meeting, subcontractor safety meetings, and other meetings held by SCI in the interest of safety.
5. Ensuring new employees' attendance at orientation sessions and specialized training sessions.
6. Conducting daily and weekly audits to monitor compliance with safety requirements.
7. Designating a qualified Site Safety Supervisor / Representative or Designee.
8. Conducting safety meetings for supervisors and employees.
9. Jointly conducting incident investigations of all incidents with the SCI Site Safety Supervisor.
10. Providing SCI with copies of incident investigation reports, statistical reports, injury/illness logs, and other documents required by ORC.
11. Maintaining current copies of applicable safety standards on-site.
12. Complying with the training and medical requirements of the site.
13. Complying with the applicable Drug and Alcohol Program.

## ***SECTION 2***

### ***TRAINING and EDUCATION: General***

---

#### **PURPOSE**

The requirements of this section are to ensure that all SCI Team Members are provided the training and education needed to perform their work safely.

#### **SCOPE**

Applies to all SCI Team Members associated with and performing work on the Project.

#### **RESPONSIBILITIES**

All SCI Supervisors. The SCI Site Safety Supervisor will assist the Supervisors in fulfilling the employee safety training and orientation requirements.

#### **PROCEDURE**

1. SCI will adhere to the Project Employee Orientation.
2. SCI employees will all receive employee orientation and training.
3. SCI Supervisors will all receive project-specific supervisory orientation.
4. SCI will abide by the Project's Visitor and Vendor orientation requirements.
5. SCI will abide by the Project and OSHA Hazard Communication Training requirement.
6. The Site Safety Supervisor will arrange a first-aid course for Supervisors (and other interested employees) who may need training.
7. Superintendents and Foremen will implement and conduct a Job Hazard Analysis (JHA) with their respective crews for the tasks to be performed for the day and as it changes throughout their workday.

## ***TRAINING and EDUCATION***

### ***EMPLOYEE ORIENTATION AND TRAINING***

---

#### **PURPOSE**

Provide all SCI Team Members with orientation and on-going education to perform their work safely.

#### **SCOPE**

- A. ORIENTATION** – Applies to all newly assigned SCI Team Members before his or her working on the Project.
- B. ON-GOING SAFETY TRAINING** – Applies to all SCI Team Members as they work on the Project.

#### **RESPONSIBILITIES**

- A. ORIENTATION** – The Site Safety Supervisor or designated person is responsible for conducting the Safety Orientation sessions.
- B. ON-GOING SAFETY TRAINING** – Project Supervision will be primarily responsible for the on-going safety training of his employees. The Site Safety Supervisor will fulfill the secondary responsibility of this requirement.

#### **PROCEDURE**

##### 1. Employee Orientation

The Site Safety Supervisor or designated person will conduct SCI employee orientation.

The Site Safety Supervisor will verbally present, and may use visual aids (i.e., slides and overlays), the orientation of the following subjects:

- a. Project Safety and Health Plan
- b. Contractor Safety and Health Plan
- c. Project Safety and Health Standards
- d. Employee Handbook (covering SCI EEO Policy, Employment Practice, Compensation, Benefits)
- e. Issuance, use, and care of personal protective equipment
- f. Housekeeping
- g. Fire protection and prevention
- h. Lockout and tagging procedures
- i. First-aid services and facilities
- j. Reporting accidents and near-miss incidents
- k. Minimum dress requirements
- l. Operation and use of mobile equipment
- m. Hazard communications
- n. Project access/egress requirements
- o. Parking regulations

The Site Safety Supervisor will document and record the attendance of each session he/she conducts, and each person shall sign an attendance roster.

The Site Safety Supervisor will either offer a verbal or written test at the end of these sessions to verify that those in attendance understood and retained the information presented during this orientation session.

The Project Safety Manager will be welcome to sit in and observe or participate in any of these sessions.

#### On-Going Safety Training

Each Supervisor will conduct weekly Toolbox Safety Meetings. All of their own crewmembers shall be in attendance at these meetings. The subjects at the Toolbox Safety Meetings will include:

- a. Current safety concerns
- b. Employee comments or suggestions
- c. Recent accidents or injuries
- d. Appropriate general safety training

The Supervisor conducting the meeting will document every weekly Toolbox Meeting. All employees in attendance will sign the Weekly Safety Meeting report.



<b>WEEKLY SAFETY TOOLBOX MEETING REPORT</b>
---

Date \_\_\_\_\_ Supervisor(s) Conducting Meeting: \_\_\_\_\_

All Supervisors Attending Meeting: \_\_\_\_\_

Summary of items discussed: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Accidents and injuries discussed: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Employee Comments and Suggestions: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**EMPLOYEES ATTENDING MEETING**

1	14	27	40
2	15	28	41
3	16	29	42
4	17	30	43
5	18	31	44
6	19	32	45
7	20	33	46
8	21	34	47
9	22	35	48

**CHECK SUBJECTS YOU DISCUSSED**

Abrasive Wheels	Fall Protection	Public Relations
Accident Reporting	Safety Belts & Lanyards	Railroad Crossings
Air Hoses	Guard Rails	Respirators
Air Tools	Floor Openings	Riding Equipment
Arc Welding	Safety Lines	Safety Equipment
Backing Equipment	Safety Nets	Sandblasting
Backup Alarms	Skip Boxes	Sanitation
Batteries	Fire Extinguishers	Seat Belts
Blocking	Safety Cans	Snow & Ice
Blasting & Explosives	Fueling	Steps
Carbon Monoxide	Welding & Cutting	Stripping
Chemical Handling	Gasoline	Telephone Cables
Clothing	First Aid	Theft
Concrete Burns	Frostbite	Traffic Controls
Connecting & Bolting	Gas Lines	Signs & Barricades
Conveyors	Gas Welding	Flashers
Confined Entry	Gloves	Flagmen
Cranes	Grinding	Reflectorized Vests
Crane Capacity	Hard Hats	Trenches
Hand Signals	Haul Roads	Ladder
Swing Radius	Hearing Protection	Underground Utilities
Rigging	Heat Exhaustion	Overhead Lines
Chokers & Slings	Horseplay	Slopes
Tag Lines	Housekeeping	Spoil Pile
Crane Inspections	Laser Beams	Trench Box
Electrical	Lighting	Trucking
Equipment Grounding Program	Lifting Techniques	Vandalism
Ground Fault Circuit Interrupters	Lightning Storms	Water Safety
Cords	Material Handling	Life Vest
Tools	Material Storage	Life Boat
Lockouts	Overexertion	Grab Pole
Emergency Numbers	Oil Spill Boom	Equipment Maintenance
Wind		

## ***TRAINING AND EDUCATION ORIENTATION ACKNOWLEDGEMENT FORM***

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My signature below acknowledges my completion of the Project Safety Orientation and that I understand the Policies and Procedures and will abide by them.

### **SCI ORIENTATION**

1. Notification of injury
  - a. The employee will notify Supervisor of injury no matter how minor at the time of the injury
2. SCI Equal Employment Opportunity Policy
3. Notification of equipment damage or malfunction
  - a. The employee will notify Supervisor immediately of damages to the company's or another's property
  - b. The employee will not leave the scene of an accident until Supervisor arrives
  - c. The employee will alert their Supervisor of any equipment malfunctions
  - d. The employee will not attempt to correct the issue by themselves
4. Safe clearance procedures
  - a. Alert operator of your presence in their work zone
  - b. Be aware of the pinch points associated with equipment
  - c. Give equipment the respect it deserves
5. Alcohol/Drug abuse policy
  - a. Alcohol and drug abuse are prohibited, and employees who choose to engage in alcohol and drug abuse face the risk of unemployment as well as the forfeiture of Worker's Compensation benefits.
  - b. Employees are prohibited from possessing, consuming, or reporting to work or working with the presence of alcohol or drugs in their body as defined by the Controlled Substance Program and Drug-Free Workplace Policy in the Team Member Handbook I
  - c. Violation of this policy shall result in immediate discipline up to and including discharge and denial of eligibility for Worker's Compensation medical and indemnity benefits.
  - d. Any illegal substances on our premises, projects, or on your person while at work will be turned over to the appropriate law enforcement agency and may result in criminal prosecution
6. Daily housekeeping requirements
  - a. Before the end of each working shift employee will set aside time for work zone cleanup
  - b. Housekeeping will be performed during the day if needed
7. Policy on use of Personal Protective Equipment
  - a. PPE will be provided by SCI (except steel-toed boots, they are the responsibility of the employee)
  - b. PPE will always be worn while at the job site. At a minimum hard hat, safety glasses, safety vest, and steel-toed boots
  - c. PPE will be inspected daily if PPE is damaged or malfunctioned alert Supervisor and remove the item from the job site
  - d. Eye protection will always be worn (even when using face shields)
  - e. Head protection will always be worn
  - f. The employee shall always wear a Class II traffic vest
  - g. Employee's working near water will wear life jackets
  - h. Employee's working over 6 feet will wear fall protection

- i. SCI provides fall protection
  - ii. The employee will inspect their full body harness daily
  - iii. The employee will inspect tie-off anchorage daily, assuring it is secure
- 8. Right to Know Program
  - a. Ensures that all employees have the necessary knowledge to protect themselves from inherently hazardous substances (i.e., chemicals) on our projects
  - b. SDS' contains information on flammability, health hazards, medical treatment, and protective equipment required
- 9. Fires and other emergency procedures
  - a. Recognize types of fires and appropriate fire extinguishers
  - b. Proper storage of flammables and extinguishers
  - c. Review the Emergency Action Plan
- 10. Pertinent provisions of ACE EM 385-1-1 (if Army Corps of Engineers project)
- 11. Employee's responsibilities for property and the safety of others
  - a. Everyone is responsible for the safety of themselves and those around them
  - b. Employees will treat SCI property with respect
  - c. Tools and equipment will be properly stored to prevent damage and excessive wear
  - d. Company vehicles will be properly used and cared for
- 12. Location of medical facilities and emergency phone numbers
  - a. Located in the office/field office
  - b. If minor emergency notify Supervisor
  - c. If major emergency dial 911, then notify Supervisor, assist in helping any injured
- 13. Procedures for reporting or correcting unsafe conditions
  - a. Stop work and remove personnel from the unsafe working condition
  - b. Alert supervisor of unsafe conditions
  - c. If possible, remove the unsafe condition
- 14. Segregation of vehicular and pedestrian traffic
  - a. The employee will assist in SCI continual efforts to protect the public and other contractors on our worksites
  - b. The employee will immediately alert their Supervisor of any unauthorized persons on the worksite
- 15. Drinking water sanitation policy
  - a. Water cooler for drinking purposes is not for storing of beverages
  - b. Water coolers will be cleaned daily
- 16. Policy on use of Ropes, Slings, and Chains
  - a. Ropes, Slings, and Chains will be inspected before use
  - b. If the above items fail inspection, they will be tagged and removed from service
  - c. Only a Qualified Rigger is allowed to rig an item for a lift
- 17. Hazards of floor and wall openings
  - a. Take the necessary steps to remove the hazard (blocking access to hazard, posting signage of the hazard)
- 18. Requirements when working around hot substances
- 19. Precautions with welding, cutting, and grounding of machinery
  - a. Alert those in work area of the task being performed
  - b. Remove any flammables from work zone

- c. Wear proper PPE
  - d. Have a fire extinguisher at the ready
  - e. At sometimes the job being performed will require a fire watch, make sure the fire watch understands his duties and emergency procedure
20. Temporary electrical requirements
- a. Only those qualified will work on electrical systems
  - b. The extension cord will be inspected before use and removed from service if damaged
21. Proper use of hand tools and power tools
- a. Hand and power tools will be used for the job for which they are intended
  - b. Power tools will not be modified in any way
  - c. If the tool is damaged or not operating correctly tag out and remove from service
22. Proper precautions with compressed gas cylinders
- a. Cylinders will be stored in approved areas, marked, stored upright, and prevented from falling over
  - b. Cylinders will be transported upright
  - c. Cylinders will be protected from slag, sparks, and extreme heat
23. Requirements for ramps, runways, platforms, and scaffolds
24. Requirements for excavation
- a. Proper slope (1 1/2 to 1)
  - b. Spoil pile setback at least two feet from the edge of the slope
  - c. Ladder in trenches deeper than 4 feet, 3 feet above the landing and tied off, and not farther away than 25 feet from personnel
  - d. Employees will be out of the trench while excavator is digging
25. Job Site Hazard analyses
- a. Performed before the task is to be done
  - b. Remove any hazards, if the hazard cannot be removed take necessary precautions to limit hazard
  - c. Alert Supervisor
26. Clothing requirements
- a. At a minimum, T-shirts must be worn
  - b. Clothing and footwear shall be in good condition (i.e., no rips, tears, or holes)
27. Security
- a. Security is everyone's responsibility
  - b. Lock up equipment as instructed by your supervisor at the end of the shift
28. Lockout/Tag out
- a. SCl has instituted a Lockout/Tag-out program to prevent employees from unexpected energization, start-up or release of stored energy to prevent injury
  - b. Before the use of equipment or machinery, the employee will make sure it has not been tagged out
  - c. It is the supervisor's responsibility to alert the employees to any items that might be locked out/ tagged out
29. Environmental protection
- a. Every effort by the employee will be made to prevent spills and leaks of any kind
  - b. Employees will alert Supervisor if any part of the erosion control plan has been breached
30. Wildlife

- a. The employee will not approach, disturb, or assert themselves amongst the wildlife
- b. If the employee has come into contact with wildlife and been injured in any way, make a note of the animal or insect, alert the Supervisor immediately

31. Blasting Requirements (if applicable)

32. Tunneling Requirements (if applicable)

**Print Clearly**

Last Name: \_\_\_\_\_ First Name: \_\_\_\_\_

SSN: \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ Contractor: \_\_\_\_\_

Subcontractor: \_\_\_\_\_

Contact Phone Number: ( \_\_\_\_\_ ) \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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Contractor Safety Representative conducting orientation

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(Signature)

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(Print Name)

## ***TRAINING AND EDUCATION***

### ***SUPERVISOR ORIENTATION***

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#### **PURPOSE**

Provide all SCI Supervisors with orientation and on-going education to perform their safety leadership duties effectively.

#### **SCOPE**

Applies to all newly assigned SCI Supervisors before their supervising on the Project.

#### **RESPONSIBILITIES**

The Site Safety Supervisor will be the primary person responsible for conducting the supervisory orientation sessions. Secondary assistance will come from the General Superintendent on this project.

#### **PROCEDURE**

The Site Safety Supervisor will verbally present, and may use visual aids (i.e., slides and overlays), the orientation of the following subjects:

1. Project Safety and Health Plan
2. SCI Safety and Health Plan
3. Project Safety and Health Standards
4. Employee Handbook (covering SCI EEO Policy, Employment Practice, Compensation, Benefits)
5. Applicable OSHA and other regulatory Standards that applies to their scope of work
6. Safe work rules and practices applicable to their work
7. SCI written Employee Warning Procedures
8. Project Non-Compliance Procedure
9. Corrective action initiative
10. Required attendance at Weekly Supervisors Safety Meetings
11. Emergency Action Plan
12. Accident Reporting and Investigations
13. Treatment of Injured
14. Fire Protection and Prevention
15. Toolbox Safety Meetings
16. Hazard Communication
17. Safety and Health Inspections
18. Jobsite Security
19. Controlled Substance Program

Site Safety Supervisor will document and record each of these Supervisory Orientation meetings and those in attendance will sign this training record attesting to their attendance.

The Site Safety Supervisor will test those in attendance by either verbal or written questioning to make certain that the information presented was understood and retained.

The Project Safety Manager will be welcome to sit in and observe or participate in these meetings at any time he/she chooses.

The Site Safety Supervisor and General Superintendent will conduct a Supervisor's Safety Meeting. This meeting will be held each week before the Weekly Employee Toolbox Meeting. The primary purpose of this meeting will be to coordinate and pass on safety information that should be brought up in the Weekly Toolbox Meetings and to keep the leadership personnel aware of the company's overall safety performance on this worksite. This Supervisor Safety Meeting will be documented using a Weekly Safety Meeting report, and all in attendance will sign their names.



## ***TRAINING AND EDUCATION***

### ***VISITOR and VENDOR ORIENTATION***

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#### **PURPOSE**

To inform visitors and vendors of the safety, health, environmental and industrial hygiene process and systems of the Project Safety and Health Plan

#### **SCOPE**

Applies to all SCI Team Members and its subcontractors associated with and performing work on Project.

#### **RESPONSIBILITY**

Each contractor is responsible for ensuring their visitors and vendors comply with the standards and procedures of the Project. This responsibility includes conducting an orientation with all visitors and vendors.

In some instances, visitors are required to attend the Project Orientation sessions. All visitors must remain in the construction office area until authorization is received from a designated Project representative to enter the project.

#### **PROCEDURE**

Each contractor shall ensure that all visitor(s) and vendor(s):

1. Have the proper safety protective equipment
2. Have proper authorization and training
3. Are escorted during a tour on any portion of the Project; included with visitor orientation session will be operating procedures for light vehicles on the worksite
4. Comply with all safety, health and other requirements
5. All visitor orientations must be documented on the visitor Orientation Checklist.

**TRAINING AND EDUCATION**

**VISITOR ORIENTATION CHECKLIST**

VISITOR NAME (S): \_\_\_\_\_ DATE: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**PERSON CONDUCTION ORIENTATION:**

Upon completion of this form, please forward to the Safety Department.

1. Cameras, video production equipment, and other such tools are not allowed on the Project.
2. Protective equipment is required to be worn while on the Project.
  - a. Hard Hat
  - b. Safety glasses
  - c. Hearing protection
  - d. Protective clothing, as required
  - e. Protective footwear, as required
3. Explain the Project Emergency Action Plan. In the event of an emergency, visitor(s) will follow these instructions.
4. Explain the smoking restrictions and regulations.
5. Visitor(s) are not to perform any work at Project without authorization.
6. Visitor(s) are not allowed to tour the project without an escort.
7. Visitor(s) shall not remove any property from the premises without authority.
8. Explain the dress code policy.
9. Explain entry into restricted areas.
10. OTHER:

\_\_\_\_\_

## ***TRAINING AND EDUCATION***

### **OPERATING PROCEDURES FOR LIGHT VEHICLES**

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#### **PURPOSE**

Provide guidelines to prevent confusion, traffic congestion, or accidents and provide procedures should hazardous conditions be encountered.

#### **SCOPE**

Applies to all SCI Team Members and its subcontractors associated with and performing work on the Project.

#### **RESPONSIBILITIES**

The Project Manager, Superintendents, Supervisors, and Site Safety Supervisor will enforce all aspects of this driving procedure.

#### **PROCEDURES**

1. All personnel entering the Project will have received the employee or visitor orientation before being allowed to operate a vehicle on the project site.
2. Visitors are not permitted to drive on the project site unescorted.
3. All personal vehicles will give the right-of-way to heavy equipment, (i.e., dozers, graders, hauling trucks).
4. When driving near or adjacent to heavy equipment, ensure that eye contact is made between you and the operator before proceeding. Honk your horn to get attention, if necessary.
5. When driving on a berm, be extremely cautious when driving near the edge. The soil may be loose and give way or wet and slippery. A good rule of thumb to follow is to allow a vehicle width between your r vehicle and the edge.
6. **DO NOT STOP ON HAUL ROADS.** If you must talk to someone, make sure you're well clear of the haul road before stopping.
7. Be aware small two-wheel drive vehicles cannot go the same places as a four-wheel drive or larger equipment.
8. **SEAT BELT WILL BE USED!**
9. Passengers are prohibited from riding on equipment, i.e., fenders, running boards, or in the bed of pickups.
10. Unattended personal vehicles will not be left running.
11. When driving at night, all personal vehicles will display a yellow flashing light in clear view from all angles.
12. **Anyone entering the project site must wear PERSONAL PROTECTIVE EQUIPMENT, i.e., HARDHAT, SAFETY GLASSES WITH SIDE SHIELDS, AND AN ORANGE VEST WITH REFLECTORS.**

**IF IN DOUBT, DON'T GO!!!**

## ***TRAINING AND EDUCATION***

### ***JOB HAZARD ANALYSIS (JHA)***

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#### **PURPOSE**

The daily Job Hazard Analysis (JHA) is designed to analyze aspects of tasks assigned by Supervisors.

#### **SCOPE**

Applies to SCI Supervisors and Team Members associated with and performing work on the Project.

#### **DEFINITION**

The JHA program revolves around the act of demonstrating and explaining to each employee the safety application that pertains to the job or task they will perform.

#### **RESPONSIBILITIES**

The SCI Site Safety Manager and Superintendent will together analyze each job task for hazards and determine appropriate safety measures to eliminate hazards.

The Superintendents will initiate JHA instruction to provide employees with a working knowledge of these safety measures.

#### **PROCEDURE**

The magnitude of the task will determine the extent of the JHA instruction. Some tasks will require only a few words. Other tasks may require actual demonstration of how the job is to be done safely.

A JHA worksheet (2.4.1) will be completed for each job/task for all the affected employees. As work conditions or crewmembers change, an updated JHA worksheet will be completed for affected employees.

Superintendents give JHA to their Foremen; and the Foremen to the employees who perform the tasks, each step or instruction becoming more detailed as necessary through line organization.

The Supervisor must ensure that employees understand thoroughly every task given to them on every job they perform. **Key Point: After the task has been explained, the Supervisor should have the worker explain how to do it safely.**

***TRAINING AND EDUCATION***  
**DAILY JOB HAZARD ANALYSIS FORM (JHA)**

**LOCATION:** \_\_\_\_\_ **PROJECTNO:** \_\_\_\_\_

**SUPERVISOR:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**Description of Job / Activities:** \_\_\_\_\_

**Special Precautions**

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Fall Protection          | <input type="checkbox"/> Loading Area             | <input type="checkbox"/> Haul Roads         |
| <input type="checkbox"/> Employee Access          | <input type="checkbox"/> Concrete Pumping         | <input type="checkbox"/> Clearing & Burning |
| <input type="checkbox"/> Excavation               | <input type="checkbox"/> Personal Prot. Equipment | <input type="checkbox"/> Hot Work           |
| <input type="checkbox"/> Environmental Protection | <input type="checkbox"/> Traffic Control          | <input type="checkbox"/> Confined Space     |
| <input type="checkbox"/> Critical Lift            | <input type="checkbox"/> Lockout/Tagout           | <input type="checkbox"/> Water Hazards      |
| <input type="checkbox"/> Equipment                | <input type="checkbox"/> Weather                  | <input type="checkbox"/> Other              |

**Tools / Equipment:**

\_\_\_\_\_

**Potential Hazards / Action Taken:**

\_\_\_\_\_

**Employee Comments / Suggestions:**

\_\_\_\_\_

**JHA was given to the following before work beginning:**


<p style="text-align: center;"><b>HAZARDS (ENVIRONMENTAL)</b></p> <p>Airborne Particles (Dust) Heat Stress Sunburn Weather Hot/cold Surfaces on Materials</p>	<p style="text-align: center;"><b>HAZARDS (WATER)</b></p> <p>Life Vest Ring Buoys W/Rope Boat Operations Standby Person</p>	<p style="text-align: center;"><b>HAZARDS (CHEMICAL)</b></p> <p>MSDS Reviewed (Right to Know) Chemical Burns Skin/Eye Irritant Petroleum Products</p>
<p style="text-align: center;"><b>EXCAVATIONS</b></p> <p>Proper Slope Escape Ladder Provided Daily Inspection Barricade Competent Person on Site Soil Analysis Air Quality</p>	<p style="text-align: center;"><b>EQUIPMENT</b></p> <p>Operator (Competent) Backup Alarm Preventive Maintenance Check Good Condition Safety Equipment Serviceable No Oil Leaks or Seeps Turn Radius Blacking Requirements Swing Radius</p>	<p style="text-align: center;"><b>AREAS OF OPERATION</b></p> <p>Haul Roads (Conditions) Traffic Flow (Rules of the Road) Speeds Loading Areas Dumping Areas Equipment Parking (Area) Light Power Plants (Night Operations) Closed Roads Marked Properly Passing</p>
<p style="text-align: center;"><b>HAZARDS (BODY)</b></p> <p>Fall Potential Pinch Points Electrical Shock Housekeeping Slip/Trip Sure Footing Manual Lifting Sharp Objects Concrete Burns</p>	<p style="text-align: center;"><b>PERSONAL PROTECTIVE EQUIPMENT</b></p> <p>Harness/Lanyard Hard Hat Safety Glasses W/Side Shields Safety Vest Serviceable Work Steel-Toed Boots Respirator Hearing Protection Gloves Positioning Device</p>	<p style="text-align: center;"><b>HOT WORK</b></p> <p>Flash Burns Combustibles Spark Containment Shields Grounding Fire Extinguisher Cylinders Secured Cylinder Caps in Place Permits</p>
<p style="text-align: center;"><b>ELECTRICAL</b></p> <p>Locked Out/Tagged Out Try Start/Stop Switch Disconnected (if required) Properly Grounded GFCI's Installed</p>	<p style="text-align: center;"><b>ACCESS</b></p> <p>Scaffold (Properly Inspected) Ladder (Tied Off) Ladder Extended Static Lines Guardrails Ends Blocked</p>	

## ***TRAINING and EDUCATION***

### ***JOB SAFETY ANALYSIS (JSA)***

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#### **PURPOSE**

To identify the major sources of work and to anticipate hazards so that provisions can be made to eliminate those hazards.

#### **SCOPE**

Applies to SCI Team Members and its subcontractors associated with and performing work on the Project.

#### **RESPONSIBILITIES**

The Superintendent will verify that the foreman in charge of each phase is aware of potential hazards and communicates those hazards to the workers prior to the start of each phase.

#### **PROCEDURES**

Each major phase of work has been studied for potential hazards and means to eliminate those hazards are provided. (See Exhibit 10.2.1)

Each employee will be made aware of the potential exposures for each operation.

This Job Safety Analysis will be updated as necessary and changes communicated to all employees.

***SAFE WORK PRACTICES***  
**JOB SAFETY ANALYSIS: Examples**

Work Activity	Anticipated Hazards	Prevention Methods
<b>SURVEYING</b>		
General	<ol style="list-style-type: none"> <li>1. Struck by equipment</li> <li>2. Falling materials</li> <li>3. Falls from elevation</li> </ol>	<ol style="list-style-type: none"> <li>1. Traffic vests worn</li> <li>2. Communicate traffic patterns</li> <li>3. Backup alarms installed</li> <li>4. Employees maintain safe working distance from equipment</li> <li>5. Hardhats work</li> <li>6. Safety glasses are worn</li> <li>7. Steel toed boots worn</li> <li>8. All materials secured</li> <li>9. Material stored 6 ft. from leading edge</li> <li>10. Standard guardrails installed over 6ft.</li> <li>11. Employee tied off to static line</li> </ol>
<b>EXCAVATIONS</b>		
Excavate w/ backhoe	<ol style="list-style-type: none"> <li>1. Utilities</li> <li>2. Noise</li> <li>3. Employee struck by</li> <li>4. Equipment fire</li> <li>5. Cave-in</li> <li>6. Struck by debris</li> <li>7. Emergency access</li> <li>8. Spoil pile</li> <li>9. Toxic fumes</li> </ol>	<ol style="list-style-type: none"> <li>1. Locate prior to excavation</li> <li>2. Protective equipment is worn</li> <li>3. Danger swing signs posted</li> <li>4. Employees maintain safe working distance from equipment</li> <li>5. Backup alarms utilized</li> <li>6. Fire extinguisher on equipment</li> <li>7. Excavation properly sloped or shored</li> <li>8. Support system inspected daily</li> <li>9. Spoil setback at least 2'</li> <li>10. Ladders in place and secure</li> <li>11. Air monitoring provided</li> <li>12. Employees wear hearing protection</li> </ol>
Laying Pipe	<ol style="list-style-type: none"> <li>1. Employee struck by</li> <li>2. Noise</li> <li>3. Equipment fire</li> <li>4. Overhead utilities</li> <li>5. Smoking</li> <li>6. Confined Entry</li> <li>7. Cave-in</li> </ol>	<ol style="list-style-type: none"> <li>1. Danger swing signs posted</li> <li>2. Employees maintain safe working distance from equipment</li> <li>3. Fire extinguishers on equipment</li> <li>4. Backup alarm utilized</li> <li>5. Locate utilities prior</li> <li>6. Smoking is forbidden in trench</li> <li>7. Hearing protection worn</li> <li>8. Test air prior to entry</li> <li>9. Loads not swung over employees</li> <li>10. Competent person on-site</li> <li>11. Excavation properly sloped</li> <li>12. Support system inspected daily</li> </ol>
Backfill Excavation	<ol style="list-style-type: none"> <li>1. Noise</li> <li>2. Employee struck by</li> <li>3. Equipment fire</li> <li>4. Tamper injuries</li> </ol>	<ol style="list-style-type: none"> <li>1. Employees wear bearing protection</li> <li>2. Backup alarms utilized</li> <li>3. Maintain safe working distance</li> <li>4. Fire extinguisher on equipment</li> <li>5. Proper foot protection required</li> <li>6. Steel toed boots worn</li> </ol>
Grouting Underground Installations	<ol style="list-style-type: none"> <li>1. Confined entry</li> <li>2. Toxic fumes</li> <li>3. Access/Exit</li> <li>4. Smoking</li> </ol>	<ol style="list-style-type: none"> <li>1. Confined entry permit</li> <li>2. Standby person available</li> <li>3. Air monitored continuously</li> <li>4. Ventilation continuous</li> </ol>



	5. Chemical burns	5. Ladders available & secure 6. Smoking is forbidden 7. SDS available for all materials
Testing Underground Utilities	1. Confined entry 2. Toxic fumes 3. Access/exit 4. Smoking	1. Confined entry permit 2. Standby person available 3. Air monitored continuously 4. Ventilation continuous 5. Ladders available and secure 6. Smoking is forbidden
<b>CONCRETE CONSTRUCTION</b>		
Setting Forms	1. Electrical shock 2. Cuts 3. Rigging failure 4. Employee struck by 5. Falls	1. All tools properly grounded 2. Guards in place and functioning 3. No saw left unattended 4. Inspect/size rigging properly 5. Maintain safe distance from load 6. Taglines used 7. Steel toe boots worn 8. Tie off when exposed to falls higher than 6 ft. 9. Work within standard guardrail
Placing Concrete	1. Concrete burns 2. Eye injuries 3. Employee struck by 4. Falls 5. Form failure	1. Clothing is worn to prevent concrete burns 2. Eye protection shall be worn 3. Maintain safe distance from load 4. Steel toed boots worn 5. Guardrails shall be installed 6. Formwork shall be properly braced
Strip forms	1. Eye injuries 2. Step on nails 3. Falls 4. Rigging failure 5. Struck by	1. Eye protection is worn 2. AD nails shall be removed 3. Proper foot protection is worn 4. Tied off when exposed to falls greater than 6 ft. 5. Inspect/size rigging properly 6. Taglines shall be used
Finish Concrete	1. Concrete burns 2. Eye injuries	1. Clothing is worn to prevent concrete burns 2. Eye protection shall be worn
Epoxy Installation	1. Toxic substance	1. SDS available 2. Wear required PPE
<b>REINFORCING STEEL</b>		
Unload Re-bar	1. Employee struck by 2. Rigging failure	1. Re-bar stored properly 2. Maintain safe distance from load/equipment 3. Inspect/size rigging properly
Place/Tie Re-bar	1. Rigging failure 2. Employee struck by 3. Falls 4. Form tipping over 5. Impalement	1. Inspect/size rigging properly 2. Re-bar shall be protected from impalement 3. Proper "D" rings shall be used 4. All forms properly braced 5. Protruding re-bar properly capped
<b>DEWATERING</b>		
General	1. Shocks 2. Drowning	1. Equipment properly inspected 2. Plugs in water shall be submersible 3. Circuits shall be grounded 4. The personal flotation device is worn
<b>DOWELL INSTALLATION</b>		
Drill Holes/Install Dowels	1. Struck by 2. Unqualified operator 3. Dust 4. Eye injuries	1. Rig run properly 2. No loose clothing worn 3. Maintain safe distance 4. Keep bands clear

	5. Noise	5. Operated be qualified personnel 6. Drill machine always attended 7. Provided dust control 8. Eye protection is worn 9. Hearing protection worn
Grouting	1. Eye injuries 2. Burns/abrasions 3. Struck by 4. Falls 5. Toxic substance	1. Eye protection is worn 2. Proper clothing worn 3. Pressure off before disconnecting 4. Safety lashing at all splices 5. Deadman switches installed 6. Tied off when exposed to falls greater than 6 ft. 7. SDS available
<b>STRUCTURAL STEEL ERECTION</b>		
Unload Steel	1. Employee struck by 2. Rigging failure	1. Taglines shall be used 2. Maintain safe distance 3. Inspect/size rigging properly
Storage	1. Employee struck by	1. Properly secure steel
Erection	1. Employee struck by 2. Rigging failure 3. Improper signals 4. Crane failure 5. Unqualified operator 6. Falls from elevation 7. Material falling	1. Taglines shall be used 2. Maintain safe distance 3. Inspect/size rigging properly 4. Comply with standard signals 5. Performance test equipment 6. Only qualified operators 7. Fall protection is worn when exposed to falls greater than 6 ft. 8. Bolts and drift pins kept from falling 9. Locking device for sockets, impacts
Climbing on Forklift	1. Sipping/falling while getting on	1. Inspect all grab handles regularly 2. Keep steps/floor free of debris and excessive mud, snow, or ice 3. Implement 3 points of contact rule
Driving Forklift to Van	1. Driving accidents	1. Make operating a forklift a regular topic in safety meetings 2. Have operator sound the horn before moving forward
Picking up Load	1. Oversized load 2. Un-level ground 3. Un-level load	1. Instruct operators to always “size-up” the load before attempting a lift 2. Instruct operators not to lift loads that have shifted in a way that may cause it to fall 3. Always be sure that the staging area is as level as possible
Traveling with Load to Drop Off Point	1. Driving accidents 2. Load Shifts	1. Always drive with load as close to the ground as possible
Setting down Load	1. Unstable foundation	1. Always set down the load on level ground with a good foundation
Driving Forklift away from Load	1. Driving accident while in reverse	1. The backup alarm is operable 2. Always look behind before backing
<b>INSTALLING PIPE RACKS</b>		
Digging Footing	1. Underground utilities 2. Muscle strain	1. Pre-plan all excavations 2. Assure proper footing 3. Use proper lifting techniques
Forming Foundations	1. Hazards to hands, fingers, etc. 2. Hazards associated with electrical hand tools, i.e., saws, drills, etc.	1. Proper PPE used 2. Inspect all powered hand tools for grounding, compromises in insulation, etc. 3. Use ground fault circuit interrupters (GFCI)
Pouring Foundation	1. Concrete burns	1. Proper PPE and clothing worn
Setting Anchor Bolts	1. Concrete burns	1. Proper PPE and clothing worn

Installing Pipe Rack	1. Secure load 2. Overhead utilities 3. Secure to foundation	1. Inspect/size rigging properly 2. Pre-plan all lifts 3. Standard hand signals used 4. Do not attempt to fasten nuts until all bolts are set through foundation plate
<b>CONCRETE PAVING</b>		
Forming	1. Pinch hazards 2. Electrical hazards 3. Muscle strain	1. Proper PPE used 2. Inspect all power tools 3. GFCI's are used 4. Proper lifting techniques utilized 5. Use of mechanical lifting devices
Setting Re-bar	1. Muscle strain 2. Trip/fall hazard	1. Proper lifting techniques utilized 2. Use of mechanical lifting devices 3. Use of wooden walkways over re-bar 4. Fall protection is worn when exposed to falls over 6 ft.
Pouring Concrete	1. Concrete Burns 2. Muscle strain	1. Proper PPE used 2. Proper lifting techniques utilized 3. Use of mechanical lifting devices
Finishing Concrete	1. Muscle strain 2. Concrete burns	1. Proper PPE used 2. Proper lifting techniques utilized 3. Use of mechanical lifting devices
Removing Footing	1. Pinch hazards 2. Muscle strain	1. Proper PPE used
<b>GENERAL SITE PREPARATION (DIRT WORK)</b>		
Removing Debris/Site Clearing	1. Struck by 2. Equipment rollover	1. Use of backup alarms, flagmen, etc. 2. Employee training 3. Use of rollover protection, seat belts
Site Leveling	1. Struck by 2. Equipment rollover 3. Existing utilities 4. Trenching hazards	1. Use of backup alarms, flagmen, etc. 2. Employee training 3. Use of rollover protection, seat belts 4. Pre-plan excavations 5. Call for utility locates 6. Use of shoring or proper sloping
Site Fill	1. Struck by 2. Equipment rollover	1. Use of backup alarms, flagmen, etc. 2. Employee training 3. Use of rollover protection, seat belts
<b>ELECTRICAL CONDUIT INSTALLATION (UNDERGROUND)</b>		
Test Confined Spaces	1. Potential entrapment 2. Air quality	1. Use of shoring 2. Pre-plan confined space entry 3. Proper use of PPE
Install Conduit Hangers	1. Hazards associated with electrical hand tools	1. Inspect all hand tools for proper use 2. Use GFCI's on all generators

## ***TRAINING and EDUCATION***

### ***ATTABOY PROGRAM***

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The Attaboy program was developed to recognize employees for performing a task safely and without incident. ORC. wants to encourage employees to not only think of themselves when it comes to safety but to also look out for the safety of their co-worker's, the site, and overall project.

#### **How it Works**

Employees are recognized by ORC. Upper Management, Project Managers, and Safety Managers and will receive an ATTABOY sticker. Some examples of an ATTABOY moment are:

- Promoting/encouraging safety among their peers.
- Stopping/correcting unsafe acts.
- Taking the time to properly instruct new employees in the correct work procedures.
- Excelling at a new task.
- Showing initiative.
- Taking care of their equipment and/or site.
- Showing their knowledge/understanding when quizzed in daily JHA or Weekly Toolbox meetings.

For every 5 “ATTABOY” stickers each employee receives the Project Manager will, at his/her discretion, reward the employee for their commitment by gifting Corporate Merchandise, gift cards, or lunch/dinner on the “BOSS”.

#### **Who is Eligible?**

All ORC. employees are eligible.

#### **How to Give an ATTABOY**

ORC. understands that each project is different and welcomes Project Managements ability to promote the ATTABOY program as they see fit. The employee(s) should be recognized while performing the task in the field and rewarded for achieving 5 “ATTABOY’s” in the Weekly Toolbox meeting. ORC. is committed to safety and rewarding those employees who show they are also committed to safety.

## ***SECTION 3***

### ***HAZARD COMMUNICATION PLAN: General***

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#### **POLICY**

SCI has implemented this program to ensure employees are informed of any chemical hazards and hazardous or toxic substances in their workplace.

SCI will develop, implement, and maintain at each workplace a written hazard communication program that describes how labels and other forms of warning, safety data sheets, and employee information will be accomplished.

A copy of the Company's Hazard Communication Program is available to all employees and will be kept at each jobsite by the Superintendent in charge, or in the office. Translations of the hazard communication program are available to non-English speaking employees upon request from the Project Safety Supervisor.

Employees will be notified of any hazardous substances used by any company other than SCI in the workplace and make safety data sheets available to employees.

A list of all chemicals known to be used at the workplace by company employees will be available for review at the jobsite and in the office. Safety Data Sheets (SDS) for all chemicals used in the workplace by SCI are available to employees at the worksite from the Superintendent or in the office.

Changes of job assignments, changes in materials used, or any non-routine tasks involving hazardous substances or conditions will require notification and/or retraining of effected employees. The project Safety Supervisor will inform or retrain employees of any new or additional hazards, detail methods of hazard abatement or elimination, and provide proper personal protective equipment or engineering controls necessary for the job. Notifications and retraining will be documented as to name of employee, date, description of action taken, and verification by the company Safety Supervisor.

#### **CONTAINER LABELING**

The Project Safety Supervisor, or designated employee, will ensure that each container of hazardous chemicals in the workplace is labeled, tagged, or marked with the following information:

- Identity of the hazardous chemical(s)
- Pictograms
- A signal word
- Hazard and precautionary statements
- The product identifier
- Supplier identification

The Project Safety Supervisor, or designated employee, will ensure labels or other, written warning forms, are legible and prominently displayed on the container, or readily available in the work area throughout each work shift.

No container will be released for use until this information is verified. The Project Safety Supervisor, or designated employee, will ensure that all containers are labeled with a copy of the original manufacturer's label or a label that has the appropriate identification and hazard warning.

#### **SAFETY DATA SHEETS (SDS)**

An SDS will be gathered and made available for every hazardous material at the worksite.

SDS are readily available for review to all SCI employees, and cover all hazardous chemicals used in the workplace. SDS are kept with the hazard communication plan at the project location. The SDS are updated and managed by project supervision and reviewed by the Project Safety Supervisor. If the SDS is not

available for a hazardous chemical, before use, notify the Project Safety Supervisor, and a SDS will be obtained for the chemical used.

## **TRAINING**

### **Required Hazard Communication Training**

If employees can be exposed to hazardous chemicals, project supervision must inform employees about the chemical and train them when they are hired and whenever they are exposed to a new chemical hazard or a process change. Required employee training includes:

- The written hazard-communication plan, and where it may be reviewed
- Hazardous chemicals present on the job site
- The operations where hazardous chemicals are used
- Physical and health effects of the hazardous chemicals
- Methods used to determine the presence or release of hazardous chemicals in the work area
- How to reduce or prevent exposure to these hazardous chemicals through use of control/work practices and personal protective equipment
- Where to find and how to read the hazard-communication plan, the list of hazardous chemicals, and SDS
- The meaning of warning labels on hazardous-chemical container
- Emergency procedures to follow if an employee is exposed to these chemicals
- How to use personal protective equipment

### **Label Elements Training**

SCI will ensure all employees know the following elements of the labels: product identifier, signal word, pictogram, hazard statement, precautionary statement.

Employees will also be trained on how to use labels, to ensure proper storage and quickly locate first aid information.

They also need to know how the elements work together on a label.

- The different pictograms to indicate multiple hazards
- Where there are similar precautions, the one with the most protective information will be on the label

### **SDS Training**

Employees will be trained on the standardized 16-section format and the type of information found in each one.

Training will also explain how the SDS information is related to the label information.

After attending the training, each employee will sign a company training form verifying they understand the above topics and how the topics are related to our hazard communication plan.

## **GENERAL SAFETY CONSIDERATIONS**

Projects that produce, use, or store hazardous chemicals at the site in such a way that the employees may be exposed will additionally ensure that the hazard communication program developed and implemented include the following: methods project will use to provide the other employer(s) on-site access to safety data sheets, precautionary measures that need to be taken to protect employees during the workplace's normal operating conditions and in foreseeable emergencies, the labeling system used in the workplace.

SCI may not remove or deface existing labels on incoming containers of hazardous chemicals, unless the container is immediately marked with the required information.

## **HAZARDOUS CHEMICALS in PIPES, CLOSED, or HIDDEN SYSTEMS**

Before working in areas where hazardous chemicals are transferred through pipes or where pipes are insulated with asbestos-containing material, employees will contact the Project Safety Manager for the following information: the chemicals in the pipes; the physical or health effects of the chemicals or the asbestos insulation; the safe work practices to prevent exposure.

## **NOTIFICATION of CONTRACTORS**

It is the responsibility of the project Superintendent, project Safety Manager, or designated person to provide any workplace-associated contractors and their employees with the following information, if they may be exposed to hazardous chemicals on the project:

- The identity of the chemicals, how to review safety data sheets, and an explanation of the container and pipe labeling system
- Safe work practices to prevent exposure

The Superintendent, project Safety Manager, or designated person will also obtain a safety data sheet for any hazardous chemical a subcontractor brings into the workplace to which an employee of 2 may be exposed.

## **HAZARD COMMUNICATION in the WORKPLACE**

The essence of hazard communication is a warning. We use thousands of chemical products throughout our lives, at home and at work. However, most of us would be hard-pressed to distinguish safe products from hazardous ones without warning (the familiar skull-and-crossbones, for example). The warning tells us the product is hazardous, that it can harm us if we use it improperly.

In the workplace, hazard communication ensures our employees who may be exposed to hazardous chemicals know about the chemicals' hazards and understand how to protect themselves from exposure.

## **The HAZARD COMMUNICATION PROCESS**

Hazard communication begins when chemical manufacturers and importers evaluate their products to determine each product's chemical hazards. Next, they prepare a Safety Data Sheet (SDS) for each product. An SDS includes detailed information about the product's hazards. Manufacturers and importers must include an SDS and a warning label with each container of product they ship to a customer.

The part of the process that affects the project is the "Written Hazard Communication Plan." The plan identifies hazardous chemicals at your workplace and describes how you will use safety data sheets, warning labels, and training to protect employees and keep informed about the product's chemical hazards.

The labeling system, location of SDS, routine precautions and emergency procedures will be provided to other employers and employees who may be affected by hazardous chemicals produced, used, or stored at the worksite.

### **Definition of a Hazardous Chemical**

OSHA's hazard-communication rule, 1910.1200, defines a hazardous chemical as "any element, chemical compound, or mixture that is a physical hazard or a health hazard."

### Chemicals that are Physical Hazards

Chemicals that are physical hazards are unstable and, when handled improperly, can cause fires or explosions. A chemical that is a physical hazard has one of the following characteristics:

- Is a combustible liquid
- Is a compressed gas
- Is explosive
- Is flammable
- Is water-reactive
- Starts or promotes combustion in other materials
- Can ignite spontaneously in air

### Chemicals that are Health Hazards

Chemicals that are health hazards can damage an exposed person's tissue, vital organs, or internal systems. Generally, the higher the chemical's toxicity, the lower the amount or dose necessary for it to have harmful effects. The effects vary from person to person, ranging from temporary discomfort to permanent damage, depending on the dose, the toxicity, and the duration of exposure to the chemical.

Health effects range from short-duration symptoms that often appear immediately (acute effects) to persistent symptoms that may appear after longer exposures (chronic effects). Health effects can be classified by how they affect tissue, vital organs, or internal systems:

- Agents that damage the lungs, skin, eyes, or mucous membranes
- Carcinogens cause cancer
- Corrosives damage living tissue
- Hematopoietic agents affect the blood system hepatotoxins cause liver damage
- Sensitizers cause allergic reactions and irritants cause inflammation of living tissue
- Nephrotoxins damage cells or tissues of the kidneys
- Neurotoxins damage tissues of the nervous system
- Reproductive toxins damage reproductive systems, endocrine systems, or a developing fetus

### How to Determine Whether a Chemical is Hazardous

A chemical is hazardous if it is listed in any of the following documents:

- OSHA Division 2, Subdivision Z safety and health rules, Toxic and Hazardous Substances; Division 3, Subdivision Z, Toxic and Hazardous Substances (Construction); Division 4, Subdivision Z, Chemical/Toxins (Agriculture)
- Threshold Limit Values for Chemical Substances and Physical Agents in the Work Environment (latest edition). Published by the American Conference of Industrial Hygienists (ACGIH)
- The Registry of Toxic Effects of Chemical Substances, published by the National Institute for Occupational Safety and Health (NIOSH)
- The container label of the product will issue a warning of hazardous effects

### Using Safety Data Sheets

An SDS contains detailed information about a hazardous chemical product's health effects, physical and chemical characteristics, and safe practices for using it.



### Responsibilities of Chemical Manufacturers, Importers, and Distributors

Chemical manufacturers and importers must prepare an SDS for each hazardous chemical product they produce. Distributors are responsible for ensuring that you have an SDS for each hazardous chemical product they sell to the company.

### What to do if You Use Hazardous Chemical Products on Your Project

The project must have a current SDS for each product. Employees must be able to review the SDS in their work area at any time. Employees must be able to review the SDS in their work area at any time. The project Safety Manager or designated employee will be responsible for managing all the SDS at the project. The project Safety Manager or designated employee will ensure the list of hazardous chemicals is current, that the identity of each chemical on the list matches its identity on its SDS, and that incoming hazardous chemical container have an SDS

### Information required on Safety Data Sheets

Chemical manufacturers and importers must prepare an SDS for each hazardous chemical product they ship to the project. The following information must appear on each sheet.

- Section 1, Identification includes product identifier, manufacturer or distributor name, address, phone number, emergency phone number, recommended use, restrictions on use.
- Section 2, Hazard(s) identification includes all hazards regarding the chemical; required label elements.
- Section 3, Compositions/information on ingredients includes information on chemical ingredients; trade secret claims.
- Section 4, First-aid measures includes important symptoms/effects, acute, delayed; required treatment.
- Section 5, Fire-fighting measures lists suitable extinguishing techniques, equipment; chemical hazards from fire.
- Section 6, Accidental release measures lists emergency procedures; protective equipment; proper methods of containment and cleanup.
- Section 7, Handling and storage lists precautions for safe handling and storage, including incompatibilities.
- Section 8, Exposure controls/personal protection lists OSHA's Permissible Exposure Limits (PELs); Threshold Limit Values (TLVs); appropriate engineering controls; personal protective equipment (PPE).
- Section 9, Physical and chemical properties lists the chemical's characteristics.
- Section 10, Stability and reactivity lists chemical stability and possibility of hazardous reactions.
- Section 11, Toxicological information includes routes of exposure; related symptoms, acute and chronic effects; numerical measures of toxicity.
- Section 12, Ecological information\*
- Section 13, Disposal considerations
- Section 14, Transport information
- Section 15, Regulatory information
- Section 16, Other information, includes the date of preparation or last revision.

## Using Container Warning Labels

The purpose of a container warning label is to warn employees about the container's contents and to refer employees to an appropriate SDS for more information about the chemical's physical and health hazards. Manufacturers, importers, and distributors must ensure that each hazardous chemical product sold has a label that includes the chemical's identity, a hazard warning, and a name and address for additional information about the product. If the project uses a hazardous chemical on the project, the project must ensure that each hazardous chemical container has a legible label, in English, that identifies the chemical and warns of its hazards.

## Containers that must be Labeled

Original containers of hazardous chemicals from a manufacturer, importer, or distributor must have warning labels. Do not remove or deface them. If the hazardous chemical is transferred to a new container that new container must be labeled.

## Contents of a Warning Label

A warning label must identify the chemical – a common chemical name or a code name is acceptable – and display a hazard warning such as DANGER or the familiar skull and crossbones.

- The identify of the chemical on the label, on its SDS, and on the project hazardous chemical list must match
- If not sure a hazardous chemical container is properly labeled, contact the manufacturer or supplier
- Designate project personnel to ensure all hazardous-chemical containers are properly labeled

SCI projects will ensure that workplace labels or other forms of warning are legible, in English, and prominently displayed on the container, or readily available on the project throughout each work shift. If a project has employees who speak other languages, the company may add the information in their language to the material presented, if the information is presented in English as well.

## Example of Original Container GHS Label

SAMPLE LABEL	
CODE _____ Product Name _____	} <b>Product Identifier</b>
Company Name _____ Street Address _____ City _____ State _____ Postal Code _____ Country _____ Emergency Phone Number _____	
Keep container tightly closed. Store in a cool, well-ventilated place that is locked. Keep away from heat/sparks/open flame. No smoking. Only use non-sparking tools. Use explosion-proof electrical equipment. Take precautionary measures against static discharge. Ground and bond container and receiving equipment. Do not breathe vapors. Wear protective gloves. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Dispose of in accordance with local, regional, national, international regulations as specified.	} <b>Precautionary Statements</b>
<b>In Case of Fire:</b> use dry chemical (BC) or Carbon Dioxide (CO <sub>2</sub> ) fire extinguisher to extinguish. <b>First Aid</b> If exposed call Poison Center. If on skin (or hair): Take off immediately any contaminated clothing. Rinse skin with water.	
	} <b>Supplemental Information</b>
	<b>Directions for Use</b> _____ _____ _____ Fill weight: _____ Lot Number: _____ Gross weight: _____ Fill Date: _____ Expiration Date: _____

### Secondary/Portable Containers

Secondary containers are used to hold material transferred from the manufacturer's original container. These are required to be labelled if:

- Is not used within the work shift by the individual who makes the transfer
- The employee who made the transfer leaves the work area
- The container is moved to another work area and is no longer in the possession of the person who filled the container






Labels for secondary containers must include:

- The identity of the chemical and appropriate hazard warning must be shown on the label.
- The hazard warning that provides users with an immediate understanding of the primary health and/or physical hazard(s) of the chemical through the use of words, pictures, symbols, or any combination of these elements.
- The name and address of the manufacturer, importer, or other responsible party

The hazard label message must be legible, permanently displayed and written in English.

Portable containers are intended for immediate use of a chemical by the person who makes the transfer. Labels on portable containers are not required if the worker who made the transfer uses all of the contents during the work shift, or the chemical is returned to a labelled primary or secondary container at the end of the shift, or when work is completed.

Examples of NFPA

 <b>NFPA Rating Explanation Guide</b> 					
RATING NUMBER	HEALTH HAZARD	FLAMMABILITY HAZARD	INSTABILITY HAZARD	RATING SYMBOL	SPECIAL HAZARD
<b>4</b>	Can be lethal	Will vaporize and readily burn at normal temperatures	May explode at normal temperatures and pressures	ALK	Alkaline
<b>3</b>	Can cause serious or permanent injury	Can be ignited under almost all ambient temperatures	May explode at high temperature or shock	ACID	Acidic
<b>2</b>	Can cause temporary incapacitation or residual injury	Must be heated or high ambient temperature to burn	Violent chemical change at high temperatures or pressures	COR	Corrosive
<b>1</b>	Can cause significant irritation	Must be preheated before ignition can occur	Normally stable. High temperatures make unstable	OX	Oxidizing
<b>0</b>	No hazard	Will not burn	Stable		Radioactive
					Reacts violently or explosively with water
					Reacts violently or explosively with water and oxidizing

Although the NFPA system is widely recognized throughout the US, it is not part of the GHS. It is included in this plan for information purposes. All new labels must use the GHS format which is summarized below.

## 6 LABEL ELEMENTS

### #6 MANUFACTURER INFORMATION

Company name, address & telephone number.

(SDS Section 1)

### #3 PRODUCT NAME OR IDENTIFIERS\*

(SDS Section 1)

### #4 HAZARD STATEMENTS

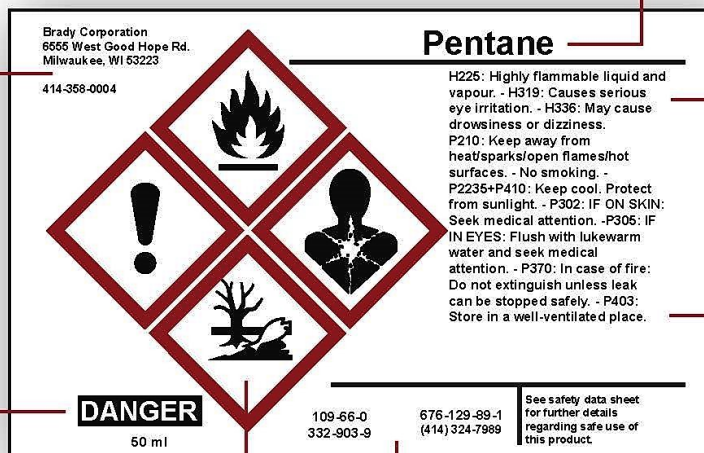
Phrases that describe the nature of hazardous products and associated risks if precautionary action is not taken.

(SDS Section 2)

### #5 PRECAUTIONARY STATEMENTS

Phrases associated with each hazard statement, that describe general preventative, response, storage or disposal precautions.

(SDS Section 2)



### #1 SIGNAL WORD

Indicates relative severity of hazard. "Danger" is used for most severe instances, while "Warning" is less severe.

(SDS Section 2)











### #2 SYMBOLS (HAZARD PICTOGRAMS)

Convey health, physical and environmental hazard information with red diamond pictograms. May use a combination of one to five symbols.

(SDS Section 2)

\* Additional Product Identifiers

## PICTOGRAM GUIDE

CHEMICAL/ PHYSICAL RISK	HEALTH RISK	ENVIRONMENTAL RISK
<p><b>EXPLODING BOMB</b></p> <p>Explosives, self-reactives, organic peroxides</p> 	<p><b>CORROSIVE</b></p> <p>Skin corrosion; eye damage</p> 	<p><b>ENVIRONMENT</b></p> <p>Aquatic toxicity</p> <p>(Not regulated by OSHA)</p> 
<p><b>FLAME</b></p> <p>Flammable gases, liquids, &amp; solids; self-reactives; pyrophorics; self-heating</p> 	<p><b>SKULL AND CROSSBONES</b></p> <p>Acute toxicity (severe, fatal)</p> 	
<p><b>FLAME OVER CIRCLE</b></p> <p>Oxidizing gases, liquids and solids</p> 	<p><b>EXCLAMATION MARK</b></p> <p>Irritant, dermal sensitizer, acute toxicity (harmful)</p> 	
<p><b>GAS CYLINDER</b></p> <p>Compressed gases; liquefied gases; dissolved gases</p> 	<p><b>HEALTH HAZARD</b></p> <p>Carcinogens, respiratory sensitizers, reproductive toxicity, target organ toxicity, germ cell mutagens</p> 	
<p><b>CORROSION</b></p> <p>Corrosives to metals</p> 		

## ***LEAD ABATEMENT PLAN***

### ***LEAD IN CONSTRUCTION—SUMMARY OF REGULATIONS***

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#### **PURPOSE**

To provide information to SCI management and employees about the provisions of the new Lead in Construction Standards and guidelines regarding how OSHA will enforce these regulations on our job sites.

#### **SCOPE**

Will apply to all SCI projects with a potential lead hazard, i.e., sandblasting or burning/cutting steel that contains lead-based paint.

#### **RESPONSIBILITY**

The Project Superintendent will assure compliance with these regulations. The Safety Department will assist in writing plans, air monitoring, equipment selection and employee training.

#### **REGULATIONS**

##### **Definitions**

**Action level (*AL*)** – The level of lead in the air at which the provisions of this standard must be met. *AL* is 30 micrograms per cubic meter of air.

**Permissible Exposure Limit (*PEL*)** – The maximum level of lead an employee can be exposed to during an 8-hour shift. *PEL* for lead is 50 micrograms per cubic meter of air.

**Note:** To determine the *PEL* for shifts longer than 8 hours, use this formula:

$$PEL = \frac{400}{\text{Hours Worked in Day}}$$

**Competent Person** – One who is knowledgeable and capable of identifying lead hazards and has the authorization to take prompt corrective action.

#### **A. Exposure Assessment and Air Monitoring**

Whenever lead is present, the level that an employee will be exposed to without respiratory protection must be determined.

1. **Note:** SCI assumes that welding, burning, blasting, and containment workers will be exposed to lead above the action level. Therefore, the following air monitoring rules will apply:
  - a. Air monitoring results from a previous workplace may be used to determine exposure levels if they:
    - b. Were performed in the past 12 months
    - c. Represent each task and job classification
    - d. Have been communicated to employees
    - e. Work activities and conditions must be similar
2. Where sampling data is not available, workers must be protected accordingly until air monitoring can be completed. This protection includes:
  - a. Appropriate respiratory protection
  - b. Protective clothing and equipment

- c. Change area
  - d. Hand washing facilities
  - e. Medical monitoring
  - f. Employee training
3. Employees must be notified in writing of all air monitoring results.
  4. Levels above the *PEL* must be rechecked every 3 months. However, if there is a change in process or equipment that may result in added exposure, then additional air monitoring would be required.

#### **B. Engineering Controls**

Air exchange and dust collection equipment will be utilized whenever feasible to reduce lead levels.

#### **C. Written Lead Program**

Before job start, a written Lead Exposure Compliance Program will be implemented. This program must include *at least* the following:

1. Describe each activity that involves lead exposure. Address controls needed, the size of crew, duties, and procedures.
2. Plan how to minimize exposure levels, including dust collection equipment, ventilation, respirators, etc.
3. Air monitoring data or representative sampling used.
4. Detail the type of protective clothing and equipment, respirators, housekeeping and hygiene practices that will be used to reduce exposure levels.
5. Methods for training all persons on site or entering the site of potential hazards and ways to prevent/reduce exposure.
6. Designate a Competent Person for implementation and enforcement of the plan.
7. Written program updated every 6 months as necessary.

#### **D. Respirator Protection**

Respiratory protection will be worn whenever engineering controls cannot reduce employee exposure to below the *PEL*.

1. Respirators will be selected based on air monitoring results and the protection factors assigned to the respirator. These respirator types will be explained in the Safety Plan.
2. Employees must be fit-tested (smoke) every time a new respirator is issued.
3. Employees will use positive and negative fit-testing measures daily to assure proper fit.
4. Employees will be trained in the proper use and limitations of the respirator.
5. Employees must clean and inspect their respirator daily.
6. Respirators will be stored in clean, dry locations.
7. Supplied air must meet requirements for *Grade D* breathing air.
8. Oil-lubricated compressors will have a high-temperature alarm, carbon monoxide alarm or both. If a carbon monoxide alarm is not installed, the air supplied by the compressor will frequently be tested.

Note: Since SCI cannot easily verify the quality of air, we should be installing carbon monoxide alarms on compressors. On some equipment, this is already a feature we utilize.

#### **E. Work Clothing and Equipment**



Protective coveralls and gloves must be provided to prevent contamination of employees' garments. Protective eyewear will also be provided when applicable.

1. Clean, dry protective clothing shall be provided on a daily basis
2. The employer will provide for cleaning, laundering, repair and disposal of clothing and equipment
3. Clothing is to be removed only in the designated change area and placed in a closed container.
4. Launderers shall be informed in writing of the lead hazard. Labels of caution will be placed on laundry containers.
5. Blow-down of uniforms or containment systems can only be done in conjunction with dust collection equipment.
6. During the cleaning of change areas, vacuuming is encouraged to minimize dust. Dry sweeping is not allowed.

#### **F. Hygiene Facilities and Practices**

Where employees are exposed to lead levels above the *PEL*, smoking, eating and drinking will not be allowed. Additionally, the following will be provided:

1. Change areas – SCI must provide clean change areas that have separate storage facilities for protective work clothing, equipment, and street clothes. This must be separated to prevent cross-contamination (Dirty Room/Clean Room). Employees are not allowed to leave the workplace wearing lead-contaminated clothing.
2. Showers - When feasible, showers will be provided, and employees will be required to shower at the end of the work shift.
3. Eating Facilities - Eating areas will be established beyond the contamination area. Employees must remove excess lead dust from their clothing before entering the eating area.
4. Hand-Washing Facilities - An area will be available so that employees can wash their hands and face before eating, drinking or smoking.

#### **G. Medical Surveillance**

***Any employee exposed to lead above the action level will have a complete physical including blood lead testing, zinc protoporphyrin (ZPP), pulmonary function test, and a chest x-ray if silica sand is used as part of the blasting media.***

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1. Blood lead sampling will be conducted before any employee begins work.
  2. OSHA regulations call for blood lead sampling to be conducted at least every two months for the first 6 months and then every 6 months after that. However, SCI requires blood lead sampling to be done every two weeks until monitoring shows levels are stabilized at which time tests will be done monthly.
  3. Laboratories conducting blood lead sampling will be approved by OSHA.
  4. Hard copies of the monitoring results will be provided to each employee.
  5. Employees are required to share with the doctor any information on previous exposure to lead.
  6. There are various provisions within the Standard that allow employees to seek medical advice from other doctors should they so desire if their lead levels become excessive.
  7. Employees whose blood lead level is at or above 50 micrograms per deciliter of whole blood will be medically removed from the lead exposure. This employee will not be returned to lead work until two consecutive blood lead tests are at or below 40 micrograms per deciliter of whole blood.

8. Employees who are on medical removal and cannot be assigned to work that does not involve lead will be entitled to Workers' Compensation and other associated benefits.

## **H. Employee Training**

All employees exposed to lead must be thoroughly trained at the beginning of employment and then at least annually after that. The training program will consist of the following:

1. The provisions of the OSHA Standard and its appendices.
2. Specific operations that involve lead exposure – the proper use, fitting, and care of respirators.
3. The medical surveillance program including symptoms and signs of overexposure, reproductive issues for both males and females and blood lead monitoring.
4. The appropriate engineering controls that will be implemented to minimize lead contamination.
5. Copies of the OSHA Lead Standard, as well as the written lead program, will be made available to affected employees.
6. Signs will be posted warning employees of the lead-contaminated area(s) where no smoking or eating will be allowed.

## **I. Record Keeping**

1. Records will be kept on the job site that indicates the results of any samples and sampling procedures taken.
2. Air sampling results shall also include the employee's name, the job description, duration and personal protective equipment worn.
3. Medical surveillance records will also be kept on site, and a file shall be established for each employee indicating the results of their exam and any follow-up testing.

Appendices A – D contained in OSHA regulation 1926.62 provide additional information and assistance in complying with the Standard as well as training information for employees. The following is a general description of the appendices:

### **APPENDIX A**

- A. Health Hazard Data - Lead is absorbed into the body through inhalation (breathing) and ingestion (eating). Lead is not readily absorbed through the skin. A significant portion of lead that you inhale or ingest gets into the bloodstream and is then circulated throughout the body and stored in various organs and body tissues. As exposure to lead continues, the amount of lead in your body will increase if it absorbs more lead than your body is excreting.
- B. Effects of Overexposure - Common symptoms include loss of appetite, metallic taste in the mouth, anxiety, constipation, nausea, excessive tiredness, weakness, insomnia, headache, nervous irritability, muscle and joint pain, numbness, dizziness, and colic. Severe cases of lead over-exposure can be fatal.
- C. Health Protection Goals - Employees who intend to have children should have blood lead levels maintained below 30 micrograms per deciliter of whole blood to minimize adverse reproductive effects.
- D. Once blood lead levels climb above 40 micrograms per deciliter, the risk of disease increases.
- E. The longer an employee has an elevated blood lead level, the greater the risk that he/she will have large quantities of lead stored in the organs and tissues.
- F. The Standard recommends maintaining an average blood lead level below 40 micrograms.

### **APPENDIX B**

This Appendix summarizes the key provisions of the Standard. It is written in such a way as to help employees better understand what the employer must provide to prevent lead overexposure.

#### **APPENDIX C**

This is a write-up on medical surveillance guidelines and medical problems associated with lead. It was written primarily for doctors to better understand the regulations.

#### **APPENDIX D**

Respirator fit testing protocols:

- Positive pressure check
- Negative pressure check
- Irritant smoke check

## ***SECTION 4***

### ***REGULATORY COMPLIANCE – CONFINED ENTRY PROGRAM***

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#### **PURPOSE**

SCI provides construction services to our client base that require our employees to enter into confined spaces on a frequent basis. Confined Space Entry requires a diligent focus on all hazards associated with making a safe and successful entry. Following our company policies and confined space protocol is the first step in satisfying our goal to provide a safe workplace and comply with all federal, state and local standards.

#### **POLICY**

Confined Space danger in construction has long been underrated and misunderstood. The current 1926 Construction Standards do not contain a specific "Confined Space Entry Standard." However, the underground utility and construction industries have adapted themselves to the 1910.146 General Industry Standard established in early 1993. With the final rulemaking and the release of 29 CFR 1926.1200, SCI will follow recommendations made in 29 CFR 1910.146, the General Industry Standard 1926.21 (b) 6, the Training Standard, 1926.353 (b) 1-4 and (c) 1-4, the Welding Standard. By following the current recommendations established in the various named standards, SCI will maintain a high level of compliance and safety.

#### **DEFINITIONS**

The following words and terms, when used in these regulations, shall have the following meaning, unless the context indicates otherwise.

**Attendant** - means an individual with no other assigned duties that remains immediately outside the entrance to the confined space and who may assist employees as needed.

**Blind or blinding or blanketing** - means the absolute closure of a pipe, line or duct, to prevent passage of any material (e.g., by fastening a solid plate or cap across the pipe).

**Calibration or recalibration** - means a laboratory or bench-top resetting of alarm points, spans, and zeros, if applicable, according to the manufacturer's specifications. Calibration or recalibration shall be conducted by a factory authorized service center or a factory trained technician.

**Confined space** - means any space large enough for a person to enter but is not intended for continuous employee occupancy, having a limited means of exit, and which is also subject to either the accumulation of an actual or potentially hazardous atmosphere as defined in this manual. Confined spaces include, but are not limited to: storage tanks, process vessels, bins, boilers, ventilation or exhaust ducts, sewers, manholes, underground utility vaults, acid tanks, digester, ovens, tunnels, and pipelines. Open-top spaces more than four feet in depth such as pits, tubs, vaults, and vessels may also be confined spaces if they meet the three criteria above.

**Engulfment** - means the surrounding and effective capture of a person by finely divided particulate matter or a liquid. There is a potential for engulfment when such particulate matter or liquid exists in a sufficient quantity or at a sufficient pressure to surround a person before normal exit.

**Entrant** - means any employee who enters a confined space. Entry is any action resulting in any part of the employee's body entering any border of an opening in a confined space and includes any ensuing work activities inside the confined space.

**Entry permit** - means the employer's written authorization for employee entry into a confined space under defined conditions for a stated purpose during a specified time.

**Entry Supervisor** - means the person (such as the employer, foreman, or crew chief) responsible for determining if acceptable entry conditions are present space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this section. NOTE: An entry

supervisor also may serve as an attendant or as an authorized entrant, as long as that person is trained and equipped as required by this section for each role he or she fills. Also, the duties of entry supervisor may be passed from one individual to another during an entry operation.

**Field checked** - defines a method of checking an instrument for proper response in the field. It is a pass / fail check of the equipment's functionality. When an adequate response is not obtained, the equipment shall be removed from service and adjusted or repaired by a factory-trained technician.

**Ground-Fault Circuit Interrupter (GFCI)** - means a device that interrupts the electric circuit to the load when a fault current to the ground exceeds a predetermined value. The predetermined value is less than that required to operate the overcurrent protective device of the supply circuit.

**Hazardous atmosphere** - means an atmosphere presenting the potential for death, disablement, injury or acute illness from one or more of the following causes:

1. A flammable gas, vapor, or mist in excess of 10% of its Lower Flammable Limit (LFL).
2. An oxygen-deficient atmosphere containing less than 19.5% oxygen by volume or an oxygen-enriched atmosphere containing more than 23.5% oxygen by volume.
3. A condition immediately dangerous to life or health as defined in this subsection.

**Immediately Dangerous to Life or Health (IDLH)** - means any condition that poses an immediate threat to life, or which is likely to result in acute or immediately severe health effects. See Table # 1 for concentrations at which several chemicals exhibit IDLH effects.

**Immediate severe health effects** - means an acute clinical sign(s) of a serious exposure-related reaction manifested within 72 hours of exposure.

**Lockout / Tag-out** - is placing locks or tags on the energy isolating device. Tags shall indicate that the energy isolating device shall not be operated until the removal of the tag.

**A Qualified person or Competent person** - means a person who is trained to recognize the hazards of the confined space and how to evaluate those anticipated hazards and who shall be capable of specifying necessary control measures to assure worker safety. The employer may designate an employee an employer representative for the purpose of assuring safe confined space entry procedures and practices at a specific site. The qualified person may also be the entrant when permissible.

**Rescue team** - defines those persons whom the employer has designated before any confined space entry to perform a rescue from confined spaces. A rescue team may consist of outside emergency personnel, provided they have the training and rescue requirements necessary.

**Retrieval line** - means a line or rope secured at one end to a worker's safety belt, chest or harness, or wristlets with the other end secured to an anchor point or lifting device located outside the entry portal. The anchor point shall not be a motor vehicle. Retrieval lines must be of sufficient strength to remove an entrant when necessary.

### **PROCEDURES FOR CONFINED SPACE ENTRY**

1. Before entry into any confined space, check with the owner/host employer and other employers if multi-employer sites to verify if all potential exposures have been identified and efforts to de-energize any and all sources of energy have been initiated to eliminate or control recognized hazards. Coordinate or control entry effort with the host employer, if necessary.
2. Identify and implement necessary measures to prevent unauthorized entry.
3. Precaution shall be taken to ensure that external hazards (i.e., pedestrian, vehicular traffic, pumping operations, or other barriers shall be controlled to prevent work generated hazards within confined spaces.

4. Only trained and authorized employees will be allowed to perform, permit or non-permit entries into confined spaces.
5. Before entry, the entry supervisor will follow the pre-entry checklist and protocol that has been established for a permit or non-permit entries. (See attached Pre-entry, protocol, and pre-entry checklist.) No entry is allowed until all hazards identified in the pre-entry checklist have been eliminated.
6. Always consider a shaft or manhole contaminated or permit-required until tested because any shaft or manhole may be clear one day and contaminated the next. The competent or qualified person shall ensure that company written protocol is followed and that the following procedures have been completed before entry into a confined space:
  - a. Preparation
    - i. All pumps or lines which may convey flammable, injurious, incapacitating or oxygen-deficient substances shall be blinded, double blocked or bled in such a manner that the line or pump could not be inadvertently opened or reconnected. The closing of valves alone is not acceptable with blinding, double blocking or bleeding.
    - ii. All fixed mechanical equipment capable of causing injury shall be cut off so it will not produce any movement. All electrical equipment, excluding lighting, shall be locked-out in the off position with a key-type padlock. The key shall remain with the person working in the confined space.
    - iii. All confined spaces shall be flushed or otherwise purged of flammable, injurious or incapacitating substances. The initial cleaning shall be done from outside the confined space.
    - iv. Where the existence of a hazardous atmosphere is demonstrated by tests performed by the competent person, mechanical ventilation shall be used to reduce the hazardous substances to a safe level and shall be used continuously as long as the confined space is occupied.
    - v. On a vented manhole cover, test the manhole with a probe before removing the cover. The structure or sewer may contain a concentration of methane gas (lighter than air) and may be present under the cover. Any spark from a bar or pick may set off an explosion. If the cover is not vented, remove it carefully and slide open only far enough to allow a tube or hose to be inserted.
  - b. Awareness
    - i. Know your location references so that you know where you are if there is a confined space emergency.
    - ii. Know what your emergency protocol is. Locate all emergency lighting, communication equipment, self-rescuers, self-contained breathing units, gas meters, first aid kits and fire extinguishers.
    - iii. Know where the construction equipment is located. Make yourself aware of all resources available in the event of a confined space emergency.
  - c. Atmospheric Testing
    - i. The qualified or competent person shall assure that each confined space into which an employee may be required to enter is tested immediately before entry using direct reading instruments with remote sampling capacity for the following conditions:
      - a. Oxygen level
      - b. Potential flammable hazard

c. Toxic materials are known or expected to be present

7. When a qualified attendant has been assigned, that person shall perform atmospheric testing during occupancy at intervals dependent on the possibility of changing conditions, but at least every hour.
8. Each atmospheric testing instrument shall be calibrated by the manufacturer's specifications. Entrants may review monitoring data before entry.
9. Do not enter the manhole or shaft with the detector unit; use either a probe, testing cable or lower the unit using a rope.
10. When testing a shaft or manhole, always test from the top to the bottom of the structure.
11. Anyone entering a shaft or manhole will wear a full body harness if applicable, which must be secured above by a qualified attendant.
12. Once a confined space cover has been removed, test before introducing continuous ventilation. Always use positive ventilation to ventilate the confined space.
13. Ventilation must be continuous throughout the work period.

#### **NON-PERMIT REQUIRED CONFINED SPACE ENTRY**

If the only hazard was an atmospheric hazard and continuous ventilation has eliminated the hazard, the confined space may be downgraded from permit to non-permit and entry can be made following company protocol and procedures. The non-permit required confined space (NPRCS) will meet all of the following conditions:

1. Continuous forced air ventilation is required.
2. The pre-entry checklist is complete and available to review by all involved in the NPRCS entry.
3. The atmosphere inside the NPRCS has remained normal @ 20.9 oxygen levels during pre-entry mobilization and preparation.
4. The atmosphere is continuously monitored when working in the NPRCS.
5. A qualified attendant is not required per 1910.146 or in 1926.1200 on NPRCS. However, it's the policy of ORC, that employees always use the "buddy system" when working in an NPRCS. The supervisor checks on the entrants at various times throughout the work shift.
6. All traffic control and surface protective systems will be in place before entry into an NPRCS.
7. If atmospheric changes occur in the confined space due to internal or external operations, all entrants will be removed from the NPRCS until the internal atmospheric conditions are resolved. If atmospheric conditions cannot be resolved to the satisfaction of the SCI protocol or the attending supervisor, the confined space will be reclassified as a permit-required confined space and the company permit system will be initiated.
8. The entry supervisor will allow re-entry into the confined space only if the NPRCS protocol can be satisfied and the confined space can be reclassified an NPRCS.
9. Once the NPRCS entry is concluded, the checklist may be discarded.
10. Any entry into an NPRCS will be reclassified as a permit-required confined space if engineering controls are required to eliminate any stored or active energy sources. Control does not constitute elimination.

#### **PERMIT REQUIRED CONFINED SPACE ENTRY**

All entries designated "Permit Required" will be carried out by qualified and authorized supervisors, attendants and entrants who have been trained in permit-required entries. Awareness training will meet or exceed the Confined Space Entry training required OSHA 29 CFR 1910 Subpart J, 29 CFR 1910.146, 29

CFR 1926.1200 provided by a qualified trainer from a recognized OSHA Education Center or another qualified training center. Hands-on training will be required by the General Industry Standard 1910.146, and 1926.1200 performed on an as-needed basis focused on specific entries related to existing or potential contract requirements. Any non-permit required entry that failed to follow approved company protocol or had to be reclassified will be considered a permit-required confined space entry.

#### **A. Entry Procedures**

Permit required entries will require a completed permit before any entry is made. Permits are available in the 1910.146 standard or the 1926.1200 standard and provide all information necessary to safely enter a confined space that contains multiple exposures. Permits must be canceled when the work completes, or the shift ends. Other sources of comprehensive permits exist but must meet the minimal requirements set out in the General Industry Standards. Minimum requirements include but may not be limited to:

1. Time, date and location of the confined space.
2. Purpose of entry and names of supervisors, attendants, and entrants.
3. Personal Protective Equipment required for entry.
4. Methods of atmospheric monitoring and type of monitoring equipment.
5. Methods of communication.
6. Rescue and retrieval devices.
7. Acceptable entry conditions
8. Hot Work Permits
9. Emergency Action Plans
10. The permit will be posted at the entrance, before entry.
11. Permit canceled once work complete or at the end of the shift.
12. A copy of the entry permit will be retained for a minimum of five years.

#### **B. Testing and Monitoring**

1. Test the space as necessary to determine if acceptable entry conditions exist before beginning entry operations. Initial testing of the atmosphere must be done from outside the confined space before any entry. If isolation of the space is infeasible because the space is large or part of a continuous system (such as a sewer), entry conditions will be continuously monitored where entrants are working. Testing can be requested at any time someone believes there is a change in conditions. If conditions prove to be hazardous, employees must evacuate the area. Additional monitoring can be requested at any time.
2. Test or monitor the permit space as necessary to determine if acceptable entry conditions are being maintained during entry operations.
3. When testing for atmospheric hazards, test first for oxygen, then for combustible gases and vapors, and then for toxic gases and vapors. Parameters for non-hazardous atmospheres are:
  - a. Oxygen between 19.5 and 23.5 percent,
  - b. Flammability less than ten percent of the lower flammability limit (LFL),
  - c. Toxicity less than the permissible exposure limit (PEL).

An authorized attendant must be present and monitoring the entry at all times. The attendant will not be assigned any other duties that may interfere with his attendant duties. The attendant must have a



means of communication by radio or phone to have access to contact emergency services (911) if needed.

Equipment required for permit-required confined space entry includes special equipment required for testing and monitoring, ventilating, communications between the entrant and attendant, for summoning a rescue, personal protection, lighting, barriers/shields for opening, means of access and egress, and any other equipment necessary for safe entry and rescue.

### **C. Rescue and Emergency Services**

1. Non-entry rescue is the preferred method for the rescue of personnel from a permit required space. Employees will not enter a permit space for rescue unless they have been specifically trained and equipped for such rescue.
2. To facilitate non-entry rescue, retrieval systems or methods shall be used whenever an authorized entrant enters a permit space unless the retrieval equipment would increase the overall risk of entry or would not be of value to any rescue. Retrieval system requirements are:
  - a. Each entrant shall use a chest or full body harness with a retrieval line attached at the center of the back near shoulder level, or another appropriate point.
  - b. The other end of a retrieval line shall be attached to a mechanical device or fixed point outside of permit space enabling immediate use. A mechanical device will be used to retrieve personnel from vertical type permit space more than five feet deep.
  - c. If an injured entrant is exposed to any substance with a required SDS or similar document, that SDS or document will be made available to the medical facility treating entrant.
3. If rescue should become necessary, the attendant will:
  - a. Notify and summon the rescue team/service;
  - b. Attempt **non-entry** rescue procedures to the extent possible by the circumstances.
  - c. Monitor the situation and be ready to give rescuers information on how many victims and their status, what hazards, chemical types, concentrations, etc. are present.
4. Only designated personnel will enter permit spaces for rescue purposes. Each designated rescue team member will be trained on:
  - a. Use of personal protective and rescue equipment necessary for making the rescue from the permit space.
  - b. Performance of assigned rescue duties and also that training required of authorized entrants.
  - c. Basic first-aid and cardiopulmonary resuscitation (CPR). At least one member of the rescue team will hold current certification in first aid and CPR.

Each rescue team member will practice making permit space rescues at least once every 12 months, utilizing simulated rescue operations and in spaces representative of the types of permit spaces from which rescue is to be performed.

Permits will be canceled by the entry supervisor upon completion of the work, or when any prohibited condition arises. Permits cannot just be let to expire. Canceled permits must be kept for the annual review.

### **D. Program Review**

Canceled entry permits will be retained on file for at least one year. The Permit Space Program will be reviewed within one year of each entry using these canceled permits to revise the program as necessary to ensure employees are protected from permit space hazards. A single review covering all entries in the preceding year may be conducted.

#### **E. Rescue Operations Coordinated with a Local Fire Department**

When coordinating a rescue, it is necessary to do the following:

1. Contact the local fire department to act as your rescue team. Give them all the facts that you know, and be as supportive as possible.
2. Close off the area to everyone except the rescue team and anyone else that can help.
3. Assign one person to make sure all of your equipment is in proper order; this includes your construction equipment, personal protective equipment, and your rescue equipment. Make sure your testing equipment is working properly.
4. Continue to carefully monitor the entire area while preparing for re-entry.
5. Rescue can only begin when all the facts are known, and the fire department is ready. Work in cooperation with the rescue and recovery personnel. Assist with the rescue from outside the confined space.

#### **F. Training**

##### **1. General**

SCI shall provide training to all field employees so they can acquire the understanding, knowledge, and skills necessary to perform their duties safely. Management shall ensure that the qualified person and all employees who may be required to enter a confined space have received training covering the following subjects:

- a. Hazard recognition.
- b. Use of respiratory protection equipment if needed.
- c. Use of atmospheric testing devices for those employees required to perform atmospheric tests.
- d. Training shall cover field checks as specified by the manufacturer, normal use, and specific limitations of the equipment.
- e. Lockout / Tag-out procedures.
- f. Use of special equipment and tools.
- g. Emergency and rescue methods and procedures. Field employees will be trained before the initial assignment, before a change in assigned duties or if a new hazard has occurred. Training will be documented and kept by the Safety Director.

##### **2. Rescue Teams**

**Permit required entries** require a rescue plan in place before entry. The rescue plan consists of a response time no longer than 10 minutes. The local fire department can provide rescue if they can respond within the 10-minute period. However, if they cannot respond within 10 minutes, an on-site rescue team will be required.

Rescue teams shall be trained to use the equipment they may need to perform rescue functions assigned to them.

- a. At least annually, rescue teams shall practice removing victims through openings and portals of the same size, configuration, and accessibility as those spaces from which an actual rescue could be required.
- b. The attendant, or at least one member of each rescue team, shall hold current certification in basic first aid and Cardiopulmonary Resuscitation (CPR).

- c. The employer shall maintain the records of the most recent training program conducted. These records shall include the dates of the training program, the instructors of the training program and the employees who were trained. Training provided to SCI employees is from an authorized trainer by an OSHA Education Center or Colorado School of Mine Special Rescue training with the proper rescue equipment on site for IDLH rescues.
- d. Local fire departments are sometimes a good source of training and should be used as rescue resources.

**G. Oxygen Deficiency**

The normal air we breathe contains 20.9% oxygen. Any space which does not allow the air to flow freely through it is a potentially dangerous area. Although life can be sustained at a level of 18% oxygen, once the oxygen reading falls below 18% the danger is potentially severe. Symptoms of oxygen deficiency include difficulty in breathing and a ringing sensation in the ears. The following table describes oxygen deficiency and its effects:

% of Oxygen in the Atmosphere	Effects on Humans
21 %	Breathing without exertion.
17 %	Breathing faster and deeper.
15 %	Dizziness, buzzing noise, rapid pulse, headache, blurred vision.
9 %	Feeling faint, becoming unconscious.
6 %	Convulsing, breathing stops. Death.

**H. Hazards – Chemical**

1. Combustibles

The most common combustible hazard which we can expect is Methane gas build-up. **Methane (CH<sub>4</sub>)** - The simplest saturated hydrocarbon and the chief component of most natural gas, methane gases are often called "marsh gas" as it is given off by decaying vegetation. Methane is lighter than air and will be found at the top of a chamber or vault and the roof or crown of a sewer. It is a colorless, odorless and tasteless gas. Methane has an LFL of 5.3%, is in an explosive state and any spark or igniter will cause an explosion. The UFL (Upper Flammable Limit) is 14.0%.

2. Toxins

**Carbon Monoxide (CO)** - Carbon monoxide can be present in significant quantities on virtually any construction site at almost any time and can be the source of severe health problems. It is a colorless, odorless gas that is lighter than air. It enters the body solely through inhalation and combines with red blood cells more readily than oxygen. Red blood cells have a greater affinity for carbon monoxide than oxygen. Early symptoms include a headache, yawning, pounding of the heart, dizziness, faintness, ringing in the ears, nausea, and specks before the eyes. First aid treatment for carbon monoxide victims is to supply oxygen to the victim by moving him or her to an area of fresh, uncontaminated air.

**Hydrogen Sulfide (H<sub>2</sub>S)** - is a flammable, colorless gas having the characteristic odor of rotten eggs and is soluble in water and is flammable. It is heavier than air and is found on the floor or invert of chambers or tunnels. Hydrogen sulfide is widely distributed among a variety of manmade and natural settings where the sulfur-containing organic matter may decompose. Landfills, sewers, springs and natural gas locations are all areas where hydrogen sulfide may be present. It is an irritant gas and causes local inflammation on the skin and the moist tissues of the eye and respiratory tract.

The allowable concentration of hydrogen sulfide is 10 ppm-TLV (Threshold Limit Value), over an eight-hour work period. Portable alarm monitors are used for detecting concentrated levels of H<sub>2</sub>S.

If alarm sounds, employees are required to evacuate the area. The effects of hydrogen sulfide exposure at various concentrations are as follows:

A concentration of H <sub>2</sub> S in PPM	Effects on Humans
0.1 - 0.2	The threshold for odor.
3 - 5	Offensive odor.
10	Threshold Limit Value (TLV)
50 - 100	The threshold of serious eye injury.
150 - 250	Olfactory paralysis - loss of sense of smell.
300 - 500	Pulmonary edema - a threat to life.
500 - 1000	Strong nervous system stimulation - fatal.
1000 - 2000	Immediate collapse with respiratory paralysis - death in minutes.

**I. Equipment**

1. Special Equipment and Tools

- a. No sources of ignition, including some gas detectors that are not rated explosion-proof, shall be introduced into a confined space until it has been determined by proper testing that dangerous air contamination by flammable, explosive substances does not exist.
- b. All electrical cords, tools, and equipment shall be inspected for visually detectable defects before use in a confined space. In the absence of low-voltage circuits and equipment or double-insulated tools, equipment shall be of the heavy-duty insulation type or GFCI's shall be used.
- c. Temporary lighting shall conform to OSHA regulations 1926.405 (a)(2)(ii)(G). Portable electric lighting used in wet and other conductive locations shall be operated at 12 volts or less. 120-volt lights may be used if protected by a GFCI.
- d. No fans or other equipment used for removing flammable gases or vapors shall create an ignition hazard.
- e. Cylinders of compressed gases shall never be taken into a confined space and shall be turned off at the cylinder valve when not in use. When left unattended, the torch and hose shall be removed from the confined space. Open end fuel gas and oxygen hoses shall be immediately removed from enclosed spaces when they are disconnected from the torch or other gas consuming devices.

Exempt from this rule are cylinders that are part of self-contained breathing apparatus (SCBA) or resuscitation equipment.

Tripods, Safety Harnesses, Retrieval Lines & Respiratory Protection

Where the existence of an IDLH atmosphere or potential for engulfment has been demonstrated by the qualified person, the following requirements shall also apply:

- 2. An appropriate retrieval device with retrieval line shall be used by any entrants, except where the retrieval lines themselves could cause hazards because of structures or equipment or becoming entangled with other lines outside the confined space. Where a retrieval line is used, the free end

of the retrieval line shall be secured outside the entry opening either by another person holding the line or by securing it in some other manner.

3. When an entry is made through a top opening, a hoisting device such as a tripod shall be provided for lifting employees out of the space.
4. When a person is required to enter a confined space which has either an IDLH atmosphere or a hazardous atmosphere, there shall be a positive pressure airline respirator with an auxiliary self-contained air supply immediately outside the entrance of the confined space.
5. When someone must enter a confined space which contains an IDLH atmosphere or a hazardous atmosphere without a retrieval line attached, then each entrant shall be supplied with and wear an OSHA/NIOSH approved positive pressure SCBA.
6. If self-contained breathing equipment is required to make entry, a respirator / SCBA program, including hazards involved and employee training is mandatory.

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**CONFINED SPACE ENTRY PROGRAM - TABLE #1**


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**Concentrations at which Substances Exhibit IDLH Effects**
*Please reference NIOSH/OSHA Pocket Guide to Chemical Hazards DHEW (NIOSH) Publication Number 78-210.*

<b>Chemical Name</b>	<b>IDLH Levels</b>	<b>Chemical Name</b>	<b>IDLH</b>
Ammonia	500 ppm	2-Difluoroethane	15,000 ppm
Benzene	2,000 ppm	Toluene	2,000 ppm
Butadiene	20,000 ppm	Toluene-2,4 Diisocyanate	10 ppm
2-Butanone	3,000 ppm	Stoddard Solvent	5,000 ppm
Carbon Dioxide	50,000 ppm	Styrene	5,000 ppm
Carbon Tetrachloride	300 ppm	Sulfur Dioxide	100 ppm
Chlorine	25 ppm	Trifluoromonobromomethane	50,000 ppm
Chlorobromomethane	5,000 ppm	Turpentine	1,900 ppm
Chloroform	1,000 ppm	Xylene	10,000 ppm
Cresol	250 ppm		
Cyclohexane	10,000 ppm		
Dichloromonofluoromethane	50,000 ppm		
Ethyl Acetate	10,000 ppm		
Fluorotrichloromethane	10,000 ppm		
Heptane	4,250 ppm		
Hexane	5,000 ppm		
2-Hexane	5,000 ppm		
Hydrogen Chloride	100 ppm		
Hydrogen Sulfide	300 ppm		
Isopropyl Alcohol	20,000 ppm		
Liquefied Petroleum Gas	19,000 ppm		
Methyl Alcohol	25,000 ppm		
Methyl Cellosolve	2,000 ppm		
Methyl Cellosolve Acetate	4,500 ppm		
Methyl Chloroform	1,000 ppm		
Methylene Chloride	100 ppm		
Nitric Oxide	50 ppm		
Octane	3,750 ppm		
Ozone	10 ppm		
Pentane	5,000 ppm		
Petroleum Distillates Mixture	10,000 ppm		
Phenol	100 ppm		
Phosgene	2 ppm		
Propane	20,000 ppm		
Sodium Hydroxide	200 mg/M3		

**CONFINED SPACE ENTRY PROGRAM****WORKING CONFINED SPACE CHECKLIST****CONFINED SPACE PRE-ENTRY CHECKLIST**

A confined space is having limited or restricted means for entry or exit and is not designed for continuous occupancy. Confined spaces include, but are not limited to, tanks, vessels, silos, storage bins, hoppers, vaults, pits, manholes, tunnels, equipment housings, ductwork, pipelines, etc. Before entry, the atmosphere must be tested for harmful substances, and test results must be found satisfactory. This checklist must be filled out whenever the job site meets the following criteria.

1. Did your survey of the surrounding area show it to be free of hazards?  
YES or NO
2. Does your knowledge of industrial or other discharges indicate this area is likely to remain free of dangerous air contaminants while occupied?  
YES or NO
3. Are you certified in the operation of the gas monitor?  
YES or NO
4. Has a gas monitor functional test (Bump Test) been performed this shift on the gas monitor to be used?  
YES or NO
5. Did you test the atmosphere of the confined space before entry?  
YES or NO
6. Did the atmosphere check as acceptable (no alarms are given)?  
YES or NO
7. Will the atmosphere be continuously monitored while space is occupied?  
YES or NO

If there are any questions that were answered "NO," do not enter the confined space. Contact your immediate supervisor.

**Job Location:** \_\_\_\_\_

**Project Coordinator:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**CONFINED SPACE ENTRY PROGRAM**

**ENTRY PERMIT**

ORC  
**CONFINED SPACE PERMIT**

Date: \_\_\_\_\_ Issued to: \_\_\_\_\_

Job#: \_\_\_\_\_ Work location: \_\_\_\_\_

Time issued: \_\_\_\_\_ Time expires: \_\_\_\_\_

Entry Supervisor: \_\_\_\_\_ Entry approved when signed

No one will enter the confined space without permission.

Required Equipment	Yes	No	Required Equipment	Yes	No
Warnings/Barricades			Fire Extinguisher		
Tripod & Winch			Harness		
Lifeline			Hazardous Lighting		
Ventilation Required			Electrical Protection		
Lockout/Tag-out			Hard Hat		
Safety Glasses			Face Shield		
Goggles			Hearing Protection		
Boots			Rubber Boots		
Protective Clothing			Ladder		
SCBA Required			Airline Work Unit		

Special P.P.E. Required:

\_\_\_\_\_

Possible Emergency Situations:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Attendant: \_\_\_\_\_

Entrants: \_\_\_\_\_

\_\_\_\_\_

Time Canceled:

\_\_\_\_\_



**GAS INSTRUMENT READINGS**

Date: \_\_\_\_\_ Instrument # \_\_\_\_\_

Instrument used within manufactures calibration and use requirements. Initials \_\_\_\_\_

**Continuous monitoring required inside the permit required space. Readings recorded by the attendant every 2 hours. Evacuate upon instrument alarm or emergency horn.**

Time	O2	LEL	H2S	PID	Initials

**ENTRY LOG**

Name	Time In	Time Out	Time In	Time Out

**CONFINED SPACE ENTRY PROGRAM**

**NON-PERMIT ENTRY**

**Daily Safety Inspection Form**

Date: \_\_\_\_\_ Job Number: \_\_\_\_\_ Starting Location: \_\_\_\_\_

Name: \_\_\_\_\_ Ending Location: \_\_\_\_\_

**Excavation** - Inspection by Competent Person

Soil Classes - A, B, C or SR (Stable Rock)

Protection Method Used- BS- Bench/Slope, TB- Trench Box, HS- Hydraulic Shoring

Entrance/Exit -Ladder or Ramp, Water Removal- Yes or No

<i>Time</i>	<i>Soil Class</i>	<i>Protection Used</i>	<i>Entrance/Exit</i>	<i>Water Removal.</i>

Trench Safety Plans and Tabulated Data Sheets for protection required on site.

Open excavations are to be protected by fencing, plating or barricades when employees are not present.

**Non-Permit Confined Space-** Certified based off testing of the results below, is now downgraded to Non-Permit Confined Space. Signature required below.

<i>Time</i>	<i>Oxygen</i>	<i>LEL</i>	<i>CO</i>	<i>H2S</i>	<i>PID-Specific</i>
<i>Other</i>					

<i>Traffic Control</i>	<i>Morning</i>	<i>Mid-Day</i>	<i>Evening/Last Check</i>
Signs			
Signals			
Delineators/Barrels			
Flagman			
Barricades/Barriers			

Extension Cords have been checked. Lifting equipment has been inspected before use. Including chains, hooks, nylon slings, wire rope slings, and associated lifting equipment.

Name: \_\_\_\_\_

## ***SECTION 5***

### ***FALL PROTECTION PROGRAM: General***

---

#### **PURPOSE**

The purpose of this program is to provide fall protection procedures to prevent injury to employees while performing work assignments at elevated levels.

Any changes to this Fall Protection Program must be approved by the Safety Director through the Site Safety Manager, or his designee who is designated the Qualified Person. This is based on training received in fall protection planning and has demonstrated skills and knowledge in the preparation of fall programs, plans and the hazards involved.

#### **SCOPE**

Applies to all SCI employees who have work assignments at work levels that exceed 6 feet in height where guardrails or nets are not utilized. This includes work near and around excavations when personnel is not working.

Guardrails, safety nets, or personal fall arrest systems shall be used where feasible. When work is performed on a non-owned or operated site, the operator's program shall take precedence. However, this document covers all SCI employees and shall be used on owned premises, or when an operator's program does not exist or is less stringent.

#### **DEFINITIONS**

**Anchorage** - means a secure point of attachment for lifelines, lanyards or deceleration devices capable of holding capable of 5000 pounds or more.

**Body Belt (Safety Belt)** - means a strap for securing it about the waist. This type of belt is only used for positioning. Prohibited for fall protection use.

**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.

**Buckle** - means any device for holding the body belt or body harness closed around the employee's body.

**Carabineer** - see Snap-hook

**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 D-ring sewn into a body belt or body harness, or a snap-hook spliced or sewn to a lanyard or self-retracting lanyard).

**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.

**Deceleration Distance** - means the additional vertical distance a falling employee travels, excluding lifeline elongation 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.

**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.

**Failure** - means load refusal, breakage, or separation of parts. Load refusal is the point where the ultimate strength is exceeded.

**Free Fall** - means the act of falling before a personal fall arrest system begins to apply force to arrest the fall.

**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.

**Guardrail System** - means a barrier erected to prevent employees from falling to lower levels.

**Infeasible** - means that it is impossible to perform the inspection 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.

**Lanyard** - means a flexible line of rope, wire rope, or strap which has a connector at each end for connecting the body belt or body harness to a deceleration device, lifeline, or anchorage.

**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.

**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.

**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.

**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.

**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.

**Rope Grab** - means a deceleration device which travels on a lifeline and automatically, by friction, engages the lifeline and locks to arrest the fall of an employee. A rope grab usually employs the principle of inertial locking, cam/level locking, or both.

**Safety Net** - Safety nets shall be provided when workplaces are higher than 25 feet above the ground or water surfaces or other surfaces where the use of ladders, scaffolds, catch platforms, temporary floors, safety lines or safety belts are impractical.

Nets shall extend 8 feet beyond the edge of the work surface where employees are exposed and shall be installed as close under the work surface as practical but in no case more than 25 feet below the work surface. Nets shall be positioned in a manner to prevent the user from coming into contact with below surfaces or structures. Proper clearance positioning of nets shall be determined by impact load testing. Work procedures shall not begin until nets are in place and have been properly tested.

New nets shall meet accepted performance standards of 17,500-foot-pounds' minimum impact resistance as determined and certified by the manufacturers and shall bear a label of proof test. Edge ropes shall provide a minimum breaking strength of 5000 pounds.

**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 the onset of a fall, automatically locks the drum and arrests the fall.

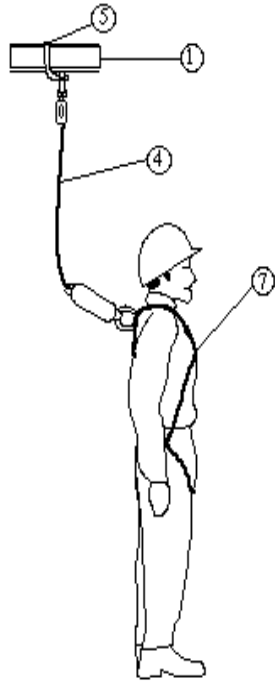
**Snap Hook** - means a connector comprised of a hook-shaped member with a normally closed keeper, or similar arrangement, which may be opened to permit the hook to receive an object and, when released, automatically closes to retain the object. Snap hooks are one of two types: (1) The locking type with a self-closing, self-locking keeper which remains closed and locked until unlocked and pressed open for connection or disconnection; or (2) 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 are prohibited.

**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 are no wall or guardrail system at least 39 inches (1.0 m) high.

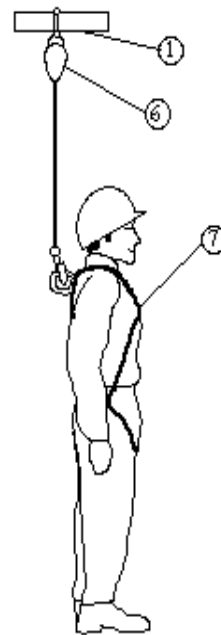
**Walking/working surface** - means any surface, whether horizontal or vertical on which an employee walks or works, including, but not limited to, floors, roofs, ramps, bridges, runways, formwork and concrete reinforcing steel but not including ladders, vehicles, or trailers, on which employees must be located in order to perform their job duties.

**Work Area** - means that portion of a walking/working surface where job duties are being performed.

Section I Drawing of Component

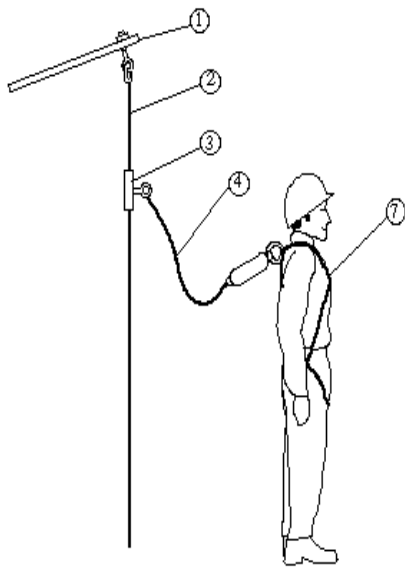


Figure

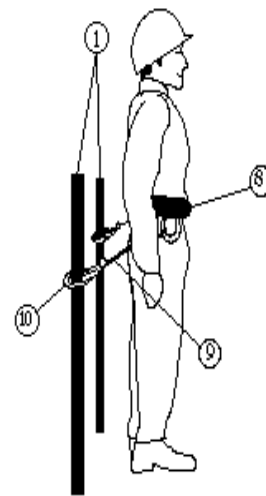


Figure

- 1. Tie-off Point
- 2. Lifeline
- 3. Rope Grab
- 4. Shock Absorbing Lanyard
- 5. Cross-Arm Strap
- 6. Retractable Lifeline
- 7. Full-Body Harness
- 8. Restraining Belt
- 9. Restraining Lanyard
- 10. Carabineer



Figure



Figure

## **RESPONSIBILITIES**

### **A. Project Manager**

It is the responsibility of the project manager (designated competent person) to implement this Fall Protection Program. Continual observational safety checks of work operations and the enforcement of the safety policy and procedures shall be regularly enforced. All jobs shall be pre-planned before the start of work.

### **B. Supervisor**

The Supervisor shall ensure that all persons assigned to work at elevated levels, exceeding 6 feet in height or more above the lower level and where guardrails or nets are not utilized, be protected by personal fall protection equipment.

1. Supervisors shall make exposure determinations and shall discuss with their employees the extent to which scaffolds, ladders, or vehicle mounted work platforms can use.
2. Ensure that fall protection equipment is available and in safe working condition.
3. Provide for emergency rescue in the event of a fall.
4. Pre-plan the job to ensure that employees have been properly trained in the use, limitations, inspections and rescue procedures and that training records are on file.

### **C. Employees**

Employees shall ensure they have and use the fall protection equipment as required by this program and:

1. Understand the potential hazards of working at elevated levels as well as gaining access to and from the work location.
2. Understand the use and limitations of such equipment.
3. Pre-plan the job with his/her supervisor to agree that the job can be done safely.
4. Inspect such equipment before each use and to report defective equipment immediately to their supervisor.

## **PROCEDURE**

Fall protection is required whenever employees are potentially exposed to falls from heights of feet or greater to lower levels. This includes work near and around excavations. Use of guardrails, safety net, or personal fall arrest systems shall be used when the standard methods of protection are not feasible, or a greater hazard would be created.

When purchasing equipment and raw materials for use in fall protection systems applicable ANSI, ASTM or OSHA approved, equipment, approved by the safety director shall be used.

### **A. Minimum Standards**

The following are minimum standards for SCI employee personal fall protection systems:

1. Connectors shall be drop forged, pressed or formed steel, or made of equivalent materials.
2. Connectors shall have a corrosion-resistant finish, and all surfaces and edges shall be smooth to prevent damage to interfacing parts of the system.
3. D-rings and snap hooks shall have a minimum tensile strength of 5,000 pounds.
4. D-rings and snap hooks shall be proof-tested to a minimum tensile load of 3,600 pounds without cracking, breaking, or taking permanent deformation.
5. Snap hooks shall be sized to be compatible with the member to which they are connected to prevent unintentional disengagement of the snap hook. Only 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 shall be used.

6. Horizontal lifelines shall 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.
7. Lanyards and vertical lifelines shall have a minimum breaking strength of 5,000 pounds. Where vertical lifelines are used, each employee shall be attached to a separate lifeline.
8. Lifelines shall be protected against being cut or abraded. Self-retracting lifelines and lanyards which automatically limit free fall distance to 2 feet or less shall be capable of sustaining a minimum-tensile load of 3,000 pounds applied to the device with the lifeline or lanyard in the fully extended position.
9. Self-retracting lifelines and lanyards which do not limit free fall distance to 2 feet or less, rip stitch lanyards, and tearing and deforming lanyards shall be capable of sustaining a minimum tensile load of 5,000 pounds applied to the device with the lifeline or lanyard in the fully extended position.
10. Anchorages used for attachment of personal fall arrest equipment shall be independent of any anchorage being used to support or suspend platforms and capable of supporting at least 5,000 pounds per employee attached, or shall be designed, installed, and used as part of a complete personal fall arrest system which maintains a safety factor of at least two and under the supervision of a qualified person
11. Systems used by an employee having a combined person and tool weight more than 310 pounds shall be modified to provide proper protection for such heavier loads.
12. The attachment point of the body harness shall be located in the center of the wearer's back near shoulder level, or above the wearer's head, except when climbing.
13. Body harnesses and components shall be used only for employee protection and not to hoist materials.
14. Personal fall arrest systems and components subjected to impact loading shall be immediately removed from service and shall not be used again for employee protection until inspected and determined by a competent person to be undamaged and suitable for reuse.
15. Provide for prompt rescue of employees in the event of a fall or assure that employees can rescue themselves.
16. Personal fall arrest systems shall be inspected before each use for wear, damage and other deterioration, and defective components shall be removed from service.
17. Personal fall arrest systems shall not be attached to guardrail systems, nor shall they be attached to hoists unless prior approval is obtained from a competent person.
18. If and when a personal fall arrest system is used at hoist areas, it shall be rigged to allow the movement of the employee only as far as the edge of the walking/working surface.

## **B. Stopping a Fall**

The arresting force on an employee stopped by a fall shall be limited to a maximum arresting force of 1,800 pounds when wearing a body harness.

The fall arrest system shall be rigged such that an employee can neither free fall more than 6 feet, nor contact any lower level.

The fall arrest system shall bring an employee to a complete stop and limit maximum deceleration distance an employee travels to 3.5 feet.

The fall arrest system shall have sufficient strength to withstand twice the potential impact energy of an



employee free falling a distance of 6 feet, or the free fall distance permitted by the system, whichever is less.

### **C. Protection from Falling Objects**

When employees are required to work in the near vicinity of others working with materials, tools, or equipment at elevated levels, barricades around the immediate area of the overhead work shall be erected to prohibit employees from entering the barricaded area.

Employees performing work at elevated levels shall keep tools, materials, and equipment away from the edge to keep potential objects from falling over the side. Where practical, tools, etc. shall be secured with rope, wire, etc. to keep them from falling

### **D. Portable Ladders**

Three-point climbing is required while ascending/descending ladders. While on ladders, both hands and foot, or both feet and one hand shall always be in contact with the ladder.

Tool required to perform a task shall be transported by a mechanical carrier such as a tagline, suspended bucket, or tool belt.

1. Tools shall not be carried by hand while climbing.
2. Hands must be free to grip the ladder.
3. Tools shall not be carried in clothing pockets.
4. Tools shall be pulled up to the job site only after reaching the area of work.

When work is to be performed from straight/extension ladders, fall protection shall be utilized when heights exceed 6 feet.

Straight ladders shall be tied off at the top to prevent them from moving. A second person shall steady the ladder at the base while it is being tied off at the top by another employee. Do not tie off fall protection equipment to the ladder.

### **E. Storage**

A dedicated storage area shall be provided for the storage of fall protection equipment and all components. The storage area shall keep the equipment clean, dry, and free of oils, chemicals, paints, and excessive heat.

### **F. Inspections**

Fall protection equipment shall be inspected before each use for wear, damage, other deterioration, or other defects.

### **G. Elevated Personnel Platforms**

Work performed, regardless of the nature of the work, from personnel platforms raised by forklifts, cranes, scissor lifts, etc., shall require the use of a full body harness and shall be connected to the platform.

### **H. Rescue**

Prompt rescue of employees shall be provided in the event of a fall or shall assure the employees can rescue themselves. The pre-planning stage before the beginning of each elevated work assignment shall be evaluated by the supervisor to provide rescue of employees involved in a fall.

### **I. Fall Protection Plan**

This option is available only to employees engaged in leading edge work who can demonstrate that it is infeasible or creates a greater hazard to use of conventional fall protection equipment. The fall protection plan shall conform to the following:

1. The fall protection plan shall be prepared by a qualified supervisor and developed specifically for the site where the leading-edge work is being performed.

2. The fall protection plan shall document the reasons why the use of conventional fall protection systems (guardrail systems, personal fall arrest systems, or safety net systems) are infeasible or why their use would create a greater hazard.
3. The fall protection plan shall identify each location where conventional fall Protection methods cannot be used.
4. These locations shall then be classified as controlled access zones.

#### **J. Controlled Access Zones**

When used to control access to areas where leading edge or other operations are taking place the controlled access zone shall be defined by a control line or by any other means that restricts access.

When control lines are used, they shall be erected not less than 6 feet (1.8 m) nor more than 25 feet (7.7 m) from the unprotected or leading edge.

The control line shall extend along the entire length of the unprotected or leading edge and shall be approximately parallel to the unprotected or leading edge.

The control line shall be connected on each side to a guardrail system or wall.

1. Control lines shall consist of ropes, wires, tapes, or equivalent materials.
2. Each line shall be flagged or otherwise clearly marked as not more than 6-foot (1.8 m) intervals with a high-visibility material.
3. Each line shall be 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).

Each line shall have a minimum breaking strength of 200 pounds.

Only employees engaged in the related work shall be permitted in the controlled access zone.

#### **K. Safety Monitoring System**

When the use of conventional fall protection equipment is deemed infeasible, or the use of this equipment creates a greater hazard a Fall Protection Plan which includes a safety monitoring system shall be implemented by the supervisor.

The supervisor shall designate a competent person to monitor the safety of other employees. The competent person shall be assigned to:

1. Recognize fall hazards;
2. Warn employees if they are unaware of a fall hazard or are acting in an unsafe manner;
3. Be on the same working surface and in visual contact with working employees;
4. Stay close enough for verbal communication; and
5. Not have other assignments that would take his/her attention from the monitoring function.

#### **L. Incident Investigations**

All incidents and near misses must be investigated according to SCI incident investigation procedure. Changes to the fall protection program shall be implemented if deemed appropriate from incident corrective actions.

#### **M. Training**

Employees who may be exposed to fall hazards shall be trained to recognize the hazards of falling and understand the procedures to be followed to minimize these hazards.

The employee will be trained in the use and operation of fall arrest systems, inspections, and maintenance procedures.

Training must be conducted initially and refresher training conducted annually or as needed due to deficiencies in training, changes in the workplace, changes in fall protection systems or procedures that render previous training obsolete or inadequacies in an employee's understanding of previous training.

Training must be documented in writing. Training records shall include:

1. Who was trained
2. When and dates of training
3. Signature of the person providing training
4. Date training was deemed adequate
5. Training records shall be retained in the corporate office.

## ***SECTION 6***

### ***FIRE PREVENTION AND PROTECTION***

---

#### **PURPOSE**

The purpose of this program is to provide fire extinguisher procedures to ensure equipment is operable and employees have the knowledge to safely operate in case of a fire incident.

#### **SCOPE**

Applies to all SCI employees and all SCI locations.

#### **RESPONSIBILITIES**

The Site Safety Supervisor is responsible for following the procedures for the use and care of fire extinguishers and for developing a training program for the proper use of these devices. The Manager is responsible for implementing fire extinguisher training at his location. The shop foreman is responsible for enforcing the provisions of this section of the safety manual. All employees are responsible for following these provisions.

#### **PROCEDURE**

##### **A. Selection and Distribution**

Portable fire extinguishers shall be provided for employees use and selected and distributed based on the classes of anticipated workplace fires and on the size and degree of the hazard which would affect their use. Fire extinguishers used by this company are for four classes of fires:

1. **Class A Fire Extinguisher.** Use on ordinary combustibles or fibrous material such as wood, paper, cloth, rubber, and some plastics. Travel distance for employees to any extinguisher is 75 feet (22.9 m) or less.
2. **Class B Fire Extinguisher.** Use on flammable or combustible liquids such as gasoline, kerosene, paint, paint thinners, and propane. Travel distance from the Class B hazard area to any extinguisher is 50 feet (15.2 m) or less.
3. **Class C Fire Extinguisher.** Use on energized electrical equipment such as appliances, switches, panel boxes, and power tools. Travel distance from the Class C hazard area to any extinguisher is 50 feet (15.2 m) or less.
4. **Class D Fire Extinguisher.** Use on combustible metals such as magnesium, titanium, potassium, and sodium. Travel distance from the combustible metal working area to any extinguishing agent is 75 feet (22.9 m) or less.

##### **B. Labeling of Fire Extinguishers**

Fire extinguishers are to be mounted in easily accessible locations that are indicated by a sign that reads "Fire Extinguisher." Fire extinguishers are to be located so that no employee will ever be more than 75 feet from an extinguisher. No equipment, boxes or product may be placed (even temporarily) in the way of a fire extinguisher. Each fire extinguisher will be assigned a unique number.

##### **C. Maintenance**

All fire extinguishers shall be mounted no higher and no lower than four (4) feet from the floor. All fire extinguishers shall be maintained as follows:

1. Numbered to identify their proper location
2. Fully charged and in operable condition
3. Clean and free of defects

4. Readily accessible at all times

#### **D. Inspection, Maintenance, and Testing**

All fire extinguishers are to be visually inspected by SCI employees monthly. All fire extinguishers are to receive an annual maintenance check by certified personnel from a fire extinguisher dealer. Fire extinguishers are to be inspected and re-charged by certified personnel after any use.

Any fire extinguisher that shows a loss of pressure during the monthly inspection will be inspected and re-charged by certified personnel. Completed fire extinguisher inspection logs will be maintained in the safety files and become a part of the safety records. They are to be maintained for 5 years.

#### **E. Use**

In the event of a fire, one employee will get the nearest fire extinguisher and use it to attempt to put the fire out. All other employees in the immediate area will prepare to evacuate if needed. All other employees in the building need to be advised that a fire is in progress.

The employee attempting to extinguish the fire will break the safety seal on the handle and pull the pin. He will then aim his extinguisher at the base of the fire and discharge it with a sweeping motion from side to side; continuing until the fire is out or the extinguisher is emptied.

Remember that a standard fire extinguisher will be emptied in about 10 to 15 seconds. If the fire is not out when the extinguisher has been completely discharged, the employees must evacuate the area.

#### **F. Training and Education**

The purpose of this section is to establish training procedures which are necessary for the proper use and understanding of a fire extinguisher and incipient stage firefighting. Training will occur before initial assignment and at least annually after that.

On even-numbered years this training will be conducted by a member of the local fire department (where possible) and will include "live fire" hands-on use of the extinguisher. On odd number years, this training will be conducted by the Safety Manager and will include a demonstration of the use of a fire extinguisher, without actually discharging the unit.

New employees will be given the odd number year training upon hire.

##### **1. Initial Training Outline**

- a. General principles of a fire
- b. Hazards employed with an incipient stage fire(s)
- c. When to "back off" (evacuate) of an incipient stage fire(s)
- d. General fire principles of a fire extinguisher
- e. Hazards employed with the use a fire extinguisher
- f. Use of a fire extinguisher

##### **2. Retraining**

Retraining shall re-establish employee proficiency and introduce new or revised control methods and procedures, as necessary. Retraining shall be provided for all authorized and affected employees whenever there is:

- a. An annual basis or
- b. A change in job assignment or
- c. SCI has reason to believe that there are deviations from or inadequacies in the employee's knowledge or use of fire extinguishers or fire prevention procedures.

##### **3. Training Documentation**

- a. All training will be documented, and each employee's understanding will be subject to a "hands-on" test.
- b. Documentation will consist of; as a minimum, the employee's name, the trainer's name, the date of the training, and an outline of training provided.

## ***SECTION 7***

### ***EQUIPMENT OPERATION: General***

---

#### **PURPOSE**

To assure the safe operation of all equipment

#### **SCOPE**

Applies to all SCI Team Members and its subcontractors associated with and performing work on the Project.

#### **RESPONSIBILITY**

The Project Superintendent will ensure that all operators and mechanics perform their tasks in compliance with these procedures.

#### **PROCEDURE**

1. The Superintendent will certify each equipment operator using the respective operator and crane operator formats. Physical qualifications will be verified in the pre-placement physical.
2. All prospective operators will be orientated as to the safe operation of the equipment they will be operating.
3. Operators will inspect their equipment daily and immediately notify the Project Maintenance Manager and Project Mechanic of any deficiencies. The Superintendent through the Project Mechanic will handle communication between shifts as to problems with a piece of equipment.
4. The Project Maintenance Manager or his designee will perform an initial inspection as well as monthly and annual inspections on each piece of equipment. The inspection will be documented.
5. An equipment "history" file will be set up for each piece of equipment based on machine number. This file will contain all inspection reports and maintenance records.
6. Backup alarms and a signal person will be used as required.
7. Operators mounting/dismounting will utilize the "3 Point Contact" rule.
8. Seatbelts will be worn during the operation of any equipment that has rollover protection.
9. All accidents (including major oil or fuel spills) will be reported immediately to the Project Superintendent.

**EQUIPMENT OPERATION**

**OPERATOR VERIFICATION**

This checklist will be completed by the Project Superintendent and used to certify the qualifications of a prospective operator.

- 1. **Physical Qualifications** (To be verified in pre-placement physical)
  - a. Has the vision of at least 20/30 Snellen in one eye, and 20/50 in the other, with or without glasses
  - b. Has adequate hearing, with or without a hearing aid, for operating an assigned machine
  - c. Sufficient strength, endurance, agility, coordination and reaction speed to meet demands of operating equipment.
  
- 2. **Safe Operation**
  - a. Past operating employment references checked.
  - b. Has read and is familiar with appropriate Operator's Manual.
  - c. Competent with standard hand signals.
  - d. Rollover protection (ROP) installed.
  - e. Need for seat belts, safety bar or other restraints.
  - f. Knowledge of brake system including parking.
  - g. Ground conditions including slopes.
  - h. Aware of potential pinch points.
  - i. Checked out on all hand controls.
  - j. Checked out on all foot controls.
  - k. Three-point contact for mounting & dismounting.
  - l. Starting and stopping of the machine.
  - m. Cleanliness of cab and windows.
  
- 3. **Inspection and Maintenance**
  - a. Location and frequency of inspecting:
 

i. Coolant levels	Oil Levels
ii. Fuel Levels	Lubrication
iii. Tires or Tracks	Transmission
iv. Hydraulics	Lights
v. Cutting Edges	Gauges and Warning Lights
  - b. Location of fire extinguishers
  - c. Has tested all controls for proper function
  
- 4. **Accessory Equipment**
  - a. Limitations of each
  - b. Able to change out (bucket, forks, etc.)
  - c. Safe operation

**5. Road Test Completed**

After the applicable items above are verified, the Superintendent will observe the Operator and certify that he/she is qualified to operate the piece of equipment.

**The operator named below has completed the certification requirements checked above.**

Verified by: \_\_\_\_\_ Date: \_\_\_\_\_  
Superintendent

Operator's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Equipment Authorized to Operate**



**EQUIPMENT OPERATION**  
**CRANE OPERATOR VERIFICATION**

**CHECK**

**1. Physical Qualifications** *(To be verified in pre-placement physical)*

Per ANSI B30.5, Sec. 5-3.1.2, this Operator meets the following physical qualifications:

- a. Has the vision of at least 20/30 Snellen in one eye, and 20/50 in the other, with or without glasses
- b. Has adequate hearing, with or without hearing aid, for operating assigned crane.
- c. Sufficient strength, endurance, agility, coordination and reaction speed to meet demands of operating equipment.

**2. Safe Operation**

- a. Past operating employment references checked.
- b. Has read and is familiar with the Crane Operating Manual.
- c. Has moved crane into position and leveled crane.
- d. Demonstrated ability to properly extend and block outriggers.
- e. Ability and knowledge to operate maxi-brake, anti-two block, load moment indicator and other installed devices.
- f. Received copies of and understands SCI critical lift policy, skip box requirements, swing radius protection, and craning responsibilities.
- g. Knows clearance distances from power lines.
- h. Familiar with standard hand signals.
- i. Knowledgeable in various rigging configurations.

**3. Inspection and Maintenance**

- a. Received SCI Daily Checklist.
- b. Start-up crane, checking gauges and pressure.
- c. Has tested all controls for proper function.
- d. Familiar with SCI monthly inspection reports and OSHA annual inspection.
- e. Capable of inspecting load lines and other wire rope for damage.

**4. Load Charts and Crane Capacity**

- a. Has reviewed and understands load chart which is available to him while he is at the crane controls.
- b. Understands how capacities are impacted by:
  - i. Cranes on barges
  - ii. Outrigger extension
  - iii. A firm, level ground
  - iv. Jib installation
  - v. Boom radius and length
  - vii. High winds & storms

**The Operator named below has completed the verification requirements checked above.**

Verified by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Superintendent

Operator's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Equipment Authorized to Operate:**

## ***EQUIPMENT OPERATION***

### ***TRAFFIC CONTROL***

---

#### **PURPOSE**

To prevent accidents by providing safe passage for heavy equipment

#### **SCOPE**

Applies to any motorized vehicle or equipment operated at the Project.

#### **RESPONSIBILITY**

The General Superintendent will ensure that these procedures are carried out and that Foremen enforce them.

#### **PROCEDURES**

1. Any traffic control signage used on the job site will be in conformance with Uniform Traffic Control Devices. This includes *Stop, Yield, Speed*, etc.
2. Haul roads and any crossings, in general, will be adequately marked.
3. Operators will be trained as to haul roads, markings, speed, and routing that will be used.
4. In congested areas or where multiple pieces of equipment are operating nearby, a flagger or spotter may be required.
5. Flaggers will be trained in the proper signal use and have appropriate equipment including a flag, Stop/Slow paddle, flashlight wand and reflective vest.
6. Any excavation or surface encumbrance will be identified and protected from equipment and vehicles through the use of berms; log stops or flagging.
7. All vehicles must comply with posted speed requirements.

## ***EQUIPMENT OPERATION***

### ***EQUIPMENT MOBILIZATION***

---

#### **PURPOSE**

To prevent injuries during the loading, transport, and unloading of heavy equipment.

#### **SCOPE**

Applies to all SCI Team Members and its subcontractor associated with and performing work on the Project.

#### **RESPONSIBILITY**

The Project Superintendent will have overall responsibility to assure this procedure is followed. The Project Equipment Manager will assist in seeing that this procedure is always followed.

#### **PROCEDURE**

1. The truck driver hauling equipment must be certain the following items are completed:
  - a. Each load tied down and secured per federal tie-down standards.
  - b. Assure that any loads having rear or front projections or side overhangs are appropriately flagged.
2. All truck drivers will have a current commercial driver's license, and drug testing will have been performed.
3. The truck driver will have authority to refuse transport of any load determined unsafe for travel or not in compliance with these procedures.
4. Spotters for loading and unloading will be available.
5. When required by local or state law, oversized loads will be escorted.
6. The equipment operator must make the project mechanic aware of any problems or repairs needed.
7. The project mechanic will certify that each piece of equipment arriving at the Project is fully operable and has all required safety equipment installed including seat-belts and fire extinguishers.

## ***EQUIPMENT OPERATION***

### ***CRANES***

---

#### **PURPOSE**

To ensure compliance with regulations and manufacturer specifications for material handling tasks using cranes and hoists.

#### **DEFINITIONS**

**Crane:** A machine for lifting and lowering a load and moving it horizontally with the hoisting mechanism an integral part of the machine. Cranes whether fixed or mobile are driven manually or by power.

#### **RESPONSIBILITIES**

##### **A. Project Manager/Superintendent and Site Safety Supervisor:**

Ensure inspections occur daily or before the use of a crane if not used on a daily basis, documented monthly, and annually by a Third Party inspector.

Train all crane operators and re-train following any crane incident.

##### **B. Employees:** Inspect the crane and rigging before use; Damaged or defective cranes must be removed from service immediately.

Ensure loads are lifted according to this procedure.

#### **PROCEDURE CRANES/HOIST**

1. Only trained and authorized individuals are allowed to operate cranes, hoists and lift equipment.
2. All hoists must meet the requirements of the OSHA Subpart CC 1926.1400 Cranes and Derricks in Construction and AMSE standards and must never be altered without approval. The manufacturer's procedures and prohibitions must be complied with when assembling, disassembling, and operating (including attachments) equipment.
3. The assembly/disassembly of equipment must be directed by a competent and qualified person.
4. Pre-operation inspections of cranes and hoist, rigging (including the safety latch), must be performed daily before use at the beginning of each shift. Defects must be reported to the project maintenance personnel and the crane removed from service until a certified person repairs the crane.
5. Cranes and hoists must not be loaded above their rated capacities, and the rated capacities must be clearly marked on both sides of the crane and hoist and visible from the floor.
6. Under no circumstance may a hoist be placed on a crane or other lifting attachment point (i.e., beams, trusses, etc.) if the hoist's capacity is greater than the crane or attachment point capacity.
7. Cranes must not be used unless ground conditions can support the equipment and any supporting materials per the manufacturer's specifications for adequate support and degree of level of the equipment are must be met.
8. A pre-operation hazard assessment will be performed to identify the work zone and determine if any part of the equipment could reach closer than 20 feet to a power line? If it is determined that any part of the equipment, load line or load could get closer than 20 feet to a power line then at least one of the following measures must be taken:
  - a. Ensure the power lines have been de-energized and visibly grounded
  - b. Ensure no part of the equipment, load line or load gets closer than 20 feet to the power line

- c. Determine the line's voltage and minimum approach distance.
9. A signal person must be provided for the following situations:
  - a. The point of operation is not in full view of the operator
  - b. The view is obstructed when the equipment is traveling
  - c. The operator or the person handling the load determines it is necessary due to site-specific concerns
10. A safety plan must be used when the equipment has the potential to strike and injure an employee or pinch/crush an employee against any other object.
11. Cranes and hoists must be maintained, checked, and serviced per the following schedule:
  - a. Daily inspection
  - b. Monthly documented inspection
  - c. Annual documented inspection and service required by a Third Party certified company.
12. The operator shall have access to procedures applicable to the operation of the equipment. Procedures include rated capacities (load charts), recommended operating speeds, special hazard warnings, instructions and operator's manual.
13. The manufacturer must approve all modifications/additions in writing. A registered professional engineer must be qualified concerning the equipment involved and must ensure the original safety factor of the equipment is not reduced.
14. Whenever there is a safety concern, the operator has the authority to stop and refuse to handle loads until a qualified person has determined that safety has been assured.

### **TRAINING**

1. Only trained and certified persons are authorized to operate cranes and hoists. Training must include all aspects of hoist operation.
2. All training is equipment-specific and practical on-the-job training.
3. All A-frames shall have the manufacturer inspection criteria and safe operation visible on the crane.
4. Training is documented and maintained in their file for the duration of employment or until the employee ceases to operate a crane/hoist.
5. Re-certification is required for all authorized crane operators when involved in an incident.

### **TRANSPORTATION**

1. Trained and authorized individuals must conduct a rigging inspection before movement of a load.
2. All loads must be lifted according to the rated load capacity of the rigging and crane/hoist.
3. A load must only be attached to the hoist or crane hook by use of a lifting device such as a sling or other approved and rated lifting device.
4. All loads must be raised and moved only where a clear travel path exists in all travel directions.
5. The hoist must be centered directly over the load. If not centered, the load may swing when lifted.
6. Moving a load must be pre-planned and moved in a controlled manner.
7. Never lift a load higher than is necessary.
8. Never work underneath loads when loads are being lifted, suspended or moved.

9. Loads must never be left suspended or unattended.
10. Cranes and hoists must not be used for side pulls and must not be shock loaded.
11. No load may be lowered below the point where less than two full wraps of cable remain on the hoisting drum.
12. All hazard areas within the boundaries of crane swing radius will be marked with caution tape, warning lines, railings or similar barriers.

Safety devices are required to be on all equipment and must be in proper working order before operations begin. If any of the devices are not in proper working order, the equipment must be taken out of service and operations must not resume until the device is working properly again. Examples of safety devices may include crane level indicator, boom stops, jib stops, foot pedal brake locks, horns, etc.

## ***EQUIPMENT OPERATION***

### ***CRITICAL LIFTS and DUAL CRANE LIFTS***

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#### **PURPOSE**

To prevent overloading of cranes

#### **SCOPE**

Applies to SCI Team Members working on the Project.

#### **RESPONSIBILITIES**

The Project Superintendent will assure the Critical Lift Worksheet is filled out before the lift and that the lift is carried out according to the plan.

#### **PROCEDURES**

1. A Critical Lift Procedure (worksheet) needs to be performed for review and approval by an Area Manager for a lift  $\geq 75\%$  rated capacity pursuant to the manufactures chart radius at a given crane set up (i.e. boom length & radius, extra drums, jibs, tip offsets, etc.) or if the lift is  $\geq 20$  tons.
2. Manufacturer Marine Charts are applicable when working on barges.
3. All dual lifts (two-crane lift) are considered "critical lifts."
4. For any critical lift, the Critical Lift Worksheet must be filled out completely.
5. Before an actual lift, each employee involved, i.e., Superintendent, Foreman, and Operator will review the worksheet and strategy for that lift.

**EQUIPMENT OPERATION****CRITICAL LIFT WORKSHEET**

PROJECT: \_\_\_\_\_ DATE: \_\_\_\_\_ PREPARED BY: \_\_\_\_\_

**1. CRANE DATA**

- 1) Make & Model # \_\_\_\_\_
- 2) Unit # \_\_\_\_\_
- 3) Crane Type: \_\_\_\_\_  
 \_\_\_\_\_ Crawler mounted lattice boom \_\_\_\_\_ Carrier mounted lattice boom  
 \_\_\_\_\_ Grove telescope boom \_\_\_\_\_ Other \_\_\_\_\_ Boom Type \_\_\_\_\_
- 4) Lattice Boom Model & Type:  
 \_\_\_\_\_ Angle Chord \_\_\_\_\_ Offset Tip  
 \_\_\_\_\_ Tubular Chord \_\_\_\_\_ Tapered Tip  
 \_\_\_\_\_ Hammerhead
- 5) Boom Length \_\_\_\_\_ ft.
- 6) Jib Model \_\_\_\_\_ Length \_\_\_\_\_
- 7) Counterweight \_\_\_\_\_ lbs. Offset \_\_\_\_\_
- 8) Is the Crane working on Trestle? \_\_\_\_\_ Yes \_\_\_\_\_ No  
 If Yes has the Engineering Department been contacted? \_\_\_\_\_ Yes \_\_\_\_\_ No  
 If No contact the Engineering Department to verify trestle is rate for Crane.

**2. LOAD CAPACITY**

Operating by the "seat of the pants" is very dangerous and will not be tolerated. Never use signs of tipping to determine if a load is within capacity. Either find out how much the load weighs and use the load chart or don't lift it at all.

- 9) Exact Load Weight \_\_\_\_\_ 9) Size of Load \_\_\_\_\_

- 10) Calculate Net Capacity

Net Capacity = Gross Capacity - Capacity Deductions

\_\_\_\_\_ Lbs. Gross Capacity at \_\_\_\_\_ ft. radius

\_\_\_\_\_ Lbs. Rigging Weight (i.e., shackles, slings, picking beams)

\_\_\_\_\_ Lbs. Main Block

\_\_\_\_\_ Lbs. "Effective" Jib Weight

\_\_\_\_\_ Lbs. Cable

\_\_\_\_\_ Lbs. Headache Ball

\_\_\_\_\_ Lbs. Others \_\_\_\_\_

\_\_\_\_\_ Lbs. Net Capacity vs. \_\_\_\_\_ Lbs. Exact Load Weight

**Net Capacity must be equal to or greater than exact load weight.**

- 11) Maximum Load Radius ft. 13) Minimum Load Radius \_\_\_\_\_ ft.
- 12) Maximum Boom Angle ° 14) Minimum Boom Angle \_\_\_\_\_ °

**3. RIGGING**

- 15) \_\_\_\_\_ Min. # parts of Hoist Line = Gross Capacity (refer to load chart or calculate according to the formula on the back of page 1)



- 16) Sling Construction: Dia. Inches \_\_\_\_\_ # Parts \_\_\_\_\_  
 Wire core/mechanical splice \_\_\_\_\_ Fiber core/hand splice \_\_\_\_\_
- 17) Number of Legs \_\_\_\_\_ 18) Sling Angle \_\_\_\_\_
- 19) Sling Capacity \_\_\_\_\_ lbs. (refer to charts on the back side)
- 20) Means of Fastening Sling or Hoist Hook to Load \_\_\_\_\_
- 21) The capacity of Fastener, i.e., Shackle, Picking Eye, etc. \_\_\_\_\_ lbs.

**4. PRE-LIFT REQUIREMENTS** (All must be answered YES.)

- 22) \_\_\_ Load chart utilized is for exact crane model, boom type, & length
- 23) \_\_\_ The competent person in charge of lift: Name \_\_\_\_\_ Title \_\_\_\_\_
- 24) \_\_\_ The competent signal person identified: Name \_\_\_\_\_ Title \_\_\_\_\_
- 25) \_\_\_ The competent rigging person identified: Name \_\_\_\_\_ Title \_\_\_\_\_
- 26) \_\_\_ Pre-pick meeting held with pick crew
- 27) \_\_\_ Written crane inspection completed within 14 days
- 28) \_\_\_ Swing path not over personnel
- 29) \_\_\_ Footing is sound
- 30) \_\_\_ Minimum clearances from power lines can and will be maintained  
 (Under 50 KV - 10' clearance --- Over 50 KV - See OSHA Standard)
- 31) \_\_\_ The load radius has been measured with a tape measure
- 32) \_\_\_ Wind speed does not exceed 30 mph. Some "sail" loads limited to 20 mph.
- 33) \_\_\_ A load will not touch boom in vertical lift
- 34) \_\_\_ For Dual Crane Lift, full compliance with "JB Dual Crane Lift Policy."
- 35) \_\_\_ If on a barge, the Project Manager has reviewed stability and potential list conditions
- 36) \_\_\_ Taglines are long enough, tied only to the load, and in good condition - loose cad controlled by designated pawn
- 37) \_\_\_ Operating locations are far enough away from shoring, excavations, and trenches to eliminate the risk of collapse
- 38) \_\_\_ Application of hardwood mats has been carefully considered
- 39) \_\_\_ Outriggers or crawler tracks are fully extended, and wheels are clear of the ground
- 40) \_\_\_ Application of blocking under outrigger pads has been carefully considered
- 41) \_\_\_ Adequate swing clearance (minimum 2 feet) between the counterweight and any obstacles
- 42) \_\_\_ Boom composition is correct
- 43) \_\_\_ No added counterweight
- 44) \_\_\_ Crane is level and has been chocked with carpenter's level
- 45) \_\_\_ If the crane is not level within 1°, the blue load chart is applicable.  
 When using the blue chart, the crane must not exceed 3° off level.
- 46) \_\_\_ Also, if the blue chart is used, has maximum boom length been carefully considered
- 47) \_\_\_ The machine is rigged with an adequate number of Parts of Hoist Line (#15 above)

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**APPROVAL SIGNATURES**

PROJECT MANAGER:

PROJECT SUPERINTENDENT

\_\_\_\_\_ Date: \_\_\_\_\_

\_\_\_\_\_ Date: \_\_\_\_\_

## ***EQUIPMENT OPERATION***

### **DUAL CRANE LIFTS POLICY**

Lifts involving two or more cranes are complex operations requiring considerable skill and planning.

1. Lift must be planned and carried out under qualified supervision.
2. Ground conditions must be stable, compacted and level, and if not then corrected by blocking, mats or compaction.
3. All cranes must rest on solid blocking.
4. All cranes must be level.
5. Load weight must be determined exactly.
6. Longest load radius of each crane for the complete operation must be measured exactly.
7. Boom length and boom angles must be determined exactly.
8. Rated capacity of each crane must be determined for the whole operation.
9. For a multiple crane lift, no crane shall be loaded to more than 75% of its net capacity without the Project Manager's approval.
10. All cranes must be in good operating condition.
11. How much of the load is to be carried by each crane must be known exactly. The rigging shall be arranged to divide the load as planned.
12. The line, swing and boom speeds of the cranes must be matched. If the hoist speeds are unequal, the loading crane can carry a greater share of the load. If the swing rates are not equal, the cranes will side-load each other.
13. Swing and booming motions shall be kept to a minimum.
14. Wherever possible the cranes should not travel with the load. If travel is necessary, then the cranes should have equal boom lengths.
15. Signalmen, riggers, and operators must know exactly what they have to do and what movements will have to be made **BEFORE** the lift begins.
16. If possible conduct a dry run without a load.
17. All communication during the lift should be made by radio (preferably closed or hardline rather than walkie-talkie).
18. It is imperative that **ONE** person direct and controls the operation. He shall be positioned to view the total operation and shall maintain radio contact with the operators.
19. All crane and load movements should be made as smoothly as possible. Brakes and clutches should be applied gradually.
20. Hoist lines must be kept vertical at all times. This is **CRITICAL**. When the lines are not vertical, the cranes are throwing an extra load on each other and maybe side-loading each other, which is a **GREAT DANGER**.

## ***EQUIPMENT OPERATION***

### ***AERIAL LIFTS***

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#### **PURPOSE**

The purpose of this program is to define the requirements for safely operating an aerial lift device. An aerial lift device is defined as any device, vehicle mounted or manually propelled, telescoping or articulating, or both, which is used to position personnel above six feet in height.

#### **SCOPE**

This policy shall cover all aerial lift devices used on company property. All employees shall operate these devices following this policy.

#### **RESPONSIBILITIES**

##### **A. Supervisors**

1. Shall ensure that all aerial devices are properly operated by trained personnel.
2. Shall ensure that aerial lift devices are designed and constructed in conformance with applicable requirements of the American National Standards for “Vehicle Mounted Elevating and Rotating Work Platforms” ANSI A92.2---1969, including appendix.

##### **B. Employees**

1. Shall follow all aspects of this program.

#### **PROCEDURE**

1. Aerial lifts may be “field modified” for uses other than those intended by the manufacturer provided the modification has been certified in writing by the manufacturer or by an equivalent entity.
2. Lift controls shall be tested each day before use to determine that such controls are in safe working conditions. Tests shall be made at the beginning of each shift during which the equipment is to be used to determine that the brakes and operating systems are in proper working condition.
3. Only authorized persons shall operate an aerial lift.
4. Boom and basket load limits specified by the manufacturer shall not be exceeded.
5. Aerial lifts shall have a working back---up alarm audible above the surrounding noise level, or the vehicle is backed up only when an observer (spotter) signals that it is safe to do so.
6. The minimum clearance between electrical lines and any part of the equipment (i.e., crane or load) shall be 10 feet for lines rated 50 kV or below.
7. Employees shall always stand firmly on the floor of the basket, and shall not sit or climb on the edge of the basket or use planks, ladders, or other devices for a work position.
8. Approved fall protections shall be worn and a lanyard attached to the boom or basket when working from an aerial lift.
9. All employees who operate an aerial lift device shall be trained in the safe operation of the specific device they will operate. Training must conform to all OSHA requirements.

## ***EQUIPMENT OPERATION***

### ***FORKLIFT***

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#### **PURPOSE**

The purpose of this program is to establish requirements for the safe operation and use of forklifts also known as "Powered Industrial Truck."

#### **SCOPE**

This program applies to all SCI employees who will operate a forklift in the scope of their job duties and assignment. When work is performed on a non-owned or operated site, the operator's program shall take precedence, however, this document covers SCI employees and contractors and shall be used on owned premises, or when an operator's program doesn't exist or is less stringent. ***NOTE:*** Only trained and certified operators, including supervisors, are allowed to operate forklifts and industrial trucks. SCI shall certify all authorized employees regarding competency on all types of equipment.

#### **DEFINITIONS**

**Authorized Employee** – A person, at least 18 years of age and who have completed the company's required safety training for the safe operations of forklifts.

**Forklift (Powered Industrial Truck)** – Any mechanical device used for the movement of supplies, material, or finished a product that is powered by an electric motor or internal combustion engine.

#### **RESPONSIBILITIES**

##### **A. Project Superintendent**

1. Shall ensure that each powered forklift operator is competent to operate a forklift safely, as demonstrated by the successful completion of the training and evaluation program.
2. Shall ensure that all forklifts are inspected before each shift, and all repairs are made before the forklift is operated.

##### **B. Employees**

1. Shall be current on applicable training.
2. Operate forklift per the forklift standards and manufacturer requirements.
3. Inspect forklift at the start of a shift, and remove from service if defects are found until they are corrected.
4. Operate forklift in a safe manner.

#### **PROCEDURE**

##### **A. General**

All approved forklifts shall have a manufactures identification plate attached showing all specifications of the forklift and that the forklift is accepted by a nationally recognized testing laboratory.

Modifications and additions, which affect capacity and safe operation, shall not be performed without manufacturer's prior written approval. Capacity, operation, and maintenance instruction plates, tags, or decals shall be changed to reflect modification or addition.

If the forklift is equipped with front-end attachments other than factory installed attachments, the supervisor shall ensure that the forklift is marked to identify the attachments and show the approximate weight of the forklift and attachment combination at maximum elevation with load laterally centered.

The operator shall see that all nameplates and markings are in place and are maintained in a legible condition.

All forklifts shall be equipped with safety seat belts. All forklifts shall be equipped with a horn, backup alarm, beacon light, headlights, and taillight.

## **B. Safety Guards**

Forklifts shall be fitted with an overhead rollover cage, as per manufactures specifications.

If the type of load presents a hazard to the operator, the forklift shall be equipped with a vertical load backrest extension, as per manufactures specifications.

## **C. Training**

Training shall consist of a combination of formal instruction (e.g., lecture, discussion, interactive computer learning, videotape, and 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.

All operator training and evaluation shall be conducted by authorized persons who know, documented training, and experience to train forklift operators and evaluate their competence.

Selected employees who have been trained shall receive refresher training be evaluated, at a minimum, every three years.

Training shall include the following topics, except in topics for locations where they are not applicable to the safe operation of the forklift due to the type of equipment or facility conditions.

1. Operating instructions, warnings, and precautions for the types of forklift the operator will be authorized to operate,
2. Differences between the forklift and the automobile,
3. Forklift controls and instrumentation: where they are located, what they do, and how they work,
4. Engine or motor operation,
5. Steering and maneuvering,
6. Visibility (including restrictions due to loading),
7. Fork and attachment adaptation, operation, and use limitations,
8. Vehicle capacity,
9. Vehicle stability,
10. Any vehicle inspection and maintenance that the operator will be required to perform,
11. Refueling and charging and recharging of batteries,
12. Operating limitations,
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,
14. Surface conditions where the vehicle will be operated,
15. The composition of loads to be carried and load stability,
16. Load manipulation, stacking, and unstacking,
17. Pedestrian traffic in areas where the vehicle will be operated,

18. Narrow aisles and other restricted places where the vehicle will be operated,
19. Hazardous (classified) locations where the vehicle will be operated,
20. Ramps and other sloped surfaces that could affect the vehicle's stability,
21. Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust.
22. Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation, and
23. The requirements of CFR 1910.178 (Powered Industrial Trucks).

Retraining is required when an employee performs the equipment in an unsafe manner, there is an incident, or a different vehicle type is put in service or changes in conditions.

#### **D. Certification**

The trainer shall certify in writing that each operator has been trained and evaluated as required.

The certification shall 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 and evaluation.

#### **E. Operations**

##### 1. General

- a. All operators shall wear a safety seat belt when operating a forklift.
- b. Forklifts shall not be driven up to anyone standing in front of a bench or other fixed object.
- c. No person shall be allowed to stand or pass under the elevated portion of any forklift, whether loaded or empty.
- d. Unauthorized personnel shall not be permitted to operate forklifts.
- e. No riders or passengers are permitted.
- f. It is prohibited for arms or legs to be placed between the uprights of the mast or outside the running lines of the forklift.
- g. When a forklift is left unattended, load engaging means shall be fully lowered, controls shall be neutralized, power shall be shut off, and brakes set.
- h. Wheels shall be blocked if the forklift is parked on an incline.
- i. A forklift is unattended when the operator is 25 ft. or more away from the vehicle, which remains in view, or whenever the operator leaves the forklift, and it is not in view.
- j. When the operator of a forklift is dismounted and within 25 ft. of the forklift still in view, the load engaging means shall be fully lowered, controls neutralized, and the brakes set to prevent movement.
- k. A safe distance shall be maintained from the edge of ramps or platforms while on any elevated dock, or platform or freight car.
- l. Forklifts shall not be used for opening or closing freight doors.
- m. Brakes shall be set, and wheel blocks shall be in place to prevent movement of trucks, trailers, or railroad cars while loading or unloading.
- n. Fixed jacks may be necessary to support a semi-trailer during loading or unloading when the trailer is not coupled to a tractor.

- o. The flooring of trucks, trailers, and railroad cars shall be checked for breaks and weakness before they are driven onto.
  - p. There shall be sufficient headroom under overhead installations, lights, pipes, sprinkler system, etc.
  - q. An overhead guard (cages) shall be used as protection against falling objects.
  - r. An overhead guard is intended to offer protection from the impact of small packages, boxes, bagged material, etc., representative of the job application, but not to withstand the impact of a falling capacity load.
  - s. Fire aisles, access to stairways, and fire equipment shall be kept clear.
2. Traveling
- a. The operator shall slow down and sound the horn at cross aisles and other locations where vision is obstructed.
  - b. If the load being carried obstructs forward view, the operator shall be required to travel with the load trailing.
  - c. The operator shall be required to look in the direction of, and keep a clear view of the path of travel.
  - d. Grades shall be ascended or descended slowly.
  - e. When ascending or descending grades more than 10 percent, loaded forklifts shall be driven with the load upgrade.
  - f. On all grades, the load and load engaging means shall be tilted back if applicable and raised only as far as necessary to clear the road surface.
  - g. Under all travel conditions, the forklift shall be operated at a speed that will permit it to be brought to a stop safely.
  - h. Stunt driving and horseplay are prohibited.
  - i. The operator shall slow down for wet and slippery floors.
  - j. Dock board or bridge plates shall be properly secured before they are driven over.
  - k. Dock board or bridge plates shall be driven over carefully and slowly, and their rated capacity never exceeded.
  - l. While negotiating turns, speed shall be reduced to a safe level by turning the hand steering wheel in a smooth, sweeping motion.
  - m. Except when maneuvering at a very low speed, the hand steering wheel shall be turned at a moderate, even rate.
3. Loading
- a. Only stable or safely arranged loads shall be handled.
  - b. Caution shall be exercised when handling off-center loads, which cannot be centered.
  - c. Only loads within the rated capacity of the forklift shall be handled.
  - d. Forklifts equipped with attachments shall be operated as partially loaded forklifts when not handling a load.
  - e. A load engaging means shall be placed under the load as far as possible; the mast shall be carefully tilted backward to stabilize the load.
  - f. Extreme care shall be used when tilting the load forward or backward, particularly when high tiering.
  - g. Tilting forward with load engaging means elevated shall be prohibited except to pick up a load.

- h. An elevated load shall not be tilted forward except when the load is in a deposit position over a rack or stack.
  - i. When stacking or tiering, only enough backward tilt to stabilize the load shall be used.
4. Operation of the Forklift
- a. If at any time a forklift is found to be in need of repair, defective, or in any way unsafe, the forklift shall be taken out of service until it has been restored to a safe operating condition.
  - b. Fuel tanks shall not be filled while the engine is running.
  - c. Spillage of oil or fuel shall be carefully washed away or completely evaporated and the fuel tank cap replaced before restarting the engine.
  - d. When fueling with Liquefied Petroleum Gas (LPG), precautions and handling requirements outlined in the "Safe Handling of LPG" program shall be followed.
  - e. No forklift shall be operated with a leak in the fuel system.
  - f. Open flames shall not be used for checking electrolyte level in storage batteries or gasoline level in fuel tanks.
  - g. The operator must verify trailer chocks, supports, and dock plates are secured before loading/unloading.
5. Maintenance of Forklifts
- a. Only authorized personnel shall perform maintenance, and make repairs.
  - b. Those repairs to the fuel and ignition systems of forklifts, which involve fire hazards, shall be conducted only in locations designated for such repairs.
  - c. Forklifts in need of repairs to the electrical system shall have the battery disconnected before such repairs.
  - d. Only parts equivalent with those used in the original design shall replace all parts of any forklift requiring replacement parts.
  - e. Forklifts shall 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 shall they be altered either by the addition of extra parts not provided by the manufacturer or by the elimination of any parts.
  - f. An additional counterweighting of fork trucks shall not be done unless approved by the truck manufacturer.
  - g. Forklifts shall be inspected before being placed in service, and shall not be placed in service if the inspection shows any condition adversely affecting the safety of the forklift.
  - h. An inspection shall be made at least daily – before each shift. (visual – non-documented) Inspection items shall be posted on each forklift. Operators must ensure the vehicle is safe before operating.
  - i. Where forklifts are used on a round-the-clock basis, they shall be inspected before each shift.
  - j. Defects, when found, shall be immediately reported to the supervisor, and corrected before operating the forklift.
  - k. When the temperature of any part of any forklift is found to be over its normal operating temperature, thus creating a hazardous condition, the forklift shall be removed from service and not returned to service until the cause for such overheating has been eliminated.



- l. Forklifts shall be kept in a clean condition, free of lint, excess oil, and grease.
- m. Noncombustible agents, where at all possible, shall be used for cleaning trucks.
- n. Low flash point (below 100 degrees F.) solvents shall not be used.
- o. High flash point (at or above 100 degrees F.) solvents may be used if precautions regarding toxicity, ventilation, and fire hazard are mitigated with the agent or solvent used.

## ***SECTION 8***

### ***JOBSITE SECURITY PLAN: General***

---

#### **PURPOSE**

To provide guidelines for the prevention of theft, vandalism and liability exposures

#### **SCOPE**

Applies to all SCI personnel on the project.

#### **RESPONSIBILITY**

The Project General Superintendent will assure that these procedures are followed.

The SCI designated representative for security will be the Site Safety Supervisor.

#### **PROCEDURES**

1. ORC, its subcontractors, and vendors will adhere to the site security plan as established and administered by the Project Manager.
2. All employees will wear identification badges (*site specific*). This identification will include employee number, photo, name and company logo.
3. Vehicles on site will have the company's name (i.e., ORC) on the sides. This marking will be legible from a distance of 50 feet.
4. Only those SCI and related company's vehicles, which are *necessary for the administration or construction of the facility*, will be authorized access to the work areas. SCI will maintain a listing showing pass number, expiration date and company name of vehicles approved by Project Manager to be used on the site.
5. All equipment parked on the job site will be left in an orderly fashion. Whenever possible, doors will be locked, and keys pulled.
6. Any storage containers on the job sites will have security winches and round American Locks with protective hasps.
7. All office trailers will have window and door guards and will also be locked with a round American lock and protective hasp.
8. Project Foremen will be responsible for the daily security measures and barricades while Operators will be responsible for the lock-up of their equipment.
9. An area will be set up for employee parking. No unauthorized personal vehicles will be allowed on the job site. Any vehicle, lunch-box, toolbox, etc. brought onto and off of the job site may be subject to search.
10. Any theft or vandalism must be reported immediately. The SCI Site Safety Supervisor will complete the theft or vandalism report and submit a copy to the Project Safety Manager.
11. Use and operation of company vehicles will be in strict accordance with project vehicle policies and site safety requirements.

## ***JOBSITE SECURITY PLAN***

### ***THEFT AND VANDALISM POLICY***

---

#### **PURPOSE**

Prevention of theft and vandalism of SCI property.

#### **SCOPE**

Applies to all companies, areas, projects, and employees within ORC

#### **RESPONSIBILITIES**

The Superintendent will ensure this policy is implemented in its entirety.

#### **PROCEDURES**

##### **A. Storage Yard**

1. Yard fence installed and maintained in good condition
2. Barbed wire installed around the top of the fence
3. Minimum clearance between and under gate – if someone could crawl between or
4. underneath, either adjust gate or fill in with gravel
5. Night security light(s) installed and operating
6. Equipment and material stored far enough away from inside of the fence to avoid aiding in unlawful entry
7. Minimum of 3/8-inch alloy chain used to secure gates

##### **B. Locks**

1. Round American #2000 locks or equal to be used on office trailers and containers
2. American #5570 locks or equal on gates, tool vans, fuel tanks and gang boxes
3. Master locks or equal to be used on equipment
4. Limited assignment of keys to Supervisors and Foremen
5. Log kept of key assignment (Locks)
6. Keys collected at layoff and reassigned at start-up
7. Locks on gang boxes not exposed to bolt cutters or easy prying

##### **C. Office Trailers and Parts Vans**

1. Wire grates installed on windows of office trailers (If leased, request the owner to install grates.)
2. Keyboards are hidden and locked in desk or file cabinet at night (Keys shall not be hanging on a wall in plain sight.)
3. Office trailers locked when unattended
4. Parts-van locked when unattended
5. New cable and winch installed and used to secure doors of tool van and containers
6. Winch handle removed and secured each night

##### **D. Heavy Equipment**

1. All gas, oil and radiator caps locked
2. Metal window guards with lock-nuts or bolts installed on windows each night
3. Gauge covers in place and locked
4. Master switches, (2 types) installed on all cranes
5. Keys removed from equipment and kept in field office at night (Keys should not be hidden in equipment or taken home by the operator).

**E. Small Equipment and Tools**

1. Trailer equipment stored inside fenced yard (i.e., generators, welder and air compressors)
2. An anti-theft device installed on trailer hitch(es) at night
3. Gauge and torches removed from welding cylinders each night
4. Chainsaws and other small equipment not left in an unlocked office trailer or unlocked tool trailer during working hours
5. The serial number recorded on all small tools purchased by the job. JB ID decals also on this equipment.

**F. Miscellaneous**

1. Lumber stored inside a fenced yard.
2. Lumber banded and weight on top.
3. Fuel Supplies locked during working hours.
4. Employee parking lot set up outside of the fenced yard.
5. Adequate gang boxes available to lock up all small equipment.
6. Extra American and Master Locks or equal are available in the field office.
7. Contact police and fire department so they know our location and who to contact if needed.

**G. Reporting**

1. If theft or vandalism occurs, appropriate forms need to be completed. See 8.0.2 and 80.3 for forms. Follow-up with local authorities is also important.

**JOBSITE SECURITY PLAN**

**THEFT REPORT**

1. Project No. \_\_\_\_\_ Division \_\_\_\_\_

2. Date of Theft: Day \_\_\_\_\_ Month \_\_\_\_\_ Year \_\_\_\_\_

3. Date of Week of Theft \_\_\_\_\_ Was Theft Made During Day \_\_\_ or Night \_\_\_\_\_

4. Was A Guard Present On Project at Time of Theft \_\_\_\_\_

5. Was Theft Reported to Police \_\_\_\_\_ Where \_\_\_\_\_

6. Was Equipment Marked with SCI Identification Number \_\_\_\_\_

7. From What Type of Storage Area Was Equipment Stolen \_\_\_\_\_

8. List Equipment Stolen and Its Approximate Value:

A. \_\_\_\_\_ \$ \_\_\_\_\_

B. \_\_\_\_\_ \$ \_\_\_\_\_

C. \_\_\_\_\_ \$ \_\_\_\_\_

D. \_\_\_\_\_ \$ \_\_\_\_\_

E. \_\_\_\_\_ \$ \_\_\_\_\_

F. \_\_\_\_\_ \$ \_\_\_\_\_

G. \_\_\_\_\_ \$ \_\_\_\_\_

H. \_\_\_\_\_ \$ \_\_\_\_\_

TOTAL COST OF EQUIPMENT \$ \_\_\_\_\_

9. Remarks \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Name of Employee Making This Report: \_\_\_\_\_

**JOBSITE SECURITY PLAN**

**VANDALISM REPORT**

Project No. \_\_\_\_\_

1. Date of Vandalism \_\_\_\_\_ 2. Project No. \_\_\_\_\_

3. Division Involved \_\_\_\_\_

4. List Unit Number of Equipment Damaged \_\_\_\_\_

5. Was Vandalism Reported to Police: \_\_\_\_\_ Where: \_\_\_\_\_

6. Total Number of Hours Taken to Repair Equipment:

A. Johnson Employees – Hours \_\_\_\_\_ Rate \_\_\_\_\_ Total Cost\$ \_\_\_\_\_

B. Outside Labor - Hours \_\_\_\_\_ Rate \_\_\_\_\_ Total Cost \$ \_\_\_\_\_

7. List Supplies Destroyed or Damaged and Replacement Cost:

A. \_\_\_\_\_ \$ \_\_\_\_\_

B. \_\_\_\_\_ \$ \_\_\_\_\_

C. \_\_\_\_\_ \$ \_\_\_\_\_

8. List Parts and Supplies Purchased to Repair Vandalism:

A. Supplier \_\_\_\_\_ Invoice No. \_\_\_\_\_ \$ \_\_\_\_\_

B. Supplier \_\_\_\_\_ Invoice No. \_\_\_\_\_ \$ \_\_\_\_\_

C. Supplier \_\_\_\_\_ Invoice No. \_\_\_\_\_ \$ \_\_\_\_\_

D. Supplier \_\_\_\_\_ Invoice No. \_\_\_\_\_ \$ \_\_\_\_\_

9. Remarks: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

10. Total Number of Hours Machine Down:

Cost Per Hours \$ \_\_\_\_\_ Total Hours \_\_\_\_\_ Total Cost \$ \_\_\_\_\_

11. Signature of Superintendent in Charge \_\_\_\_\_

12. Name of Employee Making This Report \_\_\_\_\_

Total Cost \$ \_\_\_\_\_

**JOBSITE SECURITY PLAN**

**SEMI-ANNUAL PROJECT SECURITY AUDIT**

Project \_\_\_\_\_ Location \_\_\_\_\_

Audit Performed by \_\_\_\_\_ Date \_\_\_\_\_

Electronic Security Equipment	<u>Yes</u>	<u>No</u>
In Office	_____	_____
Yard Beams	_____	_____
Tool Vans or Containers (If not protected by yard beams)	_____	_____
Crane on Barge	_____	_____

Explain the reason for any items marked "No" above:

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For items listed on reverse side explain those marked "No":

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Site Safety Supervisor or Superintendent shall initial, date, and return the original of this audit to the Safety Department when all "NO" items are either explained or corrected.

(OVER)

STORAGE YARD

1. Yard fence installed and maintained in good condition.
2. Barbed wire installed around the top of the fence.
3. Minimum clearance between and under the gate. If someone could crawl between or underneath, either adjust gate or fill in with gravel.
4. Night security light(s) installed and operating.
5. Equipment and material stored far enough away from inside of the fence to not aid in unlawful entry.
6. Minimum 3/8" alloy chain used to secure gates.

LOCKS

7. Round American #2000 locks being used on office trailers and containers.
8. American #5570 locks on gates, tool vans, fuel tanks and gang boxes.
9. Master locks being used on equipment.
10. Limited assignment of keys to supervisors and foremen.
11. Log kept of key assignment (both American & Master).
12. Keys collected at layoff and reassigned at start-up.
13. Locks on gang boxes not exposed to bolt cutters or easy prying.

OFFICE TRAILERS AND PARTS VANS

14. Wire grates installed on windows of office trailers. (If leased, request the owner to install grates.)
15. Keyboards are hidden and locked in desk or file cabinet at night. (It shall not be hanging on a wall in plain sight.)
16. Office trailers locked when unattended.
17. Parts-van locked when unattended.
18. New (1992) cable and winch installed and used to secure doors of tool van and containers.
19. Winch handle removed and secured each night.

HEAVY EQUIPMENT

20. All gas, oil and radiator caps locked.
21. Metal window guards with lock-nuts or bolts installed on windows each night.
22. Gauge covers in place and locked.
23. Master switches, (2 types) installed on all cranes.
24. Keys removed from equipment and kept in field office at night. (Keys should not be hidden in equipment or taken home by the operator.)

SMALL EQUIPMENT AND TOOLS

25. Trailer equipment stored inside fenced yard (i.e., generators, welder and air compressors).
26. Trailer hitch anti-theft device installed on trailer ring(s) at night.
27. Gauge and torches removed from welding cylinders each night.
28. Chainsaws and other small equipment not left in an unlocked office trailer or unlocked tool trailer during working hours.
29. The serial number recorded on all small tools purchased by the job. JB ID decals also on this equipment.

MISCELLANEOUS

30. Lumber stored inside a fenced yard.
31. Lumber banded and weight on top.
32. Gas barrel locked during working hours.
33. Employee parking lot set up outside of the fenced yard.
34. Adequate gang boxes available to lock up all small equipment.
35. Extra American and Master Locks or equal available in the field office.
36. Contact police and fire department so they know our location and who to contact if needed.



## ***SECTION 9***

### ***EMERGENCY PROGRAM: General***

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#### **PURPOSE**

To establish a minimum standard to follow during emergency conditions.

#### **SCOPE**

Applies to SCI and its' subcontractors associated with and performing work on the Project.

#### **PROCEDURE**

In the event of a bomb threat, follow *9.1 – Bomb Threat Procedure*

Likewise, the procedures outlined in *9.2* will be followed during adverse thunderstorms, lighting, and tornado conditions.

## ***EMERGENCY PROGRAM***

### ***BOMB THREAT PROCEDURE***

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#### **PURPOSE**

To establish guidelines for bomb threats.

#### **SCOPE**

Applies to SCI and its' subcontractors associated with and performing work on the Project.

#### **PROCEDURE**

Bomb threats are generally received through telephone messages. At the time the telephone call is received it is almost impossible to determine the validity of the threat. Prompt, decisive action is required. Information derived from the calling party will prove invaluable and will direct subsequent action to be taken.

1. Try to get the following information:
  - a. Location of the bomb – by building, unit, or area.
  - b. Time the bomb is set to go off.
  - c. Has the bomb been placed in the open? Is it concealed? Is it disguised?
  - d. Type of bomb.
  - e. How did it get into the facility (mail or hand carried)?
  - f. Why was it put there?
  - g. Identification of the caller (experience has indicated that on numerous occasions when a caller is asked their name, they will respond automatically).
  - h. Exact message.

See 9.1.1 Card to refer to and complete when a bomb threat message is received.
2. You should try to obtain the above information; however, the caller usually delivers the message and hangs up. In light of this, there are two rules which apply when handling such calls:
  - a. Be particularly attentive so you can recall precisely every single statement made by the caller.
  - b. Determine as much as possible about the caller, such as:
    1. Sex
    2. Approximate age
    3. Education (judge from grammar)
    4. Nationality
    5. Mental or emotional stability
    6. Characteristics of voice (hoarse, high-pitched, calm)
    7. Knowledge of the facility and its personnel
    8. Background noises (trucks, traffic, tavern noise, TV)

3. After obtaining as much information from the caller as possible, the employee receiving the call will dial the Project Security to relay the information and begin the notification process. **Do not use the radio** as this may cause confusion.

After the Project Security has been called and pertinent information passed on, notify the Site Safety Supervisor.

**BOMB THREAT – WHAT TO ASK**

**PLACE THIS CARD NEXT TO YOUR TELEPHONE**

**QUESTIONS TO ASK**

- 1. When is the bomb going to explode?
- 2. Where is it right now?
- 3. What does it look like?
- 4. What kind of bomb is it?
- 5. What will cause it to explode?
- 6. Did you place the bomb?
- 7. Why?
- 8. What is your address?
- 9. What is your name?

**EXACT WORDING OF THE THREAT:**

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**Sex of the caller:** \_\_\_\_\_

**Race:** \_\_\_\_\_

**Age:** \_\_\_\_\_

**Length of Call:** \_\_\_\_\_

**The number at which call is received:** \_\_\_\_\_

**Time:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**CALLER'S VOICE:**

- |                                    |  |
|------------------------------------|--|
| <input type="checkbox"/> Calm      | <input type="checkbox"/> Nasal           |
| <input type="checkbox"/> Angry     | <input type="checkbox"/> Stutter         |
| <input type="checkbox"/> Excited   | <input type="checkbox"/> Lisp            |
| <input type="checkbox"/> Slow      | <input type="checkbox"/> Raspy           |
| <input type="checkbox"/> Rapid     | <input type="checkbox"/> Deep            |
| <input type="checkbox"/> Soft      | <input type="checkbox"/> Ragged          |
| <input type="checkbox"/> Loud      | <input type="checkbox"/> Clearing Throat |
| <input type="checkbox"/> Laughing  | <input type="checkbox"/> Deep Breathing  |
| <input type="checkbox"/> Crying    | <input type="checkbox"/> Crackling Voice |
| <input type="checkbox"/> Normal    | <input type="checkbox"/> Disguised       |
| <input type="checkbox"/> Distinct  | <input type="checkbox"/> Accent          |
| <input type="checkbox"/> Slurred   | <input type="checkbox"/> Familiar        |
| <input type="checkbox"/> Whispered |  |

**If the voice is familiar, whose did it sound like?**

**BACKGROUND SOUNDS**

- |  |  |
|--|--|
| <input type="checkbox"/> Street Noises     | <input type="checkbox"/> State         |
| <input type="checkbox"/> Factory Machinery | <input type="checkbox"/> Local         |
| <input type="checkbox"/> Crockery          | <input type="checkbox"/> Long Distance |
| <input type="checkbox"/> Voices            | <input type="checkbox"/> Both          |
| <input type="checkbox"/> PA System         | <input type="checkbox"/> Animal Noises |
| <input type="checkbox"/> Music             | <input type="checkbox"/> House Noises  |
| <input type="checkbox"/> Motor Noises      | <input type="checkbox"/> Other _____   |
| <input type="checkbox"/> Office Machinery  |  |

**THREAT LANGUAGE**

- |  |   |
|--|---|
| <input type="checkbox"/> Irrational                | <input type="checkbox"/> Incoherent                   |
| <input type="checkbox"/> Foul                      | <input type="checkbox"/> Taped                        |
| <input type="checkbox"/> Well Spoken<br>(Educated) | <input type="checkbox"/> Message read<br>threat maker |

REMARKS: \_\_\_\_\_

## ***EMERGENCY PROGRAM***

### ***THUNDERSTORM, LIGHTNING & TORNADO STORM PROCEDURE***

---

#### **PURPOSE**

To provide guidelines for protecting employees and equipment during thunder, lightning, and tornado storms.

#### **SC-OPE**

Applicable to all projects in all states.

#### **RESPONSIBILITY**

The Superintendent will monitor storms as they appear (using NOAA weather reports at weather.gov) and implement these procedures as necessary. The Superintendent, or in his absence, the Foreman, will also have the authority to suspend operations when lightning has been detected in a 10-mile radius of the project work activities. Work activities should be suspended for at least 30 minutes after hearing the last sound of thunder or it has been determined the storm(s) has passed.

#### **DEFINITIONS**

**Weather Watch** – Issued when conditions are favorable for the formation of thunderstorms, lightning, and tornados.

**Weather Warning** – Issued when the storm has been sighted or located on radar.

Note: Storms can rush, and there may not be time for the formal issuing of a "Warning."

#### **PROCEDURES**

1. Prior to beginning outdoor work supervisor should check NOAA weather reports (weather.gov) and forecasts for weather hazards.
  - a. Ensure workers understand what actions to take after hearing thunder, seeing lightning, or perceiving any other warning signs.
  - b. Ensure employees know the locations and requirements for safe shelter.
  - c. Indicate response times for all employees to reach safe shelters.
  - d. Account for the time required to evacuate to reach safety.
2. Stay informed – A Thunderstorm (Cumulonimbus Cloud) is an individual weather factory and has four (4) distinct characteristics: anvil top, main body, roll cloud, and dark area extend from base of cloud to the earth.
3. If storms develop pay close attention to local television, radio, and internet weather reports, forecasts and emergency notifications regarding thunderstorm activity and severe weather.
4. Seek shelter (see section 9.2 (A) for refuge/protection for storm(s)).
5. Remain in shelter for at least 30 minutes after hearing the last sound of thunder or it has been determined the storm(s) has passed.

These storms move at approximately 25 miles per hour and usually travel from the southwest to the northeast, typically in an east-northeast direction. However, there is no guarantee to this. *The above is intended as a guide to what physical characteristics might be seen in a thunderstorm (Cumulonimbus Cloud).*

Tornadoes are closely associated with Cumulonimbus Clouds for these clouds are their spawning ground. (Tornadoes occur most frequently in the spring)

6. Watch and respond to cloud/weather formations
7. Listen to local weather advisories

If within declared **WATCH** area begin evaluating ways to protect employees and equipment so if a **WARNING** is issued or severe weather is imminent the following guidelines can be implemented:

#### **A. THUNDER AND LIGHTNING STORMS**

- | <u>Exposure</u>   | <u>Refuge/Protection</u>  |
|---|---|
| 1. Employee   | Under a bridge or other structure; inside office, tool van, vehicle; move away from open areas; stay away from natural lightning rods (poles, cranes, trees, etc.)  |
| 2. Land Crane   | Where possible boom down; operator stay in Enclosed cab; other employees stay away from the crane.  |
| 3. Barged Crane   | Where possible boom down; operator stay in enclosed cab; deckhands evacuate barge or into container/tool van; if crane not tied down, lower headache ball onto the deck or into the water to bypass mats to ground. |
| 4. Misc. Equipment  | Avoid open areas; operator stay in the cab (only with metal top).   |
| 1. <u>General Precautions</u>   |   |
| a. Discontinue the use of electrical tools during lightning storms.   |   |
| b. Hand tools, crowbars, etc., over 9 inches long could act as an antenna for lightning discharge.                                      |   |
| c. In open areas, be a small target. Squat low to the ground – do not lay on the ground.  |   |
| d. Get off and away from open water.  |   |
| e. Stay away from metal parts that could carry a current.   |   |
| f. Get off elevated structures (pier caps, bridge decks, structural steel, roofs, JLG's, etc.).   |   |
| g. Do not go to a tree for shelter if in a wooded area; stay away from the more massive trees.  |   |
| h. First aid for lightning; Call for help – Check breathing (CPR if needed) – Check for burns – Get medical attention.                  |   |
| i. After the storm, watch out for downed powerlines and snakes.   |   |
| j. If a piece of equipment has been struck by lightning, be sure to have it checked out thoroughly before putting it back into service. |   |

#### **B. TORNADOES**

- | <u>Exposure</u>  | <u>Refuge/Protection</u>   |
|--|--|
| 1. Employees   | Seek stable refuge (bridge abutment, lower level of the building). If an open area, lie flat in a ditch. <u>Do not</u> seek shelter in vans, trailers, or equipment. |
| 2. Cranes and Equipment  | Boom-down, lock house rotation, barricade windows, operator evacuated.   |
| 3. Materials   | Bundle, weight down, blockade as much as possible. Secure bridge deck overhangs.   |
| 1. <u>General Precautions</u>  |  |
| a. Never seek shelter in anything portable, i.e., trailers, tool vans, container, vehicles, equipment. |  |
| b. Do not try to outrun a tornado in a vehicle.  |  |
| c. Low lying area is the only refuge, lie flat and beware of flooding potential and protect the head.  |  |
| d. Watch out for damaged/downed powerlines and snakes after the storm has passed.                      |  |

*NOTE: Refer to Southland Contracting Hurricane Protection Procedures for hurricane information.*

## ***EMERGENCY PROGRAM***

### ***HURRICANE DAMAGE PREVENTION PROGRAM***

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#### **PURPOSE**

To minimize damage and loss to SCI property, equipment, and materials in the event of a hurricane.

#### **SCOPE**

Applies to all projects located on or near the Gulf of Mexico or small waterways that can be impacted by hurricane force winds and flooding.

#### **RESPONSIBILITIES**

The Project Superintendent will be responsible for assuring this program is implemented in its entirety.

#### **PROCEDURES**

##### **A. Preliminary**

The hurricane season is typically June through November. Before this season the Superintendent shall ensure all containers and trailers that will not be located are tied down and secure.

The Superintendent shall also review Phase II and III as well as the hurricane checklist (9.3.1) and obtain the appropriate tie down, blockings, anchors, and other supplies.

If the Project involves barges and tugs, preliminary investigations and plans shall be made regarding where to relocate and protect the watercraft. Attention shall be paid to the amount of time it would take to complete this task.

##### **B. PHASE I**

When a tropical storm or hurricane has formed, the activity and location will be tracked.

Organize necessary supplies to protect SCI material and equipment, i.e., cables with eyes, soil anchors, Manta Ray anchors, etc.

##### **C. PHASE II**

When the National Weather Service has issued a **HURRICANE WATCH** for the area of the job site, the Project Superintendent will implement the following actions:

1. Develop a plan for protection by reviewing the Hurricane Damage Prevention Checklist (9.3.1)
2. Identify all items which may need to be tied or weighed down including, but not limited to:
 

-Trailers	-Toilets	-Lumber
-Containers	-Fuel Tanks	-Permanent Materials
3. Identify and determine the best way to protect SCI heavy equipment, welders, generators, compressors, boats, tugs, barges, office equipment, small tools, and project files.

Our goal is to prevent loss of property and adjacent property due to wind, floods, mud, and theft.

##### **D. PHASE III**

When a **HURRICANE WARNING** has been issued, indicating the potential for hurricane force winds for the project area within 24 hours, the Superintendent shall implement the following actions:

1. Review the areas identified in Phase II and the Hurricane Damage Prevention Checklist (9.3.1) with the Project Manager.



2. If a hurricane is predicted for the weekend, adequate personnel shall be placed on standby.
3. Begin implementation of any damage prevention that cannot be completed within 12 hours.
4. Except as noted above, continue normal project work activities.

*NOTE: Depending on the severity or predicted the level of the hurricane, implementation of all protection measures might need to begin during this phase to ensure employees will have ample time to prepare their property and family.*

**E. PHASE IV**

When weather advisories predict **LANDFALL** in the proximate area of the project within twelve (12) hours:

1. Suspend all normal project work activities.
2. Complete implementation of the hurricane plan by assigning staff and timetables for completion.
3. All personnel evacuated.

**F. PHASE V**

After the storm has passed, damage assessment, theft prevention, and clean-up will be the primary activities. Items to consider include:

1. Potential for snakes and other wildlife dislocated by flooding.
2. Downed power-lines that may be energized.
3. Wet or damaged electrical panels.
4. Instability of structures.
5. Document damages (photos and written)
6. Check/Clean engines thoroughly before restarting.

**EMERGENCY PROGRAM**

**HURRICANE DAMAGE PREVENTION CHECKLIST**

**Areas of Protection to Consider**

- 1) The goal is to prevent damage from wind, flood, and theft.
- 2) As much as feasible, material and equipment shall be moved to higher and protected ground.
  - \* Anything on flood-side of levee moved behind the levee
  - \* Barges moved inland or into the protection of the Bayou
  - \* Relocate to elevated bridge structure (container, equipment, material)
  - \* Band and bundle lumber and other materials
  - \* Place small tools, office equipment, files, etc., into a secure container
  - \* Remote fenced yard
  - \* Move equipment off barges
  - \* Determine if barges should be sunk
  - \* Containers & tool vans
- 3) Considerations for protecting engines include covering exhaust, air cleaners, and vents. Also, secure all caps.

ITEMS TO PROTECT	VALID EXPOSURE			HOW TO PROTECT		
	Yes	No	Tie Down	Cover	Relocate	(Where)
Computer						
Phones, Copiers & Fax Machines						
Files						
Radios and Charges						
Containers/Tool vans						
Equipment						
Window Guards						
Engines Protected						
Generators						
Compressors						
Welders						
Crane Booms Secure						
Cranes of Barge						
Barges						
Tug Boats						
Fuel Tanks						
Materials						
Wood						
Forms						
Small Tools						
Work in Progress						
Bridge Deck Overhangs						
Permanent Materials						

## ***SECTION 10 - SAFE WORK PRACTICES***

### ***STOP WORK AUTHORITY***

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#### **PURPOSE**

Establishing a culture where individuals have the ability to stop unsafe actions and conditions immediately for themselves or others without the potential for retribution.

#### **SCOPE**

Applies to all ORC. employees, its subcontractors and other employers associated with and performing work on the Project.

#### **RESPONSIBILITIES**

##### **A. Senior Management:**

1. Create a culture that promotes Stop Work Authority.
2. Establish clear expectations and responsibilities.
3. Demonstrates support for using Stop Work Authority without the potential for retribution.
4. Resolves Stop Work Authority conflicts when they arise.
5. Holds employees and contractors accountable for full compliance with the Stop Work Authority program.

##### **B. Supervisors**

1. Promotes a culture where Stop Work Authority is freely exercised.
2. Stop Work Authority requests are honored and resolved before resuming operations.
3. Ensures necessary stop work follow-up is completed.

##### **C. Safety Department**

1. Provides training, support, documentation and monitors compliance of the Stop Work Authority program.

##### **D. Employees**

1. Initiate stop work (in good faith) and support stop work initiated by others.

#### **Situations That May Require A Stop Work Authority**

Stop Work Authority should be initiated for conditions or behaviors that threaten danger or imminent danger to persons, equipment, or the environment. Situations that warrant a Stop Work Authority may include, but are not limited to the following:

- Alarms
- Change in conditions
- Changes to scope of work or work plan
- Emergency
- Equipment used improperly in a dangerous manner
- Lack of knowledge, understanding or information
- Near-miss incident
- Unsafe conditions

#### **Stop Work Authority Procedures**

1. **Stop** – When an employee perceives conditions or behaviors that pose imminent danger to person/persons, equipment, or environment he/she must immediately initiate a stop work intervention with the person/persons potentially at risk.

If the supervisor is readily available and the affected person(s), equipment, or environment is not in imminent danger, coordinate the stop work action through the supervisor. “Stop Work” interventions should be initiated in a positive manner by introduction and using the phrase “I am using my stop work authority because...”. Using this phrase will clarify the users’ intent and set expectations as detailed in this procedure.

2. **Notify** – Notify affected personnel and supervision of the stop work action. If necessary, stop the work activities that are associated with the work area in question. Make the area as safe as possible by removing personnel and stabilizing the situation.
3. **Investigate** – Affected personnel will discuss the situation and come to an agreement on the stop work action. If all parties come to an agreement the condition or behavior is safe to proceed with modifications, (e.g. the initiator was unaware of certain information or circumstances), the affected persons should show appreciation to the Stop Work Authority initiator for their concern and then resume work. The Stop Work Authority is complete, and no further steps are needed.

If it is determined and agreed the Stop Work Authority is valid, A Stop Work Issuance Form will be completed. The conditions or behaviors that pose threats or imminent danger to persons, equipment, or the environment must be resolved before restarting work. Work will be suspended until a proper resolution is achieved. When opinions differ regarding the validity of the stop work issue or adequacy of the resolution actions, the Project Manager/ Site Safety Manager shall make the final determination.

4. **Correct** – Modifications to the affected area(s) will be made according to the corrections outlined in the Stop Work Issuance Form. The affected area(s) will then be inspected by qualified persons to verify completeness of the modifications and to verify all safety issues have been properly resolved. The completion of modifications will then be noted on the Stop Work Issuance Form.
  5. **Resume** – The affected areas will be reopened for work by personnel with restart authority. All affected employees and contractors will be notified of what corrective actions were implemented and that work will recommence.
  6. **Follow-Up** – Project Management will provide the root cause analysis to the stop work action and identify any potential opportunities for improvement. The Safety Manager will publish the incident details regarding the stop work action to all Operations Managers and employees outlining the issue, corrective action, and lessons learned. Management will promptly review all stop work reports to identify any additional investigation or required follow-up.
- ***EVERYONE** has stop work authority and is expected to use it whenever they see something they believe to be unsafe.*
  - ***EVERYONE** is responsible for their own safety and should not do anything they believe to be unsafe.*
  - ***EVERYONE** has the responsibility for their co-worker’s safety and should not let them do anything unsafe.*
  - ***EVERYONE** is responsible for reporting all safety incidents to their supervisor, including injuries, or accidents they are involved in.*
  - ***EVERYONE** is expected to report all safety concerns to their supervisor, safety committee, or safety representative. If necessary, elevate the concerns through any other available avenues within the company.*

## ***SAFE WORK PRACTICES***

### ***SAFE WORK PRACTICES: General***

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#### **PURPOSE**

Establish minimum safe work practices for SCI and its subcontractors

#### **SCOPE**

Applies to ORC, its subcontractors and other employers associated with and performing work on the Project.

#### **RESPONSIBILITIES**

SCI Supervisors, through the direction and leadership of the General Superintendent and Site Safety Supervisor, will see that these safe work practices are adhered to at all times.

#### **PROCEDURES**

##### **A. Assured Grounding Program**

Refer to Electrical Safety and GFCI Program for SCI written Ground Fault Circuit Interrupter (GFCI) program.

##### **B. Health and Hygiene**

###### **1. Washing Facilities**

a. Washing facilities shall be provided for employees who are using or handling materials, chemicals, or other substances that could create a health hazard due to ingestion or dermal exposure. If water is not readily available, then hand sanitizer may be used.

###### **2. Portable Commodes**

a. Employees shall use portable commodes (toilets) provided for the number of personnel on the Project.

###### **3. Drinking Water**

a. An adequate supply of potable water shall be provided. Cool water shall be provided during hot weather. Drinking water shall be supplied from an approved source.

b. Drinking water shall be dispensed by means that prevent contamination between the consumer and source.

c. Portable drinking water dispensers shall be designed, constructed, and serviced to ensure sanitary conditions, shall be capable of being closed and shall have a tap. Containers shall be marked as to their contents and shall not be used for other purposes. Water shall not be dipped from containers.

d. Use of a common cup (a cup shared by more than one worker) is prohibited. Employees shall use disposable cups when drinking from potable water coolers/containers. Unused disposable cups shall be kept in sanitary containers, and a waste receptacle shall be provided for used cups.

###### **4. Eating Facilities**

a. Employees will eat only in designated and approved areas.

b. Employees eating areas shall be kept clear and clean of lunch scraps and associated food containers and wrappers.

### **C. Barricades**

The employee designated for erecting and maintaining barricades that are required for employee protection, establishing boundaries around equipment or materials to prevent potential damage, and around floor, roof or ground openings.

1. Barricade Tape

Barricade tape shall be used for its intended purpose according to approved methods. Upon completion of the work being performed, the barricade must be removed. Barricade tape shall not be used as a substitute for handrails or guards around open holes except for a temporary basis until the barricade can be installed or during times when the barricade must be removed for access.

2. Road Barricades

Road barricades, signs, detours, and other traffic control systems must be in conformance with regulatory and Project requirements.

### **D. Signs and Tags**

Signs and Tags shall be in conformance with regulations, Project Safety and Health procedures, restrictions and requirements as to use, colors, posting, wording, and size.

1. A designated Project representative is responsible for authorizing the posting of signs on the Project relative to warnings, precautions, notices and other information pertinent to employees, road access ways and closures following Project procedures.

2. The designated employee responsible for posting or displaying signs relative to their scope of work, i.e., signs required at a compressed gas cylinder storage area.

### **E. Scaffolds and Platforms**

Scaffolds – Refer to Section 10.15 – Scaffold Tagging Procedure

Crane Suspended Work Platforms – Working from a personnel basket or work platform suspended from a mobile crane must be approved for the use.

### **F. Floor, Roof, Wall, and Platform Openings**

Proper precautions must be taken to ensure that floor, roof, wall, and platform openings are guarded or covered. This includes the installation of temporary handrails, mid-rails, toe boards, screenings, planking, walkways, safety nets and providing safe access ways from established guarded or protected areas to unprotected or unguarded areas.

All openings into which persons can accidentally walk in a grating or metal plate must be barricaded until they are permanently attached to supporting framework.

### **G. Permits**

Employees are responsible for utilizing a permit system when performing activities as defined below. A qualified representative issue all permits. The posting of permits must be in conformance with Project and regulatory requirements.

1. Hot Work Permit – required for cutting and welding operations, use of power tools, and other work that could provide or produce a source of ignition in a hazardous environment or location.

2. General Permits – may be required for:

- a. Line breaking, parting flanges, or operating valves on active systems
- b. Sandblasting – in hazardous locations
- c. Road closures – if required
- d. Tag-out and lockout systems – if required
- e. Hot taps Remove

- f. Electrical tie-ins Remove
  - g. Scaffold erection and use – if required
  - h. Confined Space Entry Remove
3. Confined Space Entry Permit – required before entry into a confined space.

#### **H. Radios and Electronic Equipment**

Battery powered radios, tape recorders, and calculators are prohibited in areas classified as “hazardous” unless the equipment is approved for use in such “hazardous” areas by Underwriters Laboratory and written permission has been obtained from the Project. (*See Cell Phone & Radio Headset Policy*)

#### **I. Radiography**

Contractors/subcontractors or others involved in radiography shall have current certification and training and will implement safe operating procedures for radiological activities as required by all applicable regulations.

#### **J. Hazardous Materials**

Materials such as paint solvents, paint sludge, greases, or other chemicals classified as hazardous materials shall be handled and disposed of per applicable regulations.

Chemicals and materials classified as "hazardous" by the Occupational Safety and Health Administration or other regulatory agencies require special reporting and notification procedures. The Project must be notified by the contractor of their intent to bring, use, or store any such chemical or material on the Project premises.

Contractors are responsible for the disposal of greases, oils, lubricants, and materials associated with the operation of vehicles and equipment. Oil, gas, filters and other containers must be disposed of off-site following acceptable procedures.

Oils, gases, lubricant, fluids, and other petroleum products shall not be disposed of by dumping or spreading onto the soil of the Project premises.

Oil, fuel, and lubricant storage and the dispensing station may be established on the Project after obtaining the proper approval.

Fuel dispensing station must comply with OSHA, NFPA, and Project regulation. This includes but is not limited to:

1. “No Smoking” or open flame signs
2. Fuel identification
3. Installation of fire extinguishing equipment at the approved distance
4. Approved fuel dispensing nozzles, auto shut-off systems
5. Containment or retaining system with lining
6. Ground system
7. Remote disconnect – if connected to the electrical power
8. Non-flammable materials only

#### **K. Personal Protective Equipment**

This section establishes the minimum requirements for personal protective equipment. Only equipment complying with Federal OSHA regulations or other applicable regulations shall be used. Equipment that has been altered in any way shall not be worn on the Project.

1. Head Protection

- a. The wearing of head protection on the Project is mandatory, 100% of the time except when in a designated safe area. Designated areas include offices, inside vehicles or when under rollover protection. Parking areas may be designated as safe areas as well as the lunch area. Office personnel, visitors, and vendors when they go to the field are required to wear approved head protection. Subcontractors are required to ensure their employees, visitors and vendors comply. Hard hats or caps shall meet the specifications of ANSI Z 89.1-1969, as required by OSHA 1926.100.
- b. Bump caps and metallic hard hats or caps are prohibited on the Project.
- c. Welders are required to wear head protection (hard hat or cap) when not performing welding operations.
- d. All personnel on the job site are required to have their company logo and name prominently displayed on their hard hat.
- e. Only stickers or hat/cap labels authorized by the SCI shall be displayed on protective headgear, clothing or other apparel.
- f. Persons who operate vehicles and equipment are required to wear protective headgear when they leave the equipment, vehicle or designated safe areas, if not inside rollover protection.

2. Eye Protection

Employees and contractors are responsible for ensuring that all personnel on the job site wear approved protective eyewear 100% of the time during working hours. Subcontractors are required to ensure their employees and visitors comply. Protective eyewear shall meet the minimum requirements of ANSI Standard Z 87.1, latest edition.

- a. Only approved protective eyewear will be worn on the Project site. Those who wear prescription glasses will be provided over the glasses safety glasses or safety goggles meeting the requirement.
- b. Glasses shall have side shields.
- c. In cases where employees perform work in operating or restricted areas of the facility, chemical goggles, face shields, and other protective equipment may be required.
- d. During cutting or grinding operations, full face shields shall be worn in addition to approved protective eyewear.
- e. Persons who wear prescription or corrective type eyeglasses shall wear goggles over the eyewear or have prescription glasses that meet the requirements of the ANSI Z 87.1 Standard.
- f. Persons who are operating vehicles and equipment must wear protective eyewear while operating such equipment unless inside an enclosed cab.
- g. All Project personnel are required to have goggles when needed.

3. Respiratory Protection

Employees and contractors are responsible for following the respiratory program compatible with their scope of work and Project requirements. Respiratory protection devices of the approved type shall be worn by personnel when exposed to hazardous concentrations of toxic or noxious dust, fumes, mists or gases as required by OSHA regulations.

- a. The use of respiratory equipment shall be used per applicable procedures and standards with approval from the Safety Director.



- b. Respiratory equipment shall be provided following the anticipated atmospheric conditions where the work will be performed.
  - c. Appropriate posting is required when exposure to atmospheric conditions may be harmful to health.
4. Hearing Protection  
Approved hearing protection shall be made available, and such protection shall be worn by all employees exposed to noise levels 90 dba (OSHA 1926.52), and where posted within the Project.  
Signs warning of noise levels more than allowable limits must be posted to warn of potential exposure hazard and personal protective equipment requirements.
5. Fall Protection (see Section 5.0 – Fall Protection Program)
- a. Persons who are performing work in unguarded areas and exposed to a potential fall of six (6) feet or greater shall utilize fall protection equipment.
  - b. In situations where a fall could result in impalement that is not protected, fall protection equipment shall be utilized regardless of the possible falling distance.
  - c. Vertical impaling objects such as rebar shall have the ends capped with an article such as a 2 x 4-inch block of wood, rebar cap (**mushroom caps provide scratch protection only – protective devices must be able to sustain an impact of a 250 lb. weight falling 10 feet onto the caps without damage to the caps**), or other item which adequately covers the impaling end of the object.
  - d. Personal fall protection equipment must be inspected daily before use.
  - e. Safety belts, harnesses, and lanyards shall be inspected periodically by a competent person. Fall protection equipment must be marked in such a manner to indicate when such inspection was performed. Markings or identification, for example, could be colored tape.
  - f. Auxiliary fall protection equipment such as static lines and perimeter guards shall be utilized by personnel traveling from one location to another in elevated positions.
  - g. Access ways, such as ladders, shall be provided for personnel who must perform work in elevated areas.
  - h. Persons who are observed not utilizing fall protection equipment will be identified, and the appropriate supervisor or contractor will be notified. If a second offense occurs, the person is subject to removal from the job site.

*NOTE: Body belts are not allowed on the job site. Only approved type harnesses with shock reduction lanyards shall be used on the Project.*

6. Maintenance  
Personal protective equipment that has been altered in any manner to reduce its effectiveness shall be collected, repaired, or destroyed.
7. Dress Requirements  
All personnel are always required to wear suitable clothing that will protect the body and extremities. Typical personnel hazards to be considered are:
- a. Terminal burns from contact with hot pipes can be prevented by wearing long-sleeved shirts and cloth gloves.
  - b. Chemical burns from acid/caustic residues or leaks can be prevented by using acid splash suits, protective boots, and appropriate gloves.

- c. Skin absorption of allergens or toxins in gaseous, liquid, or solid states can be prevented through the use of splash suits, boots, and gloves.
  - d. Loose clothing shall not be worn where it can contact or catch on energized conductors, moving parts, equipment or other hazards of this type.
  - e. Preference should be given to natural fibers in the clothing worn by personnel.
  - f. Short pants shall not be worn as outerwear.
  - g. Tank tops or sleeveless shirts shall not be worn as outerwear.
  - h. Finger rings or necklaces shall not be worn when there is a danger of catching them on moving parts or contacting energized conductors.
8. Protective Footwear  
All employees that will go out to the job site will wear work steel-toed boots made of leather material. Shoes, open toe shoes, high-heeled shoes, sandals, hush puppies, tennis shoes, jogging or athletic shoes, and other such footwear are prohibited. ANSI approved footwear is the level of protection for construction. On the underside of the tongue of all ANSI approved footwear or the inside of the upper portion of the boot identifies the class and level of protection of the footwear. This also applies to employees who perform work in the office that will from time to time go out on the job site for activities are taking place.
9. Work Zone Safety  
All employees and contractors exposed to or working adjacent to moving motor-vehicles as part of their assigned job or working on the ground that is exposed to earth-moving equipment will be required to wear the appropriate high-visibility vest and or other high visibility personal protective equipment. All workers within the right-of-way shall wear ANSI/ISEA Class 2 apparel. A high visibility garment is defined as being a Class 2 garment or greater as defined in ANSI/ISEA 107-1999, Class 2 garment or greater is the only authorized vest.
- a. Class 2 garments: for daytime activities, Flaggers shall wear ANSI/ISEA Class 2 apparel.
  - b. Class 3 garments: for nighttime activities, Flaggers shall wear ANSI/ISEA Class 3 apparel.
    - i. If the high visibility personal protective equipment becomes faded, torn, dirty, worn, or defaced, it shall be immediately removed from service and replaced (not visible at 1000 feet).
    - ii. Workers operating machinery or equipment in which loose clothing could become entangled during operation are exempt from this requirement. Such exempt workers will be required to wear other high visibility PPE (shirt or jacket).

#### **L. Excavations and Trenches**

All excavation and trenching operations shall be performed in compliance with current OSHA regulations and job site requirements.

1. An engineered Trench/Excavation Plan is required for excavating over 20 ft. deep, or if varying from the OSHA standard approved benching/sloping methods before any excavation work is to start.
2. Excavations and trenches shall be properly fenced and or plated when no one will be at the excavation.
3. The determination and design of a ground supporting system shall be based on careful consideration of the following: 1) depth of the cut, 2) anticipated changes in the soil due to air, sun, and water, and 3) ground movement caused by vehicle vibration, blasting, or earth pressures.

4. Trenches and excavations shall be benched or sloped or shored per OSHA regulations or the engineered trench safety plan.
5. Ladders or other means of egress shall be provided in each excavation. No more than 25 feet of lateral travel shall be required to reach any ladder. The ladder must be held or secured when in use.
6. Spoil material removed from an excavation, and any other material storage must be kept at least two (2) feet away from the excavation edge, or according to the engineered trench safety plan.
7. A competent person shall be designated to inspect trenches and excavations.

#### **M. Smoking Regulations**

Smoking is allowed only in designated areas.

#### **N. Confined Space Procedures (See Section 4.0 For Comprehensive Guidelines)**

Confined space entry and work procedures must comply with current OSHA and other regulatory standards as they apply to the scope of work.

A confined or enclosed space is any space with a limited means of exit and egress, which can accumulate toxic or flammable contaminants, or has an oxygen-deficient atmosphere. Confined or enclosed spaces include exhaust ducts, sewers, most utility vaults, tunnels, pipelines, and open top spaces that are more than four (4) feet in depth, such as pits, tubs, vessel vaults, and sumps.

Persons required to enter a confined space must be instructed by the employer or contractor as to the nature of the hazards involved, necessary safety precautions to be taken, and the emergency and protective equipment required before entry into the confined space.

The entry supervisor will determine if it is a permit required or non-permit based on testing before entry.

All confined space work and issuance of permits shall be per regulatory procedures.

#### **O. Housekeeping**

Housekeeping is a very fundamental and necessary activity and is the responsibility of every person working on the Project.

1. Work areas, passageways, stairways, and all other areas shall be kept free of debris and materials.
2. Trash containers shall be used for disposal of scrap materials and other construction generated debris.
3. Storage areas shall be kept clean and materials neatly stacked or placed.
4. Walkways and other areas where personnel travel shall be maintained free of equipment, obstructions, and other materials which may cause an accident or injury.
5. Construction materials shall be stored or placed in an orderly manner.
6. Cords, wire, electrical cables, and other such temporary systems shall be kept off the walking surface an elevated position or placed where they pose no potential danger to personnel or damage b construction activities or equipment.

#### **P. Hand, Air, and Electrical Tools**

The following procedures apply to the use of all tools of the Project:

1. Employees are required to report damaged and defective tools to their Supervisor.
2. Damaged or defective tools are to be taken out of service, tagged "DO NOT OPERATE," and stored in a controlled area until appropriate repairs have been made.
3. Tools shall not be altered or operated contrary to manufacturing specifications and instructions.

4. Tools such as grinders shall have guards in place during their operation.
5. Persons who operate ground compactors, rollers, chisel impact hammers, and other such tools shall wear protective footwear such as toe caps.
6. Tools shall not be abused and shall be kept in good operating condition.
7. Tools shall be inspected before each use for defects such as cracked handles, damaged cutting edges, splitting or cracked parts, and broken adjusting components.
8. Tools shall be used only for their intended purpose.
9. All tools shall be double insulated or grounded according to the National Electrical Code and inspected under current regulations.
10. Tools and equipment shall be marked or identified so that ownership may be established upon inspection of such tool or equipment.
11. Compressed air shall not be used for cleaning any part of the body or clothing.
12. Air-line hoses for tools and other equipment shall be secured together to preclude uncontrolled whipping in the event hose couplings become separated while under pressure.
13. All electrically powered tools shall be properly grounded and double insulated. Outlets used for 120-volt tools shall be protected by Ground Fault Circuit Interruption devices or will be properly labeled.
14. Gasoline powered tools shall not be used in unventilated areas. Gasoline shall be dispensed only in Underwriters Laboratories approved safety cans. These cans shall be properly labeled.
15. Portable grinders shall be provided with hood type guards with side enclosures that cover the spindle and at least 50% of the wheel. All wheels shall be inspected regularly for signs of fracture.
16. Bench grinders shall be equipped with deflector shields and side cover guards. Tool rest shall have a maximum clearance of 1/8 inch between the wheel and grinding stone.
17. Air supply lines shall be protected from damage, inspected regularly and maintained in good condition.
18. Air sources supplying hoses exceeding 1/2-inch ID shall be protected by excess flow valves and or whip checks to prevent "whipping" in the event of hose separation failure.
19. The pressure of compressed air used for cleaning purposes must be following current regulations.

#### **Q. Power-Actuated Tools**

The use of powder-actuated tools is restricted according to regulatory standards. Authorization is required before the use of a powder-actuated tool or device within the Project.

1. Only persons who that have been trained shall be allowed to operate powder-actuated tools. Eye protection shall be used when operating this type of tool. This includes a full-face shield. Evidence of training shall be in the possession of the tool operator and or at the local office.
2. Tools shall not be loaded until just before use. Loaded tools shall not be left unattended.
3. When not in use, powder-actuated tools shall be kept stored in a secured area. Cartridges shall be kept separated from all other material and stored in a controlled area.
4. Power-actuated tools shall be used under and meet all requirements of applicable regulatory standards.

## **R. Welding and Burning**

### **1. Welding**

- a. A suitable, an approved fire extinguisher shall be ready for instant use in any location where welding is being performed. Screens, shields, or other safeguards shall be provided for the protection of personnel, equipment, and materials, exposed to sparks, slag, falling objects, or the direct rays of the arc, molten slag or sparks. When welding or cutting operations are performed above level, the area below shall be barricaded, and equipment of materials subject to damage shall be protected.
- b. Welders shall wear approved eye and head protection. Persons assisting the welder shall also wear protective eyewear. This means that a welder helper shall wear a hard hat while performing welding operations. Approved eye protection will comply with 29 CFR PART 1926, Section 1926.102 Eye and face protection.
- c. Electric welding equipment, including cable, shall meet the requirements of the National Electric Code. Welding practices shall comply with all applicable regulations.
- d. Electric welding cable leads shall be hung in an elevated position whenever they could create a tripping hazard and protected from damage by moving equipment or materials.
- e. Welding leads or cords that cross a pathway or roadway shall be protected from damage by underground burial or otherwise protected with wood, conduit or other such means.

### **2. Burning or Cutting**

- a. Compressed gas cylinders shall be used and stored in an upright position.
- b. All compressed gas cylinders shall be secured in place during use and storage.
- c. Cylinders shall be returned to the main storage area when they are empty.
- d. A key wrench shall be in place on the valve of acetylene bottles at all times during their use.
- e. Cylinders shall be transported in an upright position. Cylinders shall not be hauled in equipment beds or truck beds on their side. Cylinders lifted from one elevation to another shall be lifted only in racks or containers designed for that purpose. Slings shall not be used to hoist cylinders.
- f. The valves of compressed gas cylinders shall be completely closed when not in use.
- g. The gauges shall be removed from cylinders and protective caps in place during their transportation.
- h. Compressed gas cylinders shall not be transported in vehicles with gauges attached to them without protection caps in place.

## **S. Ladders**

All ladders used on the Project shall be in conformance with applicable standards and regulations.

### **1. Manufactured Ladders**

Manufactured ladders on the job site shall comply with the regulations of ANSI-A14.1-1968, Safety Code for Portable Wood Ladders, or ANSI-A14.2-1972, Safety Code for Portable Metal Ladders, as required by OSHA.

- a. Ladders with broken or missing rungs, broken or split side rails, or are otherwise damaged, shall not be used and shall be removed from the job site.
- b. All portable ladders shall be equipped with non-skid safety feet and shall be placed on a stable base. The access areas at the top and bottom of ladders in use shall be kept clear of obstructions.

- c. The side rails shall extend 36 inches above the landing. When this is not practical, grab rails shall be installed. All ladders in use shall be tied, blocked, or otherwise secured to prevent accidental displacement.
  - d. Metal or other metallic ladders are prohibited when working around overhead power lines, or other possible electrical contact sources.
2. Project Made Ladders
    - a. Job made ladders are prohibited.
  3. Ladder Inspections
    - a. Number and company name will identify ladders so that ownership may be easily established.
    - b. A competent person shall inspect ladders at least quarterly. A written record is to be kept of these inspections.
    - c. Ladders will be inspected daily before use by employees using it.
  4. Approval of Ladders
    - a. Tripod ladders (ladders with three legs) are prohibited on the job site. All A-Frame ladders shall have four vertical supporting rails or legs.
    - b. Folding (trestle) ladders that have a vertical extension ladder at the top step of the ladder are prohibited on the job site.
    - c. Only approved extension ladders approved for use shall be used on the job site.

#### **T. Scaffolding**

The scaffolding program is to ensure that scaffold and work platform systems are erected, used, and dismantled following safe practices and applicable regulations. The program guidelines will include:

1. Scaffolds and platforms must be erected by qualified persons.
2. A tag system must be utilized to designate that a scaffold or platform is safe for use.
3. Tags installed on systems must include the name of the company, name of the person responsible for the erection of the systems, and date of installation.
4. Changes in scaffolding or platform systems that affect their safe use shall be controlled by repairing or dismantling the system. Unsafe systems shall be identified as such with a tag or other physical marking.

#### **U. Cranes and Material Handling**

##### Crane Suspended Platforms

All work platforms commonly known as suspended work baskets or personnel baskets must be approved for personnel lifting to be used.

1. Material Handling
  - a. Taglines shall be used when lifting materials with any crane or other lifting devices.
  - b. Procedures concerning the use of softeners, slings, and wire ropes shall be in conformance with regulatory statutes.
  - c. Compressed gas cylinders shall not be hoisted using slings or wire ropes.

#### **V. Cranes, Hoists, Motor Vehicles, and Heavy Equipment**

##### 1. General

- a. All cranes, hoists, motor vehicles, and heavy equipment must be operated and maintained to conform to established standards.
- b. Rated load capacity charts recommended operating speeds, special hazard warnings, and other essential information shall be conspicuously posted in all cranes, hoists, and other equipment.

- c. Operators must take signals from only one person. In an emergency, however, a **STOP** signal can be given by anyone.
- d. Only standard hand signals will be acknowledged.
- e. Routine maintenance, fueling, or repairs shall not be performed while the equipment is in use or the power is on.
- f. When handling, recharging or using jumper cables on batteries, wear safety glasses and a face shield.
- g. Employees are prohibited from riding the hook or load.

2. Cranes

- a. The swing radius of all cranes shall be barricaded to prevent employees from being struck by the counterweight.
- b. A fire extinguisher, rated at least 5 BC, shall be located on each crane.
- c. Safety latches are required on all cranes and spreader cable hooks (except shake out hooks that are used for their intended purpose).
- d. Cranes of other equipment will NOT be operated adjacent to overhead lines unless power has been shut off and positive means are taken to prevent the lines from being energized or minimum clearance from the overhead electric lines can be maintained.

***Minimum clearance from energized overhead electric lines:***

***Normal System Voltage Minimum Rated Clearance***

<i>0 to 50 kV</i>	<i>3 m</i>	<i>10 f</i>
<i>50 to 200 kV</i>	<i>4.5 m</i>	<i>15 f</i>
<i>200 to 350 kV</i>	<i>6 m</i>	<i>20 f</i>
<i>350 to 500 kV</i>	<i>7.5 m</i>	<i>25 f</i>
<i>500 to 750 kV</i>	<i>105 m</i>	<i>35 f</i>
<i>750 to 1000 kV</i>	<i>135 m</i>	<i>45 f</i>

***Power lines shall be de-activated if possible and positive means taken to prevent the lines from being energized.***

***Crane booms shall be lowered when they are in transit.***

***During transit with no load and the boom lowered, the minimum equipment clearance is a least four feet (4 f) for voltages less than 0.75 kV, six feet (6 f) for voltages less than 50 kV, ten feet (10 f) for voltages to 345 kV.***

***A designated employee must observe clearance of the equipment and give timely warning for all operations where the operator's vision is obstructed.***

***Any overhead line shall be considered energized unless a responsible client or utility company representative is present and ensures that it is not.***

- 1. Loads shall be guided and prevented from swinging by attaching a tagline to the load.
- 2. Loads shall not be suspended on an unattended crane.
- 3. Current annual inspection records shall be located at the main office and on the Project for all cranes in use. A copy will be kept in the cab of the lifting equipment.

4. Cranes and other lifting equipment shall be inspected daily by the Operator and or Rigger and recorded in a Daily Inspection Log. All defective lifting equipment will be removed from service immediately and tagged "Do Not Use."
5. Personnel operating cranes shall be authorized to operate such equipment.
6. Handrails if manufactured with the crane, or if prescribed by current standards shall be used according to the type of crane in use.
7. Guards shall be in place on pulleys, sprockets, drums, flywheels, and other such rotating equipment where persons may be exposed to contact or otherwise create a hazard.
8. Capacities, special warnings, and instructions shall be posted on all equipment, so they are visible by the operator at their control station.
9. Guardrails, handholds, steps, or other safe means shall be provided on cranes for easy access to the operating cab.
10. Platforms and walkways shall have anti-skid surfaces.
11. Cranes shall be grounded through the superstructure whenever they could potentially make contact with an electrical energy source.
12. Crane booms shall be lowered when they are in transit.
13. All broken or cracked glass in the operator's cab must be replaced.

#### **W. Motor Vehicles and Heavy Equipment**

1. For an employee, safety seat belts shall be used if available in vehicles and equipment (some states require the use of seat belts for off project use).
2. Do not ride in the bed of a truck containing any unsecured materials.
3. Employees are prohibited from riding on loads, fenders, running board, and tailgates. Only sit on provided seats.
4. Drivers must not move vehicles until riders comply with all safety procedures.
5. Do not back up any vehicle or equipment when the view to the rear is obstructed, unless:
  - a. The vehicle is equipped with an operating camera and or a backup alarm which is audible above the surrounding noise for a distance of 200 feet, and when the clearance from obstruction to the rear is assured.
  - b. An observer signals that it is safe to back up.
6. Do not operate any vehicle that you feel is unsafe. Report any unsafe vehicle or equipment to your Supervisor or the Safety Department as soon as possible.
7. Unattended vehicles and equipment must not be left running.
8. During the working hours, the key shall be left in vehicles, so they can be moved in an emergency.

#### **X. Personnel Hoist / Elevators**

1. The installation and operation of personnel hoist/elevators shall conform to established standards.
2. Before placing a hoist or elevator in service, functions and safety devices shall be tested thoroughly under the supervision of the manufacturer's representative or other qualified people.
3. Full inspection and test must be made at intervals required by the manufacturer and the appropriate state agency. These inspections and tests shall be conducted and supervised by the manufacturer's representative or other qualified personnel.



4. Copies of inspection will be maintained at the Safety Department.

#### **Y. Material Hoists**

Erection and operation of material hoists shall conform to established standards.

A sign stating “No Riders Allowed” shall be posted on the car frame and at each landing. Workers are prohibited from riding material hoists except for authorized purposes (inspection and maintenance).

#### **Z. Crane Suspended Personnel Platforms**

Crane suspended personnel platforms shall not be used to transport personnel if other feasible means of access exist. The Safety Department and Project management shall review the need for such use and the appropriate safe practices. All cranes used to hoist crane suspended personnel platforms shall be operated and maintained per ANSI B30.5 (current edition) and manufacturer's specifications.

Crane suspended personnel platforms shall be visually inspected and a trial lift conducted by a competent person before each use.

Crane suspended personnel platforms shall be rigged with a four-point suspension capable of supporting five times the maximum intended load. An independent safety choker must be secured from the personnel platform to a point above the headache ball or load block.

An effective method of signaling the crane operator must be established before use and maintained at all times when lifting the crane suspended personnel platform.

Employees in crane suspended personnel platforms shall wear an approved safety harness which must be secured to the platform if the platform or man basket is not completely enclosed.

Adequate means shall be provided to secure the crane suspended personnel platform/ man basket at the work level if possible.

Overhead protection must be provided when there is a possibility of materials falling from above.

#### **AA. Fire Prevention and Protection**

Work activities shall be conducted in such a manner as to preclude the potential of a fire hazard or fire.

Fire prevention and protection efforts must include, but are not limited to, the following areas of concern:

1. Conspicuously posted firefighting equipment (including fire extinguishers) appropriate for the needs of operations at each predetermined area.
2. Instructions to employees of safe working practices concerning fire prevention and protection.
3. Safe use and storage of flammable liquids and gases.
4. Work areas kept clean and free of combustible waste and scrap materials.
5. Maintenance of firefighting equipment per statutory regulations and manufacturer's recommendations.
6. Any material used on site must conform to the Project requirements concerning flame resistance and fireproof characteristics. Specific materials in this category include fuels, solvents, coating, construction lumber, scaffold plank, paper boxes and crating material.
7. All work performed within the Project shall conform to the operational procedures.

#### **BB. PHOTOGRAPHIC EQUIPMENT**

Prior approval is required to bring photographic equipment onto the Project.

## SAFE WORK PRACTICES

### HEAT RELATED ILLNESS (SIGNS AND PREVENTION)

#### PURPOSE

The purpose of this section is to provide SCI employees with the signs, symptoms, and ways to prevent heat related illnesses.

#### SCOPE

This program applies to all SCI employees, temporary employees and subcontractors.

#### INTRODUCTION

SCI employees who are exposed to hot and humid conditions are at risk of heat-related illness. The risk of heat-related illness becomes greater as the weather gets hotter and more humid. This situation is particularly serious when hot weather arrives suddenly early in the season, before workers have had a chance to adapt to warm weather.

For people working outdoors in hot weather, both air temperature and humidity affect how hot they feel. The "heat index" is a single value that takes both temperature and humidity into account. The higher the heat index, the hotter the weather feels, since sweat does not readily evaporate and cool the skin. The heat index is a better measure than air temperature alone for estimating the risk to workers from environmental heat sources.

#### ABOUT the HEAT INDEX

The U.S. National Oceanographic and Atmospheric Administration (NOAA) developed the heat index system. The heat index combines both air temperature and relative humidity into a single value that indicates the apparent temperature in degrees Fahrenheit, or how hot the weather will feel. The higher the heat index, the hotter the weather will feel, and the greater the risk that outdoor workers will experience heat-related illness. NOAA issues heat advisories as the heat index rises.

### NOAA's National Weather Service

Heat Index  
Temperature (°F)

Relative Humidity (%)	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
55	81	84	86	89	93	97	101	106	112	117	124	130	137			
60	82	84	88	91	95	100	105	110	116	123	129	137				
65	82	85	89	93	98	103	108	114	121	128	136					
70	83	86	90	95	100	105	112	119	126	134						
75	84	88	92	97	103	109	116	124	132							
80	84	89	94	100	106	113	121	129								
85	85	90	96	102	110	117	126	135								
90	86	91	98	105	113	122	131									
95	86	93	100	108	117	127										
100	87	95	103	112	121	132										

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

- Caution
- Extreme Caution
- Danger
- Extreme Danger

**Why humidity matters:** Relative humidity is a measure of the amount of moisture in the air. Sweat does not evaporate as quickly when the air is moist, as it does in a dry climate. Since evaporation of sweat from the skin is one of the ways the human body cools itself on a hot day, high humidity reduces our natural cooling potential and we feel hotter. Low humidity can also be a problem for outdoor workers in hot, desert-like climates. Sweat evaporates very rapidly in low humidity, which can lead to severe dehydration if a person does not drink enough water throughout the day.

**IMPORTANT NOTE:** The heat index values were devised for shady, light wind conditions, **and exposure to full sunshine can increase heat index values by up to 15° Fahrenheit.** To account for solar load, added precautions are recommended.

**NOAA issues extreme heat advisories to indicate when excessive, extended heat will occur. The advisories are based mainly on predicted heat index values:**

- **Excessive Heat Outlook:** issued when the potential exists for extended excessive heat (heat index of 105-110°F) **over the next 3-7 days.** This is a good time to check on supplies, such as extra water coolers, and refresh worker training.
- **Excessive Heat Watch:** issued when excessive heat could occur within the **next 24 to 72 hours,** but the timing is uncertain.
- **Excessive Heat Warning:** issued when the heat index will be high enough to be **life threatening in the next 24 hours.** This warning indicates that the **excessive heat is imminent or has a very high probability of occurring.**
- **Excessive Heat Advisory:** like an Excessive Heat Warning, but less serious. This is issued when the heat index could be **uncomfortable or inconvenient but is not life threatening if precautions are taken.**

**USING the HEAT INDEX to PROTECT WORKERS**

The heat index can be used to help determine the risk of heat-related illness for outdoor workers, what actions are needed to protect workers, and when those actions are triggered. Depending on the heat index value, the risk for heat-related illness can range from lower to very high to extreme. As the heat index value goes up, more preventive measures are needed to protect workers. Heat index values are divided into four bands associated with four risk levels. These bands differ from those appearing in the NOAA Heat Index chart, which was developed for the public. The NOAA bands have been modified for use at worksites:

Heat Index	Risk Level	Protective Measures
Less than 91°F	Lower (Caution)	Basic heat safety and planning
91°F to 103°F	Moderate	Implement precautions and heighten awareness
103°F to 115°F	High	Additional precautions to protect workers
Greater than 115°F	Very High to Extreme	Triggers even more aggressive protective measures

**Important consideration:** NOAA devised the heat index values for shaded conditions and light winds. **Full sunshine can increase heat index values by up to 15° Fahrenheit.** Strenuous work and the use of heavy or specialized protective clothing also have an additive effect. As a result, the risk at a specific heat index could be higher than that listed in the table above if the work is in direct sunlight without a light breeze, or if work involves strenuous tasks or the use of heavy or specialized protective clothing. Extra measures, including implementing precautions at the next risk level, are necessary under these circumstances.

The steps each SCI project should take in response to an elevated heat index are the same type of steps that the project would follow to address other hazards in the workplace:

- Develop an illness prevention plan for outdoor work based on the heat index
- Train employees how to recognize and prevent heat-related illness
- Track the worksite heat index daily; communicate it and the required precautions to workers
- Implement the project plan; review and revise it throughout the summer

STEP 1: Develop a heat-related illness prevention plan before heat index levels rise.

Use the Protective Measures to Take at Each Risk Level to inform your planning. The plan should address:

Plan Element	Heat Index Risk Level			
	Lower (Caution)	Moderate	High	Very High/Extreme
Supplies (ensuring adequate water, provisions for rest areas, and other supplies)	✓	✓	✓	✓
<u>Emergency planning and response</u> (preparing supervisors and crews for emergencies)	✓	✓	✓	✓
<u>Worker acclimatization</u> (gradually increasing workloads; allowing more frequent breaks as workers adapt to the heat)	✓	✓	✓	✓
<u>Modified work schedules</u> (establishing systems to enable adjustments to work schedules)		✓	✓	✓
<u>Training</u> (preparing workers to recognize heat-related illness and preventive measures)	✓	✓	✓	✓
<u>Physiological, visual, and verbal monitoring</u> (using direct observation and physiological monitoring to check for signs of heat-related illness)		✓	✓	✓

**Protective Measures to Take at Each Risk Level**

**Drinking Water**

Water should have a palatable (pleasant and odor-free) taste and water temperature should be 50° F to 60°F, if possible.

**Other Drinks**

Encourage employees to choose water over soda and other drinks containing caffeine and high sugar content. These drinks may lead to dehydration. Drinks with some flavoring added may be more palatable to workers and thereby improve hydration. Encourage employees to avoid drinking alcohol after work shifts, during hot weather events.

Use protective measures described for each risk level to help plan, and schedule and train employees so that everyone is prepared to work safely as the heat index rises.

**Summary of Risk Levels and Associated Protective Measures**

The most critical actions SCI Project staff should take to help prevent heat-related illness at each level:

Heat Index	Risk Level	Protective Measures
<91°F	<u>Lower</u> <u>(Caution)</u>	<ul style="list-style-type: none"> <li>▪ Provide drinking water</li> <li>▪ Ensure that adequate medical services are available</li> <li>▪ Plan for times when heat index is higher, including worker heat safety training</li> <li>▪ Encourage workers to wear sunscreen</li> <li>▪ Acclimatize workers</li> </ul> <p><b>If workers must wear heavy protective clothing, perform strenuous activity or work in the direct sun, additional precautions are recommended to protect workers from heat-related illness.*</b></p>
91°F to 103°F	<u>Moderate</u>	<p>In addition to the steps listed above:</p> <ul style="list-style-type: none"> <li>▪ Remind workers to drink water often (about 4 cups/hour)**</li> <li>▪ Review heat-related illness topics with workers: how to recognize heat-related illness, how to prevent it, and what to do if someone gets sick</li> <li>▪ Schedule frequent breaks in a cool, shaded area</li> <li>▪ Acclimatize workers</li> <li>▪ Set up buddy system/instruct supervisors to watch workers for signs of heat-related illness</li> </ul> <p><b>If workers must wear heavy protective clothing, perform strenuous activity or work in the direct sun, additional precautions are recommended to protect workers from heat-related illness.*</b></p> <ul style="list-style-type: none"> <li>▪ <b>Schedule activities at a time when the heat index is lower</b></li> <li>▪ <b>Develop work/rest schedules</b></li> <li>▪ <b>Monitor workers closely</b></li> </ul>

103°F to 115°F	<u>High</u>	<p>In addition to the steps listed above:</p> <ul style="list-style-type: none"> <li>▪ Alert workers of high-risk conditions</li> <li>▪ Actively encourage workers to drink plenty of water (about 4 cups/hour)**</li> <li>▪ Limit physical exertion (e.g. use mechanical lifts)</li> <li>▪ Have a knowledgeable person at the worksite who is well-informed about heat-related illness and able to determine appropriate work/rest schedules</li> <li>▪ Establish and enforce work/rest schedules</li> <li>▪ Adjust work activities (e.g., reschedule work, pace/rotate jobs)</li> <li>▪ Use cooling techniques</li> <li>▪ always Watch/communicate with workers</li> </ul> <p><b>When possible, reschedule activities to a time when heat index is lower</b></p>
>115°F	<u>Very High to Extreme</u>	<p><b>Reschedule non-essential activity for days with a reduced heat index or to a time when the heat index is lower</b></p> <p><b>Move essential work tasks to the coolest part of the work shift; consider earlier start times, split shifts, or evening and night shifts.</b></p> <p><b>Strenuous work tasks and those requiring the use of heavy or non-breathable clothing or impermeable chemical protective clothing should not be conducted when the heat index is at or above 115°F.</b></p> <p>If essential work must be done, in addition to the steps listed above:</p> <ul style="list-style-type: none"> <li>▪ Alert workers of extreme heat hazards</li> <li>▪ Establish water drinking schedule (about 4 cups/hour)**</li> <li>▪ Develop and enforce protective work/rest schedules</li> <li>▪ Conduct physiological monitoring (e.g., pulse, temperature, etc.)</li> <li>▪ Stop work if essential control methods are inadequate or unavailable.</li> </ul>

\*The heat index is a simple tool and a useful guide for Project Staff making decisions about protecting employees in hot weather. It does not account for certain conditions that contribute additional risk, such as physical exertion. Consider taking the steps at the next highest risk level to protect workers from the added risks posed by:

- Working in the direct sun (can add up to 15°F to the heat index value)
- Wearing heavy clothing or protective gear

\*\*Under most circumstances, fluid intake should not exceed 6 cups per hour or 12 quarts per day. This makes it particularly important to reduce work rates, reschedule work, or enforce work/rest schedules.

## ***SAFE WORK PRACTICES***

### ***ELECTRICAL SAFETY and GFCI PROGRAM***

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#### **PURPOSE**

The purpose of the Electrical Safety Program is to set forth procedures for the safe use of electrical equipment, tools, and appliances at ORC

#### **SCOPE**

This program applies to all SCI employees, temporary employees, and contractors. When work is performed on a non-owned or operated site, the operator's program shall take precedence, however, this document covers SCI employees and contractors and shall be used on owned premises, or when an operator's program doesn't exist or is less stringent.

#### **DEFINITIONS**

**Affected Personnel** – Personnel who normally use and work with electrical equipment, tools, and appliances, but who do not make repairs or perform lock out/tag out procedures.

**Appliances** – Electrical devices not normally associated with commercial or industrial equipment such as air conditioners, computers, printers, copiers, coffee pots, microwave ovens, toasters, etc.

**Circuit Breaker** – *A device designed to open and close a circuit by non-automatic means and to open the circuit automatically on a predetermined overcurrent without injury to itself when properly applied within its rating.*

**Disconnecting Means** – Device, or group of devices, or other means by which the conductors of a circuit can be disconnected from their source of supply.

**Disconnecting Switch** – A mechanical switching device used for isolating a circuit or equipment from a source of power.

**Double Insulated Tool** – Tools designed of non-conductive materials that do not require a grounded, three wire plug.

**Ground** – Connected to earth or some conducting body that serves in place of the earth.

**Grounded Conductor** – A conductor used to connect equipment or the grounded circuit of a wiring system to a grounding electrode or electrodes.

**Ground Fault Circuit Interrupter (GFCI)** – A device whose function is to interrupt the electric circuit to the load when a fault current to ground exceeds some predetermined value that is less than that required to operate the overcurrent protective device of the supply circuit. SCI shall use GFCIs instead of an assured grounding program when possible.

**Insulated** – A conductor encased within material of composition and thickness that is recognized as electrical insulation.

**Premises Wiring** – That interior and exterior wiring, including power, lighting, control, and signal circuit wiring together with all of its associated hardware, fittings, and wiring devices, both permanently and temporarily installed, which extends from the load end of the service drop, or load end of the service lateral conductors to the outlet (s). Such wiring does not include wiring internal to appliances, fixtures, motors, controllers, motor control centers, and similar equipment.

**Qualified Person** – A person that has been trained in the repair, construction, and operation of electrical equipment and the hazards involved.

**Strain Relief** – A mechanical device that prevents the force from being transmitted to the connections or terminals of a cable or extension cord.

**Class I Locations** – Are those in which flammable gases or vapors are or may be present in the air in quantities sufficient to produce explosive or ignitable mixtures.

**Class I Division 1** – Is a location (a) in which hazardous concentrations of flammable gases or vapors may exist under normal operating conditions; or (b) in which hazardous concentrations of such gases or vapors may frequently exist because of repairs or maintenance operations or because of leakage; or (c) in which a breakdown or faulty operation of equipment or processes might release hazardous concentrations of flammable gases or vapors, and might also cause simultaneous failure of electrical equipment.

**Class II locations** – Class II locations are those that are hazardous because of the presence of combustible dust. Class II locations include the following:

**Class II Division 1** – A Class II, Division 1 location is a location (a) in which combustible dust is or may be in suspension in the air under normal operating conditions, in quantities sufficient to produce explosive or ignitable mixtures; or (b) where mechanical failure or abnormal operation of machinery or equipment might cause such explosive or ignitable mixtures to be produced, and might also provide a source of ignition through simultaneous failure of electric equipment, operation of protection devices, or from other causes, or (c) in which combustible dust of an electrically conductive nature may be present.

*NOTE:* This classification may include areas where metal dust and powders are produced or processed, and other similar locations that contain dust producing machinery and equipment (except where the equipment is dust-tight or vented to the outside).

These areas would have combustible dust in the air, under normal operating conditions, in quantities sufficient to produce explosive or ignitable mixtures.

Combustible dust that is electrically nonconductive includes dust produced in the handling and processing produce combustible dust when processed or handled.

Dust containing magnesium or aluminum are particularly hazardous, and the use of extreme caution is necessary to avoid ignition and explosion.

**Class II Division 2** - A Class II, Division 2 location is a location in which: (a) combustible dust will not normally be in suspension in the air quantities sufficient to produce explosive or ignitable mixtures, and dust accumulations are normally insufficient to interfere with the normal operation of electrical equipment or other apparatus; or (b) dust may be in suspension in the air as a result of infrequent malfunctioning of handling or processing equipment, and dust accumulations resulting there may be ignitable by abnormal operation or failure of electrical equipment or other apparatus.

*NOTE:* This classification includes locations where dangerous concentrations of suspended dust would not be likely but where dust accumulations might form on or in the vicinity of electric equipment. These areas may contain equipment from which appreciable quantities of dust would escape under abnormal operating conditions or be adjacent to a Class II Division 1 location, as described above, into which an explosive or ignitable concentration of dust may be put into suspension under abnormal operating conditions.

## **RESPONSIBILITIES**

### **SUPERVISOR**

The Site Safety Supervisor will develop electrical procedures per OSHA requirements and as indicated by events and circumstances.

Project Managers and Superintendent are responsible for ensuring that only qualified employees and or qualified contractors perform electrical repairs or installations.



Project Managers are also responsible for ensuring all applicable electrical safety programs are implemented and maintained at their locations.

Employees are responsible for using electrical equipment, tools, and appliances according to this program, for attending required training sessions when directed to do so and to report unsafe conditions to their supervisor immediately.

Only qualified employees may work on electric circuit parts or equipment that has not been de-energized. Such employees shall be made familiar with the use of special precautionary techniques, PPE, insulating and shielding materials and insulated tools.

## **SAFE WORK PRACTICES**

### **A. Inspections**

1. Electrical equipment, tools, and appliances must be inspected before each use.
2. The use of a hard fixed GFCI or a portable GFCI adapter shall be used with all portable hand tools, electric extension cords, drop lights and all 110-volt equipment.
3. Faulty equipment, tools, or appliances shall be removed from service immediately and tagged "Out of Service" dated and signed by the employee applying the tag.

### **B. Repairs**

1. Only qualified personnel, who have been authorized by the department supervisor or manager, may make repairs to supply cords on electrical tools and extension cords.
2. The names of employees authorized to make repairs will be posted in the workplace.
3. Only certified electricians shall be allowed to make repairs to electrical equipment and wiring systems.
4. The supervisor obtaining the services of a certified electrician is responsible for verifying the electrician's credentials.
5. Employees shall not enter spaces containing exposed energized parts unless qualified and proper illumination exists to enable employees to work safely.
6. Employees shall not wear conductive apparel such as rings, watches, jewelry, etc. (unless they are rendered nonconductive by covering, wrapping, or other insulating means) while working on or near open energized equipment this includes batteries on trucks, forklifts, phone backup systems or other such equipment.
7. If employees are subject to handle long dimensional conductor objects (ducts or pipes), steps for safe work practices shall be employed to ensure the safety of workers.

### **C. Extension Cords**

1. Use only three-wire, grounded, extension cords and cables that conform to a hard service rating of 14 amperes or higher, and grounding of the tools or equipment being supplied.
2. Only commercial or industrial rated-grounded extension cords may be used in shops and outdoors.
3. Cords for use other than indoor appliances must have a rating of at least 14 amps.
4. Cords must have suitable strain relief provisions at both the plug and receptacle.
5. Work lamps (drop light) used to electrical power tools must have a 3-wire, grounded outlet, unless powering insulated tools.
6. Adapters that allow 3-wire, grounded prongs, connected to 2-wire non-grounded outlets are strictly prohibited.

7. Cords must have a service rating for hard or extra-hard service and have S, AJ, ST, SO, SJO, SJT, STO, or SJTO printed on the cord.
8. Cords may not be run through doorways, under mats or carpet, across walkways or aisles, concealed behind wall, ceilings or floors, or run through holes in walls, or anywhere they can become a tripping hazard.
9. High current equipment or appliances shall be plugged directly into a wall outlet whenever possible.
10. All extension cords shall be plugged into one of the following:
  - a. A GFCI outlet;
  - b. A GFCI built into the cord;
  - c. A GFCI adapter used between the wall outlet and cord plug.
11. All extension cords and or electrical cords shall be inspected daily or before each use, for breaks, plug condition and ground lugs, possible internal breaks, and any other damage. If any damage is found the extension cord or electrical cord shall be removed from service and repaired or replaced.
12. Extension cords shall not be used on compressor ski to operate heat tapes or any other type of equipment on a temporary basis. Heat tapes or other equipment shall be hardwired per applicable electrical codes.

#### **D. Outlets**

Outlets connected to circuits with different voltages must use a design such that the attachment plugs on the circuits are not interchangeable.

#### **E. Multiple Outlet Boxes**

1. Multiple outlet boxes must be plugged into a wall receptacle.
2. Multiple outlet boxes must not be used to provide power to microwave ovens, toasters, space heaters, hot plates, coffeepots, or other high-current loads.

#### **F. Double Insulated Tools**

1. Double insulated tools must have factory label intact indicating the tool has been approved to be used without a 3-wire grounded supply cord connection.
2. Double insulated tools must not be altered in any way, which would negate the factory rating.

#### **G. Switches, Circuit Breakers, and Disconnects**

1. All electrical equipment and tools must have an on and off switch and may not be turned on or off by plugging or unplugging the supply cord at the power outlet.
2. Circuit breaker panel boxes and disconnects must be labeled with the voltage rating.
3. Each breaker within a breaker panel must be labeled for the service it provides.
4. Disconnect switches providing power for individual equipment must be labeled accordingly.

#### **H. Ladders**

1. Only approved, non-conductive ladders may be used when working near or with electrical equipment, which includes changing light bulbs.
2. Ladders must be either constructed of wood, fiberglass or have non-conductive side rails.
3. Wood ladders shall not be painted, which can hide defects, except with clear lacquer.
4. When using ladders, they shall be free from any moisture, oils, and greases.
5. Aluminum or steel ladders are not to be used if electrical contact is possible.

### **I. Energized and Overhead High Voltage Power Lines & Equipment**

1. A minimum clearance of 10 feet from high voltage lines must be maintained when operating a vehicle and mechanical equipment such as forklifts, cranes, winch trucks, and other similar equipment.
2. When possible, power lines shall be de-energized and grounded, or other protective measures shall be provided before work is started.
3. Minimum approach distance to energized high power voltages lines for unqualified employees is 10 feet.
4. Minimum approach distance for qualified employees shall be followed per 29 CFR 1910.333(c)(i) Qualified – Table S5 Selection and Use of Work Practices – Approach Distances for Qualified Employees – Alternating Current.

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

1. When an employee works in a confined or enclosed space that contains exposed energized parts, the employee shall isolate the energy source and turn off the source and lock and tag-out the energy source (Only qualified electricians can work on an exposed energy source).
2. Protective shields, protective barriers or insulating materials as necessary shall be provided.

### **K. Enclosures, Breaker Panels, and Distribution Rooms**

1. A clear working space must be maintained in the front, back, and on each side of all electrical enclosures and around electrical equipment for safe operation and to permit access for maintenance and alteration.
2. A minimum two-foot working floor space in front of panels and enclosures shall be painted yellow.
3. Employees may not enter spaces containing exposed energized parts unless illumination is provided that enables the employees to work safely.
4. Housekeeping in distribution rooms must receive high priority to provide a safe working and walking area in front of panels and to keep combustible materials to the minimum required to perform maintenance operations.
5. All enclosures and distribution rooms must have "Danger: High Voltage – Authorized Personnel Only" posted on the front panel and entrance doors.
6. Flammable materials are strictly prohibited inside distribution rooms (Boxes, rags, cleaning fluids, etc.)

### **L. Lockout / Tag-out**

1. No work shall be performed on (or near enough for employees to be exposed due to the dangers of tools or other equipment coming into contact with the live parts) live parts and the hazards they present.
2. If any employee is exposed to contact with parts of fixed electric equipment or circuits which have been de-energized, the circuits energizing the parts shall be locked out or tagged or both.
3. Conductors and parts of electrical equipment that have been de-energized but not been locked or tagged out shall be treated as live parts.
4. Per SCI policy all electrical will be outsourced and performed only by qualified and licensed electrical contractors who are familiar with the use of special precautionary techniques, PPE, insulating and shielding materials and insulated tools. Any equipment being made ready for maintenance will be locked out using SCI Control of Hazardous Energy – Lockout/Tag-out Program.

Lockouts are performed by the Site Safety Supervisor, Superintendent, and Foreman or Maintenance Supervisor. Competent Persons on some projects may be trained by Site Safety Supervisor to lockout equipment. If live sources are to be worked, it will only be performed with the knowledge of project management. Only certified electricians may:

- a. Only authorized personnel may perform lockout/tag-out work on electrical equipment and will follow SCI ' Control of Hazardous Energy – Lockout/Tag-Out Program.
- b. Authorized personnel will be trained in lockout/tag-out procedures.
- c. Affected personnel will be notified when lockout/tag-out activities are being performed in their work area.

**M. Contractors**

1. Only approved, certified, electrical contractors may perform construction and service work on SCI or client property.
2. It is the Manager/Supervisors responsibility to verify the contractor’s certification.

**N. Fire Extinguishers**

1. Approved fire extinguishers must be provided near electrical breaker panels and distribution centers.
2. Dry chemical type extinguishers shall be located within than 75 feet of electrical equipment.
3. Water type fire extinguishers shall not be used on electrical fires.

**O. Electric Shock – CPR**

1. If someone is discovered that has received an electric shock and is unconscious, first check to see if their body is in contact with an electrical circuit. Do not touch a person until you are sure there is no contact with an electrical circuit.
2. When it is safe to make contact with the victim, begin CPR if the person’s heart has stopped or they are not breathing.
3. Call for help immediately.

**P. Electric Welders**

1. A disconnecting means shall be provided in the supply circuit for each motor-generator arc welder, and for each AC transformer and DC rectifier arc welder which is not equipped with a disconnect mounted as an integral part of the welder.
2. A switch or circuit breaker shall be provided by which each resistance welder and its control equipment can be isolated from the supply circuit. The ampere rating of this disconnecting means may not be less than the supply conductor capacity.

**Q. Equipment Grounding**

1. All gas compressors, air compressors, separators, vessels, etc. shall be grounded utilizing a lug and ground strap, nominal in size to a ½" bolt or larger, attached to a ground rod six foot or longer.
2. Equipment bonding jumpers shall be of copper or other corrosion-resistance material.
3. The transfer of hazardous or flammable material from a metal container with a flash point of 100 degrees F or less shall have a ground strap from the container and attached to the skid or a ground rod placed in the ground if not grounded through the funnel or hose.

**R. Assured Grounding**

All 120-volt, single-phase 15 and 20-ampere receptacle outlets on construction or maintenance sites, which are not part of the permanent wiring of the building or structure and which are in use by employees, shall have approved ground fault circuit interrupters for personnel protection.

1. All hand portable electric tools and extension cords shall use a GFCI.
2. Additionally, approved GFCI's shall be used for 240-Volt circuits in the same service as described above.
3. GFCI's must be used on all 120 volts, single-phase 15 amps and 20-amp receptacles within 6 feet of a sink, damp areas or on installed outdoor equipment.
4. The GFCI must be the first device plugged into a permanent receptacle.
5. The GFCI must be tested before each use.

**S. Training**

1. All regular full time and temporary employees will be trained in Electrical Safety utilizing the SCI Electrical Safety Training course or an approved equivalent.
2. Employees who face a risk of electric shock, but who are not qualified persons, shall be trained and familiar with electrically related safety practices.
3. The employee shall be trained in safety-related work practices that pertain to their respective job assignments.
4. Employees shall be trained on clearance distances.
5. Safe work practices shall be employed to prevent electric shock or other injuries resulting from either direct or indirect electrical contacts when work is performed near or on equipment or circuits which are or may be energized.

## ***SAFE WORK PRACTICES***

### ***LOCKOUT / TAG-OUT PROGRAM***

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#### **PURPOSE**

The purpose of this program is to establish procedures for affixing appropriate lockout/tag-out equipment to energy isolating devices and to otherwise disable machines or equipment to prevent unexpected energization, start-up or release of stored energy to prevent injury or incident.

#### **SCOPE**

This program covers the servicing and maintenance of machines and equipment where the unexpected energization or startup of the machine or equipment, or the release of stored energy could cause an incident. This program establishes minimum performance requirements for the control of such hazardous energy. When work is performed on a non-owned or operated site, the operator's program shall take precedence, however, this document covers SCI employees and contractors and shall be used on owned premises, or when an operator's program doesn't exist or is less stringent.

#### **RESPONSIBILITY**

The Equipment Manager will be responsible for assuring mechanics, and other appropriate employees within the equipment maintenance function receive the training and implement this policy.

The Site Safety Supervisor will assure all other applicable employees are trained and utilize this Lockout/Tag-out procedure.

All SCI Team Members will be trained on the importance of not attempting to remove any Lockout/Tag-out device not installed by them.

#### **DEFINITIONS**

**Affected employee** - An employee whose job requires them to operate or use a machine or equipment on which servicing and maintenance are being performed under lockout/tag out, or whose job requires the employee to work in an area in which such servicing or maintenance is being performed.

**Authorized employee** - A person that performs lockout/tag-out procedures on machines or equipment to perform servicing or maintenance on that machine or equipment. An affected employee becomes authorized when that employee's duties include performing servicing or maintenance covered under this program.

**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.

**Energized** - Connected to an energy source or containing residual or stored energy.

**Energy isolating device** - A mechanical device that physically prevents the transmission or release of energy including, but not limited to, the following:

1. A manually operated electrical circuit breaker, a disconnect switch, a manually operated switch by which the conductors and no pole can be operated independently, a line valve, a block and any similar device used to block or isolate energy.
2. Push buttons, selector switches, and other control circuit type devices are not isolating devices.

**Energy source** - Any source of gas, electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy sources.

**Hot tap** - A procedure used in the repair, maintenance and service activities that involves welding on a piece of equipment (pipelines, vessels or tanks) under pressure, in order to install connections or other appurtenances (note: 1910.147 (2) (iii) [B] [1] [2] [3]).

**Lockout** - The placement of a lockout device on an energy isolating device by an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

**Lockout device** - A device that utilizes a positive means, such as either a key or combination type lock, 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.

**Normal operation** - the utilization of a machine or equipment to perform its intended operation.

**Servicing and maintenance** - Workplace activities such as constructing, setting up, adjusting, inspecting, modifying and maintaining and servicing machines and equipment, where the employee may be exposed to an unexpected or startup of the equipment or release of a hazardous energy source.

**Setting up** - Any work performed to prepare a machine or equipment for performing its normal operation.

**Tag-out** - The placement of a tag-out device on an energy isolating device, following an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tag-out device is removed.

**Tag-out device** - A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device following an established procedure, to indicate the device is removed.

## **KEY RESPONSIBILITIES**

### **A. Supervisors**

Responsible to control and enforce this plan and to see that all their employees and contractors that are affected by lockout/tag-out procedures have the knowledge and understanding required for a safe application, usage, and removal of all energy controls and devices.

Ensure employees are trained and comply with the requirements of this program.

### **B. Employees**

1. Employees who are affected by this program are required to attend training on an annual basis.
2. Are required to follow the provisions of this program.

## **PROCEDURE**

### **A. General**

Only an authorized employee or employees performing the servicing or maintenance shall perform lockout or tag-out.

### **B. Devices**

1. Lockout Device – If an energy source can be locked out, a device that utilizes a lock to hold an energy isolating device in a safe position shall be used. Each site shall have the type of lock as approved by ORC.
2. Tag-out Device – If an energy source cannot be locked out with a lockout device then a tag-out device shall be used. Tag-out devices are a warning only level of protection and shall be weather and chemical resistant, standardized in color with a clear written warning of hazardous energy; i.e.,

Do Not Operate, Do Not Start, Do Not Energize, etc. Each site shall have the same style of tags specified by ORC.

### **SPECIFIC ENERGY CONTROL PROCEDURES**

Each manager or supervisor is responsible for developing specific step-by-step shutdown and startup procedures for a particular machine or piece of equipment in their respective area.

A written, step-by-step isolation procedure for shutdown and startup shall be prepared for each type of machine or piece of equipment.

This procedure shall include:

1. Equipment number if assigned.
2. Equipment location.
3. Energy Source(s) (i.e., electrical, hydraulic, gas pressure)
4. Location of isolating controls (i.e., breaker switches, valves)
5. The quantity of isolating controls
6. The number of locks required to isolate the equipment
7. Other hardware required to isolate the equipment (i.e., chains, valve covers, blocks)
8. List any residual energy required to be dissipated before work begins.

#### **A. Specific Sequence for Application of Energy Control**

1. Notification - Authorized employees must notify all other affected employees of the application and removal of lockout/tag-out devices. A notification shall be given before the controls are applied and before they are removed from the machine or equipment.
2. Preparation for Shutdown - Before an authorized or affected employee shuts down a machine or equipment, the authorized employee shall know the type and magnitude of the energy, the hazards of the energy to be controlled, and the method or means (locks) to control the energy sources.
3. Machine or Equipment Shutdown - The machine or equipment shall be shut down using the procedures established for that machine or piece of equipment. The shutdown shall be orderly to avoid any additional hazards to employees as a result of the stoppage.
4. Machine or Equipment Isolation - All energy isolating devices that are needed to control the energy to the machine or equipment shall be physically located and operated in such a manner as to isolate the machine or equipment from the energy source(s).
5. Lockout/Tag-out Devices and Application:
  - a. Each authorized employee shall have the proper number of locks and devices to be able to perform proper lockout/tag-out procedures for machines or equipment that they may be working on.
  - b. Lockout or tag-out devices shall be affixed to each energy isolating device by authorized employees.
  - c. Each lockout and tag-out devices shall include the name of the individual placing the device.
  - d. Lockout devices shall be affixed in a manner to hold the energy isolating devices in a safe or off position.
  - e. Tag-out devices shall be affixed in a manner that will indicate that the operation or movement of isolating devices from the safe or off position.



- f. Tag-out devices used with energy isolating devices with the capability of being locked out shall be fastened at the same point at which the lock would have been attached. If a tag cannot be directly attached to the energy isolation device, it shall be located as close as safely as possible to the device in a position that will be immediately obvious to anyone attempting to operate the device.
  - g. Each energy source shall be locked out completely isolating the equipment.
  - h. Isolating machines or equipment shall include, but are not limited to:
    - i. Pumps, compressors, generators, electric distribution, storage tanks, etc.
    - ii. Each type of equipment to be isolated shall have specific procedures for isolation, i.e., for compressors: suction, discharge, power, starting, fuel, dumps shall be closed, locked and tagged out properly. The blow-down valve shall be opened, locked and tagged out properly. (NOTE): If the compressor has a side stream hooked up, the side stream shall be closed, locked and tagged out properly.
1. Stored Energy and the Possibility of Re-accumulation - Following the application of lockout or tag-out devices to energy isolating devices, all potentially hazardous stored or residual energy shall be relieved, disconnected, restrained and otherwise rendered safe.
  2. If there is a possibility of re-accumulation of stored energy, verification of isolation shall be continued until the servicing or maintenance operation is completed, or until the possibility of such accumulation no longer exists.
  3. Verification of Isolation - The authorized employees performing the lockout procedure verifies/ensures that the equipment is isolated or disconnected from the energy source(s) by first checking that no personnel are exposed, then verify the isolation of the machine or equipment by operating the control(s) or by testing to make certain the equipment will not operate.

## **B. Multiple Workers**

A crew of authorized employees may use a group lockout or tag-out device. This will afford the group of employees a level of protection equal to that provided by a personal lockout or tag-out device.

1. A tailgate meeting shall be conducted to review the lockout procedures and other information as required for safe work to continue – all crafts and affected departments shall be involved.
2. An authorized employee will isolate the equipment and ascertain the exposure status of an individual or group members.
3. All workers will then place their personal locks on the device's group lockout or tag-out device after they have verified the procedure.
4. The crew leader or an assigned authorized employee shall be responsible for assuring the continuity of the lockout procedures including documenting lockout information passed along during a shift or personnel changes.

## **C. Release from Lockout/Tag-out**

When servicing or maintenance is completed or when Lockout / Tag-out devices must be temporarily removed, the equipment requires testing and the machine or equipment is ready for testing or to return to normal operating conditions. The following steps shall be taken, in this order:

1. Check the machine or equipment and the immediate area surrounding the machine or equipment to ensure that all non-essential items such as tools have been removed and that the machine or equipment components are operationally intact.
2. Check the work area to ensure that all personnel have been safely positioned or removed from the area.

3. Remove the Lockout/Tag-out device
4. Energize and proceed with testing
5. De-energize and reapply control methods including Lockout / Tag-out devices
6. Document the procedure by use of the completed isolation log and provide to supervisor for filing.

#### **D. Removal of Locks**

The authorized employee who applied the lock shall be the one to remove their lock. However, after work has been completed certain conditions may arise which prohibit this person from being present to remove the lock.

The following procedures shall be followed to allow for the removal of a lock that another person has applied:

1. Every effort shall be made to contact the authorized employee who applied the lock to obtain the key(s).
2. If the key(s) cannot be made available, the employee who requests removal of the lock shall contact their supervisor.
3. The supervisor shall verify that every effort was made to contact the original authorized employee who applied the lock and to obtain the key(s).
4. The employee removing the lock shall note on the Service Report that the lock(s) were removed with permission by supervisor.
5. All reasonable efforts will be made by the supervisor to notify that employee their lock has been removed, ensuring that the authorized employee has this knowledge before they return to work.
6. If the equipment is client owned, the supervisor or employee requesting to remove the lock(s) shall contact the client to get the lock removed. Clients must remove their lock(s).

**NOTE:** SCI employees shall not remove any client locks.

#### **E. Shift or Personnel Changes**

In the event shift or personnel changes occur during maintenance and repair activities, the designated SCI employee in charge shall take the necessary steps to maintain the continuity of the lockout/tag-out protection. This includes maintaining that all provisions in this procedure are adhered to, and the transfer of lockout/tag-out devices between authorized employees is accomplished.

#### **F. Contractors**

Contractors performing lockout procedures on SCI projects shall comply with this procedure. Contractors shall supply their own locks.

SCI shall initially lockout SCI machines and equipment before the contractor will be allowed to apply their own lock in addition to the ORC.

#### **G. Annual Audits**

Each year the manager or supervisor, or his representative, will perform an inspection of the Lockout Program in their respective areas to verify the effectiveness of the program. An authorized employee other than the one(s) utilizing the energy control procedure being inspected shall perform the audit and shall verify that:

1. Each authorized and affected employee has been trained as required.
2. Any new equipment added has specific lockout procedures developed and documented.
3. Current procedures are adequate for performing complete isolation of equipment and resulting in a zero-energy state.

4. The annual audit will be certified in writing, and a copy of the audit maintained on file at the managers/supervisor's office.

#### **H. Training**

SCI shall provide training to ensure that the purpose and function of the energy control program are understood by authorized 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 shall include:

1. The recognition of applicable hazardous energy (lockout/tag-out) sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control.
2. The purpose and use of energy control procedures.
3. When tag-out systems are used, employees shall also be trained in the following limitations of tags:
  - a. 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.
4. 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.
5. 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, to be effective.
6. Tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered in the workplace.
7. Tags must be securely attached to energy isolating devices so that they cannot be inadvertently or accidentally detached during use.
8. Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program.

All other employees whose work operations are or may be in an area where energy control procedures may be utilized shall be instructed about the procedure, and about the prohibition relating to attempts to restart or reenergize machines or equipment which are locked out or tagged out.

#### **I. Retraining**

Retraining shall be conducted whenever a periodic inspection reveals, or whenever SCI has reason to believe that there are deviations from or inadequacies in the employee's knowledge or use of the energy control procedures.

The retraining shall reestablish employee proficiency and introduce new or revised control methods and procedures, as necessary.

#### **J. Training documentation**

SCI shall certify that employee training has been accomplished and is being kept up to date. The certification shall contain each employee's name and dates of training.

<b>SPECIFIC EQUIPMENT LOCKOUT PROCEDURES</b>
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<b>Project</b>	
<b>Equipment No.</b>	
<b>Energy Source</b>	

**Procedure for Shutdown and Isolation:**

(List number of steps required to isolate machine or equipment ----- write N/A on lines not used or add additional steps if necessary) STEP NO.

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

<b>Additional Information:</b>

Prepared By: \_\_\_\_\_ Date: \_\_\_\_\_

(This procedure to be communicated to all authorized and affected employees and kept on file at the location of machine or equipment)

## ***SAFE WORK PRACTICES***

### ***CELL PHONE & RADIO HEADSET POLICY***

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#### **PURPOSE**

Due to the danger posed to the employee, his co-workers and the public, employees will not be permitted to operate equipment when trying to make or receive cell phone calls or wear radio headsets while operating equipment or performing other work on our projects. As a reasonable standard, SCI encourages the limit of personal calls during the workday to no more than two a day and are limited to "essential matters" or emergencies only. **Personal calls shall be limited to your break time only.** SCI will not be liable for the loss or damage of personal cellular phones brought into the workplace.

#### **SCOPE**

Applies to SCI Team Members throughout our companies, areas, and projects when a cell phone is utilized while driving.

#### **INTRODUCTION**

The New England Journal of Medicine has released a study which reports that cell phone usage while driving increases the potential of accidents 400%, or about the same as driving while intoxicated. With this in mind, we have developed the following lists of precautionary measures that shall always be followed by our drivers when using a cell phone, regardless of if it is a company or personal.

#### **POLICY**

Team Members whose job responsibilities include regular or occasional driving and who are issued a cell-phone for business use are expected to keep safety as their first consideration. Regardless of the circumstances, including slow or stopped traffic, employees are strongly encouraged to pull off to the side of the road and safely stop the vehicle before placing or accepting a call. If acceptance of a call is unavoidable and pulling over is not an option, employees are expected to keep the call short, use hands-free options, refrain from discussion of complicated or emotional issues and keep their eyes on the road. Special care should be taken in situations where there is traffic, inclement weather, or the employee is driving in an unfamiliar area. Never walk around the work site talking on your cell phone. Go into the cab of a vehicle to talk or leave the work zone completely. Stay out of the way of other vehicles, which may be backing up, or pulling forward or dumping materials into the work site.

#### **Cell Phone & Driving Guidelines**

1. Safe driving is your first priority: Always buckle up; keep your hands on the wheel and your eyes on the road.
2. Refrain from placing or receiving unnecessary calls. Allow voice mail to handle your calls and return them when it is safe and convenient.
3. Make sure that your phone is positioned where it is easy to see and easy to reach: Be familiar with the operation of your phone, so that you're comfortable using it on the road.
4. Use hands-free microphone while driving: Always use hands-free devices, such as ear/microphone accessory and phone cradle.
5. Use the speed-dialing feature to program infrequently called numbers: Then you can make a call by touching only two or three buttons.
6. When dialing manually without the speed-dialing feature, dial only when stopped: If you can't stop, or pull over, dial a few digits then survey traffic before completing the call. Better yet, have a passenger dial. (if applicable)
7. Don't use the cell phone for social visiting while you drive.

8. Hang up without warning in precarious traffic situations. You can always explain later why you disconnected.

**Note:** When the cell phone has a built-in antenna, adherence to above #4, will also eliminate the risk of microwave radiation permeating the user's head. Some medical research suggests that this poses a health risk to cell phone users.

## ***SAFE WORK PRACTICES***

### ***RESPIRATOR PROGRAM***

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#### **PURPOSE**

It is the intention of SCI to provide a respirator protection program that meets or exceeds all federal standards. SCI will attempt to engineer potential harmful vapors and oxygen deficient atmosphere exposure hazards out of the work environment. If engineering control measures are not feasible or during emergency situations with high exposure, then respirators shall be provided which are applicable and suitable for the purpose intended.

#### **SCOPE**

This program applies to all SCI projects and operations.

#### **RESPIRATORY PROGRAM ADMINISTRATOR**

Overall responsibility for the respiratory protection program is assigned to the SCI Administrator (Safety Director), or his designee, who could be the Project Manager/Superintendent and Site Safety Supervisor will ensure employees follow the specific requirements.

The Administrator or his designee must be knowledgeable of the complexity of the program, conduct evaluations, and be properly trained.

This assignment is made, however, with the understanding that individual supervisors will have to implement and enforce major portions of the program. It is understood that the Program Administrator will report performance problems to the appropriate manager for resolution. The person who will have responsibility for administering all the aspects of this program will be the Project Manager or their designee.

The responsibilities of the program administrator will include, but are not limited to:

1. Conducting an annual written evaluation of the program.
2. Ensuring an adequate supply of respirators, cartridges, and repair/replacement parts. The Program Administrator may delegate this duty but will retain overall responsibility. The person(s) to whom this duty has been delegated is the Project Manager and Field Supervisor.
3. Ensuring that only respirators that have been approved by the Corporate Health and Safety office are ordered and used. Under no circumstances will respirators be used that have not been approved by NIOSH/MSHA. The selected designated respirator manufacturer for SCI is North Safety.
4. Ensuring that all respirator users have been trained in the use, selection, and limitations of the type of respirators they will be using before the first time the respirator must be used. While the duty of conducting the training may be delegated, the Program Administrator retains final responsibility for seeing that all employees are appropriately trained.
5. Ensuring that all respirator users have been medically evaluated and found fit to use the type of respirators that will be required in their job. The medical evaluation must be completed before assigning an employee to a task that requires the use of a respirator.
6. Ensuring that all respirator users are fit-tested at least annually and more often if other federal requirements apply.
7. Ensuring that respirators are individually issued, are cleaned and sanitized on a regular basis, and respirators are stored in a clean and accessible location. This duty may also be delegated, but the Program Administrator retains final responsibility for seeing that it is done.

8. Ensuring that employee exposure is monitored to assure correct respirator type is used. Exposure monitoring may be delegated to others; however, the Program Administrator has final responsibility of monitoring completion and to request assistance when necessary.
9. Ensuring surveillance of employees who wear respirators shall leave the area to wash, change cartridges or if they detect breakthrough or resistance.
10. Ensuring that the elements of the Respiratory Protection Program for the selection, use, cleaning/maintenance, storage and fit-testing of respirators are followed.
11. Ensuring that respirator parts are not exchanged between brands of respirators.
12. Ensuring that medical evaluations, respirators, and required training are provided at no cost to the employee.

### **Medical requirements**

SCI shall 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. SCI may discontinue an employee's medical evaluations when the employee is no longer required to use a respirator.

### **Medical evaluation procedures**

SCI shall identify a 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. The medical evaluation shall obtain the information requested by the Medical Questionnaire in Forms section (or equivalent).

The medical evaluation before fit-testing will be confidential, conducted during normal working hours, be at a convenient time and location, be understandable, and the employee will be given a chance to discuss the results with the PLHCP.

### **Supplemental information for the PLHCP**

The following information must be provided to the PLHCP before the PLHCP makes a recommendation concerning an employee's ability to use a respirator:

1. The type and weight of the respirator to be used by the employee;
2. The duration and frequency of respirator use (including use for rescue and escape);
3. The expected physical work effort;
4. Additional protective clothing and equipment to be worn; and
5. Temperature and humidity extremes that may be encountered.

SCI shall provide the PLHCP with a copy of the SCI Respiratory Protection Program.

**Note:** When SCI replaces a PLHCP, SCI must ensure that the new PLHCP obtains this information, either by providing the new PLHCP. However, OSHA does not expect employers to have employees medically re-evaluated solely because a new PLHCP has been selected.

### **Medical determination**

In determining the employee's ability to use a respirator, SCI shall obtain a written recommendation regarding the employee's ability to use the respirator from the PLHCP. The recommendation shall provide only the following information:

1. Any limitations on respirator use related to the medical condition of the employee, or relating to the workplace conditions in which the respirator will be used, including whether or not the employee is medically able to use the respirator;
2. The need, if any, for follow up medical evaluations; and



3. A statement that the PLHCP has provided the employee with a copy of the PLHCP's written recommendation.

*All recommendations are to be sent to SCI Safety Department for approval by the Safety Director*

#### **Additional Medical Evaluations**

*At a minimum, SCI shall provide additional medical evaluations that comply with the requirements of this program if:*

1. An employee reports medical signs or symptoms that are related to the ability to use a respirator;
2. A PLHCP, supervisor, or the respirator Program Administrator informs SCI that an employee needs to be re-evaluated;
3. Information from the respiratory protection program, including observations made during fit testing and program evaluation, indicates a need for employee re-evaluation; or
4. A change occurs in workplace conditions (e.g., physical work effort, protective clothing, and temperature) that may result in a substantial increase in the physiological burden placed on an employee.

#### **Worksite procedures**

Each work site where respirators are required to protect the health of the worker shall have work site procedures that follow the guidelines of this program. Specific procedures may also be required by our client which will be followed. The following areas shall be included:

1. Identification of specific hazard requiring respiratory protection
2. The selection of the appropriate respiratory protection equipment based on the specific hazard and concentration levels, characteristics, etc. Specific brand and models of respiratory equipment to be used shall be identified in the procedures.
3. Verification that each user of respiratory protection is qualified (medical approval, current fit test, annual training and demonstrates competency).

#### **Respirator Selection Criteria**

The selection of the respiratory equipment is based on the hazards the employee will be exposed to and the Safety Director's approval. SCI shall:

1. Perform hazard identification,
2. Select and provide respirators based on those hazards and factors affecting performance,
3. Establish brands and models to be used, and
4. Estimate exposures and contaminant information.

#### **Hazard Identification**

Due to the many varied work locations, SCI identification of respiratory hazards will be contained in the various work site specific safety plans. However, common respiratory hazards that will be encountered include:

- i. Dust
  - ii. Fumes
  - iii. Gases
  - iv. Chemical particles
  - v. Oxygen Deficiency
1. Characteristics of Hazardous Operation or Process

- a. Hot operations: welding, chemical reactions, soldering, melting, melding and burning
  - b. Liquid operations: painting, degreasing, dipping, spraying, brushing, coating, etching, cleaning, pickling, plating, mixing, galvanizing and chemical reactions
  - c. Solid operations: pouring, mixing, separations, extraction, crushing, conveying, loading, bagging, and demolition.
  - d. Pressurized spraying: cleaning parts, applying pesticides, degreasing, sandblasting and painting
  - e. Shaping operations: cutting, grinding, filing, milling, melding, sawing and drilling
2. Gaseous Contaminants
- a. Inert gases (helium, argon, etc.), which do not metabolize in the body but displace air to produce an oxygen deficiency.
  - b. Acid gases (SO<sub>2</sub>, H<sub>2</sub>S, HCl, etc.) which are acids or produce acids by reaction with water.
  - c. Alkaline gases (NH<sub>3</sub>, etc.), which are alkalies or produce alkalies by reaction with water.
  - d. Organic gases (butane, acetone, etc.), which exist as true gases or vapors from organic liquids.
  - e. Organometallic gases (tetraethyl lead, organophosphates, etc.), which have metals attached to organic groups.
2. Particulate Contaminants
- a. Dust is mechanically generated solid particulates (0.5 to 10µm)
  - b. Fumes are solid condensation particles of small diameter (0.1 to 1.0 µm)
  - c. Mists are liquid particulate matter (5 to 100 µm)
  - d. Smoke is chemically generated particulates (solid and liquid) of organic origins (0.01 to 0.3 µm)

### Selection of Respirator

The following factors shall be taken into account when selecting the proper respirator:

#### **A. Concentration and Type of Contaminant**

The concentration and type of contaminant will determine the model and type of respirator and cartridges/filters or filters to be used. The concentration is based on a sampling of the atmosphere.

#### **B. Location of Hazardous Area**

Confined Space, nearby contaminants, etc.

#### **C. Worker Activity**

Extreme heat, cold, welding hood requirement, etc.

### Types of Respirators

**Air-purifying respirators** can be either full-face or half masks with mechanical or chemical cartridges to filter dust, mists, fumes, vapors or gases.

**Powered air-purifying respirators** use a blower to pass the contaminated air through a filter. The purified air is then delivered to a mask or hood. They filter dust, mists, fumes, vapors, and gases, just like ordinary air-purifying respirators.

**Air-purifying respirators** cannot be used in oxygen-deficient atmospheres, which can result when another gas displaces the oxygen or consumption of oxygen by a chemical reaction occurs. Oxygen levels below 19.5% require either a source of supplied air or supplied-air respirator protection. Levels below 16% are considered to be unsafe and could cause death. To determine the proper cartridge for air-purifying respirators contact the SCI Safety Manager or a qualified site safety representative of the client. You should also consult the Material Safety Data Sheet of the substance that needs to be filtered.

**All cartridges are assigned a color designating the type of contaminant they will filter:**

<i>White:</i>	<i>Acid gas</i>
<i>Black:</i>	<i>Organic vapors</i>
<i>Green:</i>	<i>Ammonia gas</i>
<i>Yellow:</i>	<i>Acid gas and organic vapors</i>
<i>Purple:</i>	<i>Radioactive materials</i>
<i>Orange:</i>	<i>Dust, fumes, and mists</i>
<i>Olive:</i>	<i>Other gases and vapors</i>

Once the wearer of the respirator can detect an odor, irritation, or taste of the contaminant, the cartridge shall be replaced. All cartridges and filters shall be changed at the beginning of each shift.

**Supplied-air respirators** provide the highest level of protection against highly toxic and unknown materials. Supplied air refers to self-contained breathing apparatuses (SCBAs) and air-line respirators. SCBAs have a limited air supply that is carried by the user, allowing for good mobility and fewer restrictions than air-line respirators.

**Air-line respirators** have an air hose that is connected to a fresh air supply from a central source. The source can be from a compressed air cylinder or air compressor that provides at least Grade D breathing air.

**Emergency Escape Breathing Apparatuses (EEBAs)** provide oxygen for 5, 10 or 15 minutes depending on the unit. These are for emergency situations in which an employee must escape from environments immediately dangerous to life or health (IDLH).

#### **SCBA (Self Contained Breathing Apparatus)**

**SCI does NOT allow employees to work in an Immediately Dangerous to Life and Health (IDLH) environment without proper protection.**

To maintain the NIOSH/MSHA approval of any respirator, mixing parts from other respirator manufacturers is prohibited. This includes airline hoses, valves, gaskets, cartridges, etc. For example, do not use North cartridges or valve gaskets with an MSA product.

#### **Brand and Models**

SCI will provide respirators that meet OSHA and NIOSH approvals. The respirator shall be used in compliance with the conditions of the certification of the Respiratory Protection Program (fit testing model, no mixing of different manufacturer parts, cartridges, filters, etc.).

The specific model chosen will be based on the hazard, concentration of contaminant, oxygen level, work environment, and type of work being performed. To aid in the selection process contact the SCI Safety Director to identify the proper respiratory equipment for the work being performed and hazard that is present.

1. NIOSH Pocket Guide to chemicals
2. Manufactures Cartridge Selection Guide
3. Manufactures Respirator Selection Guide

### **Estimate of Exposures and Contaminant Information**

1. When possible, no employee shall enter an IDLH environment.
2. If not possible, then normal oxygen levels shall be maintained using supplied air work units or self-contained breathing apparatus.
3. No employee shall be exposed to atmosphere conditions containing concentrations that would exceed the STEL or PEL for the identified atmospheric hazard without the proper protective equipment and Safety Director's approval.

### **Respirator Fit Testing**

Before an employee may be required to use any respirator with a negative or positive pressure tight-fitting face-piece, 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.

All respirator users are fit-tested at least annually and more often if other federal requirements apply.

Supplied Air Respirators are required to be fit-tested as well.

SCI shall ensure that employees using a tight-fitting face-piece respirator pass either an appropriate qualitative fit test (QLFT) or quantitative fit test (QNFT) as stated in this program.

SCI shall ensure that an employee using a tight-fitting face-piece respirator is fit tested before initial use of the respirator, whenever a different respirator face-piece (size, style, model or make) is used, and at least annually after that.

SCI shall conduct an additional fit test whenever the employee reports, or SCI PLHCP, supervisor, or Program Administrator or his designee makes visual observations of, changes in the employee's physical condition that could affect respirator fit. Such conditions include, but are not limited to, facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight.

If after passing a QLFT or QNFT, the employee subsequently notifies SCI Site Safety Supervisor, supervisor, or PLHCP that the fit of the respirator is unacceptable, the employee shall be given a reasonable opportunity to select a different respirator face-piece and to be retested.

The fit test shall be administered using an OSHA-accepted QLFT or QNFT protocol. The OSHA-accepted QLFT and QNFT protocols and procedures are contained in this section.

QLFT may only be used to fit test negative pressure air-purifying respirators that must achieve a fit factor of 100 or less. Half face air filtering respirators may be fit tested with irritant smoke while full face air filtering respirators require Porta count fit testing.

If the fit factor, as determined through an OSHA-accepted QNFT protocol, is equal to or greater than 100 for tight-fitting half face-pieces, or equal to or greater than 500 for tight-fitting full face-pieces, the QNFT has been passed with that respirator.

Fit testing of tight-fitting atmosphere-supplying respirators and tight-fitting powered air-purifying respirators shall 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.

Qualitative fit testing of these respirators shall be accomplished by temporarily converting the respirator user's actual face piece into a negative pressure respirator with appropriate filters, or by using an identical negative pressure air-purifying respirator face-piece with the same sealing surfaces as a surrogate for the atmosphere-supplying or powered air-purifying respirator face-piece.

Quantitative fit testing of these respirators shall be accomplished by modifying the face piece to allow sampling inside the face piece in the breathing zone of the user, midway between the nose and mouth. This

requirement shall be accomplished by installing a permanent sampling probe onto a surrogate face-piece, or by using a sampling adapter designed to temporarily provide a means of sampling air from inside the face-piece.

Any modifications to the respirator face-piece for fit testing shall be completely removed, and the face-piece restored to NIOSH-approved configuration before that face-piece can be used in the workplace.

### **Fit Test Procedures**

The requirements in this section apply to all OSHA-accepted fit test methods, both QLFT and QNFT.

The test subject shall be allowed to pick the most acceptable respirator from a sufficient number of respirator sizes so that the respirator is acceptable to, and correctly fits, the user.

Before the selection process, the test subject shall be shown how to put on a respirator, how it should be positioned on the face, how to set strap tension and how to determine an acceptable fit. A mirror shall be available to assist the subject in evaluating the fit and positioning of the respirator. This instruction may not constitute the subject's formal training on respirator use because it is only a review.

The test subject shall be informed that he/she is being asked to select the respirator that provides the most acceptable fit. Each respirator represents a different size and shape, and if fitted and used properly, will provide adequate protection.

The test subject shall be instructed to hold each chosen face-piece up to the face and eliminate those that obviously do not give an acceptable fit.

The more acceptable face-pieces are noted in case the one selected proves unacceptable; the most comfortable mask is donned and worn at least five minutes to assess comfort. Assistance in assessing comfort can be given by discussing the following points:

1. If the test subject is not familiar with using a particular respirator, the test subject shall be directed to don the mask several times and to adjust the straps each time to become adept at setting proper tension on the straps.
2. The position of the mask on the nose
3. Room for eye protection
4. Room to talk
5. The position of the mask on face and cheeks

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

1. Chin properly placed;
2. Adequate strap tension not overly tightened;
3. Fit across nose bridge;
4. A respirator of proper size to span distance from nose to chin;
5. The tendency of respirator to slip;
6. Self-observation in a mirror to evaluate fit and respirator position.

Use the Fit Test form as contained later in this section.

### **User Seal Check**

Before conducting the negative and positive pressure checks, the subject shall be told to seat the mask on the face by moving the head from side-to-side and up and down slowly while taking in a few slow deep breaths. The test subject shall conduct a user seal check, either the negative or positive pressure seal checks described below:

### **A. Positive Pressure Check**

Close off the exhalation valve and exhale gently into the face-piece. The face fit is considered satisfactory if a slight positive pressure can be built up inside the face-piece without any evidence of outward leakage of air at the seal. For most respirators, this method of leak testing requires the wearer to first remove the exhalation valve cover before closing off the exhalation valve and then carefully replacing it after the test.

### **B. Negative Pressure Check**

Close off the inlet opening of the canister or cartridge(s) by covering with the palm(s) or by replacing the filter seal(s), inhale gently so that the face-piece collapses slightly and hold the breath for ten seconds. The design of the inlet opening of some cartridges cannot be effectively covered with the palm. The test can be performed by covering the inlet opening of the cartridge with a thin latex or nitrile glove. If the face-piece remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.

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

If a test subject exhibits difficulty in breathing during the tests, she or he shall be referred to a physician or other licensed health care professional, as appropriate, to determine whether the test subject can wear a respirator while performing her or his duties. If the employee finds the fit of the respirator unacceptable, the test subject shall be given the opportunity to select a different respirator and to be retested.

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

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

### **C. Test Exercises**

Each test exercise shall be performed for one minute except for the grimace exercise which shall be performed for 15 seconds. The test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator shall be tried. If due to medical or health conditions the employee cannot perform the test exercises the fit test shall not be performed and the employee not allowed to use a respirator until all elements of the fit test can be achieved.

The respirator shall not be adjusted once the fit test exercises begin. Any adjustment voids the test, and the fit test must be repeated.

The following test exercises are to be performed for all fit testing methods prescribed in this procedure:

1. Normal breathing. In a normal standing position, without talking, the subject shall breathe normally.
2. Deep breathing. In a normal standing position, the subject shall breathe slowly and deeply, taking caution so as not to hyperventilate.
3. Turning head side to side. Standing in place, the subject shall slowly turn his/her head from side to side between the extreme positions on each side. The head shall be held at each extreme momentarily so the subject can inhale at each side.

4. Moving head up and down. Standing in place, the subject shall slowly move his/her head up and down. The subject shall be instructed to inhale in the up position (i.e., when looking toward the ceiling).
5. Talking. The subject shall talk out loud slowly and loud enough to be heard clearly by the test conductor.
6. The subject shall read the Rainbow Passage

#### **D. Rainbow Passage**

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

1. Grimace. The test subject shall grimace by smiling or frowning. (This applies only to QNFT testing; it is not performed for QLFT)
2. Jogging in place. The test subject shall jog in place being careful to be aware of their surroundings.
3. Normal breathing. Same as exercise (1).

#### **E. Qualitative Fit Test (QLFT) Protocols**

##### General

SCI shall ensure that persons administering QLFT can prepare test solutions, calibrate equipment and perform tests properly, recognize invalid tests, and ensure that test equipment is in proper working order. SCI shall ensure that QLFT equipment is kept clean and well maintained to operate within the parameters for which it was designed.

##### Irritant Smoke (Stannic Chloride) Protocol

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

General Requirements and Precautions. The respirator to be tested shall be equipped with high-efficiency particulate air (HEPA) or P100 series filter(s).

Only stannic chloride smoke tubes shall be used for this protocol. No form of test enclosure or hood for the test subject shall be used.

The smoke can be irritating to the eyes, lungs, and nasal passages. The test conductor shall take precautions to minimize the test subject's exposure to irritant smoke. Sensitivity varies, and certain individuals may respond to a greater degree of irritant smoke. Care shall be taken when performing the sensitivity screening checks that determine whether the test subject can detect irritant smoke to use only the minimum amount of smoke necessary to elicit a response from the test subject.

The fit test shall be performed in an area with adequate ventilation to prevent exposure of the person conducting the fit test or the build-up of irritant smoke in the general atmosphere.

The person to be tested must demonstrate his or her ability to detect a weak concentration of the irritant smoke.

The test operator shall break both ends of a ventilation smoke tube containing stannic chloride, and attach one end of the smoke tube to a low flow air pump set to deliver 200 milliliters per minute or an aspirator squeeze bulb. The test operator shall cover the other end of the smoke tube with a short piece of tubing to prevent potential injury from the jagged end of the smoke tube.

1. The test operator shall advise the test subject that the smoke can be irritating to the eyes, lungs, and nasal passages and instruct the subject to keep his/her eyes closed while the test is performed.
2. The test subject shall be allowed to smell a weak concentration of the irritant smoke before the respirator is donned to become familiar with its irritating properties and to determine if he/she can detect the irritating properties of the smoke. The test operator shall carefully direct a small amount of the irritant smoke in the test subject's direction to determine that he/she can detect it.

#### **F. Irritant Smoke Fit Test Procedure**

1. The person being fit tested shall don the respirator without assistance and perform the required user seal check(s).
2. The test subject shall be instructed to keep his/her eyes closed if wearing a half face respirator.
3. The test operator shall direct the stream of irritant smoke from the smoke tube toward the face seal area of the test subject, using the low flow pump or the squeeze bulb. The test operator shall begin at least 12 inches from the face-piece and move the smoke stream around the whole perimeter of the mask. The operator shall gradually make two more passes around the perimeter of the mask, moving to within six inches of the respirator.
4. If the person being tested has not had an involuntary response and detected the irritant smoke, proceed with the test exercises.
5. The exercises identified in the Test Exercises of this procedure shall be performed by the test subject while the respirator seal is continually challenged by the smoke, directed around the perimeter of the respirator at a distance of six inches.
6. If the person being fit tested reports detecting the irritant smoke at any time, the test is failed. The person being retested must repeat the entire sensitivity check and fit test procedure.
7. Each test subject passing the irritant smoke test without evidence of a response (involuntary cough, irritation) shall be given a second sensitivity screening check, with the smoke from the same smoke tube used during the fit test, once the respirator has been removed, to determine whether he/she still reacts to the smoke. Failure to evoke a response shall void the fit test.
8. If a response is produced during this second sensitivity check, then the fit test is passed. The glass tube shall be disposed of properly.

#### **G. Quantitative Fit Test (QNFT) Protocols**

Using controlled negative pressure and appropriate instrumentation to measure the volumetric leak rate of a face-piece to quantify the respirator have been demonstrated to be acceptable to OSHA.

SCI shall ensure that persons administering QNFT can calibrate equipment and perform tests properly, recognize invalid tests, calculate fit factors properly and ensure that test equipment is in proper working order.

SCI shall ensure that QNFT equipment is kept clean and is maintained and calibrated according to the manufacturer's instructions to operate at the parameters for which it was designed.

#### **H. Portacount Fit Test Requirements**

1. Check the respirator to make sure the respirator is fitted with a high-efficiency filter and that the sampling probe and line are properly attached to the face piece.
2. Instruct the person to be tested to don the respirator for five minutes before the fit test starts. This purges the ambient particles trapped inside the respirator and permits the wearer to make certain the respirator is comfortable. This individual shall already have been trained on how to wear the respirator properly.
3. Check the following conditions for the adequacy of the respirator fit: Chin properly placed;



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

4. Have the person wearing the respirator do a user seal check. If leakage is detected, determine the cause. If leakage is from a poorly fitting face piece, try another size of the same model respirator, or another model of respirator.
5. Follow the manufacturer's instructions for operating the Portacount and proceed with the test.
6. The test subject shall be instructed to perform the exercises in Test Exercises section of this procedure.
7. After the test exercises, the test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator shall be tried.

#### **I. Portacount Test Instrument**

The Portacount will automatically stop and calculate the overall fit factor for the entire set of exercises. The overall fit factor is what counts. The Pass or Fail message will indicate whether or not the test was successful. If the test was a Pass, the fit test is over. Since the pass or fail criterion of the Portacount is user programmable, the test operator shall ensure that the pass or fail criterion meet the requirements for minimum respirator performance.

A record of the test will need to be sent to the Site Safety Supervisor and kept on file, assuming the fit test was successful. The record must contain the test subject's name; overall fit factor; make, model, style, and size of respirator used; and date tested.

### **USE, MAINTENANCE, AND CARE OF RESPIRATORS**

#### **A. Use**

1. Items that can affect the face to mask seal are prohibited. This includes facial hair, glasses, clothing, etc.
2. Each time a respirator is put on a positive and negative pressure check shall be performed.

#### **B. Cleaning and Disinfecting Requirements**

SCI shall provide each respirator user with a respirator that is clean, sanitary, and in good working order. SCI shall ensure that respirators are cleaned and disinfected using the procedures in this Respiratory Protection Program, or procedures recommended by the respirator manufacturer, provided that such procedures are of equivalent effectiveness. The respirators shall be cleaned and disinfected at the following intervals:

1. Respirators issued for the exclusive use of an employee shall be cleaned and disinfected by the employee as often as necessary to be maintained in a sanitary condition.
2. Respirators used in fit testing and training shall be cleaned and disinfected after each use by the Safety Manager or designated person.
3. Each individual who is assigned a cartridge respirator is responsible for seeing that the respirator is cleaned, inspected and properly stored.

#### **C. Cleaning Procedures**

1. Remove filters, cartridges, or canisters. Disassemble facepieces by removing speaking diaphragms, demand and pressure-demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts.
2. Wash components in warm water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.

3. When the cleaner used does not contain a disinfecting agent, respirator components shall be immersed for two minutes in commercially available cleansers of equivalent disinfectant quality. Another alternative is to use wipes containing alcohol that is intended for use with respirators.
4. Rinse components thoroughly in clean, warm, preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on facepieces may result in dermatitis. Also, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.
5. Components shall be hand-dried with a clean lint-free cloth or air-dried. Reassemble facepiece, replacing filters, cartridges, and canisters where necessary. Test the respirator to ensure that all components work properly.

#### **D. Storage and Inspection**

1. Respiratory equipment shall be stored in a manner to protect it from damage, contamination, temperature extreme, etc.
2. Respiratory equipment intended for emergency use shall be stored in an area that is readily accessible and be marked.

SCI shall ensure that respirators are inspected as follows:

All respirators used in routine situations shall be inspected by the employee before each use and during cleaning;

1. A check by the employee 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
2. A check of elastomeric parts for pliability and signs of deterioration.
3. Emergency respiratory equipment will be inspected at least monthly, and before and after each use.
4. Escape only respiratory equipment will be inspected before being carried into the workplace.

#### **Breathing Air Quality and Use**

SCI shall ensure that compressed air accords with the following specifications:

1. Compressed breathing air shall meet at least the requirements for Type 1-Grade D breathing air described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989, to include:
  - a. Oxygen content(v/v) of 19.5-23.5%;
  - b. Hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less;
  - c. Carbon monoxide (CO) content of 10 ppm or less;
  - d. Carbon dioxide content of 1,000 ppm or less;
  - e. Lack of noticeable odor.
2. SCI shall ensure that oxygen is not used in compressed air units.
3. SCI shall ensure that oxygen concentrations greater than 23.5% are used only in equipment designed for oxygen service or distribution.
4. SCI shall ensure that cylinders used to supply breathing air to respirators meet DOT requirements and that:
  - a. Cylinders are tested and maintained as prescribed in the Shipping Container Specification

- Regulations of the Department of Transportation (49 CFR part 173 and part 178);
- b. Cylinders of purchased breathing air have a certificate of analysis from the supplier that the breathing air meets the requirements for Type 1-Grade D breathing air; and
  - c. The moisture content in the cylinder does not exceed a dewpoint of—50 deg. F -45.6 deg. C) at 1-atmosphere pressure.
5. SCI shall ensure that compressors used to supply breathing air to respirators are constructed and situated to prevent entry of contaminated air into the air-supply system;
- a. Minimize moisture content so that the dew point at 1-atmosphere pressure is 10 degrees F (5.56 deg. C) below the ambient temperature;
  - b. Have suitable in-line air-purifying sorbent beds and filters to ensure further breathing air quality. Sorbent beds and filters shall be maintained and replaced or refurbished periodically following the manufacturer's instructions.
  - c. Have a tag containing the most recent change date and the signature of the person authorized by SCI to perform the change. The tag shall be maintained at the compressor.
  - d. For compressors that are not oil-lubricated, SCI shall ensure that carbon monoxide levels in the breathing air do not exceed 10 ppm.
  - e. For oil lubricated compressors, SCI shall use a high temperature or carbon monoxide alarm, or both, to monitor carbon monoxide levels. If only high-temperature alarms are used, the air supply shall be monitored at intervals sufficient to prevent carbon monoxide in the breathing air from exceeding 10 ppm.
6. SCI shall ensure that breathing air couplings are incompatible with outlets for non-reparable worksite air or other gas systems. No asphyxiating substance shall be introduced into breathing airlines.

### **Repairs**

SCI shall ensure that respirators that fail an inspection or are otherwise found to be defective are immediately removed from service, and are discarded or repaired or adjusted by the following procedures:

1. Repairs or adjustments to respirators are to be made only by persons appropriately trained to perform such operations and shall use only the respirator manufacturer's NIOSH-approved parts designed for the respirator.
2. Repairs shall be made according to the manufacturer's recommendations and specifications for the type and extent of repairs to be performed

### **Voluntary Use**

If an employee chooses to voluntarily wear a respirator when not required by this Program (contaminants do not meet protection standards, odors, etc.) they will be advised of the following in their training:

1. Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for employees.
2. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the employee. Sometimes, employees may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your respirator, you must take certain precautions to be sure that the respirator itself does not present a hazard.
  - a. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and

care, and warnings regarding the respirators limitations.

- b. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
- c. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
- d. Keep track of your respirator so that you do not mistakenly use someone else's respirator.

### **Workplace Monitoring**

A program of monitoring potential employee exposures has been implemented through the corporate health and safety department. Project personnel may also be assigned with the task of conducting air monitoring. Direct-reading instruments will also be used in the characterization of potential exposures. All the data collected is used to determine the appropriateness of the respiratory equipment.

### **Recordkeeping**

SCI will establish and retain written information regarding medical evaluations, fit testing and the respirator program. Records of medical evaluations required by this section must be retained and made available per 29 CFR 1910.1020. SCI shall provide the employee with an opportunity to discuss the questionnaire and examination results with the PLHCP. Records will be treated confidentially and maintained on file in the SCI corporate office by the Safety Manager.

### **Program Evaluation**

SCI shall conduct evaluations of the workplace as necessary to ensure that the provisions of the current written program are effectively implemented and that it continues to be effective.

SCI shall regularly consult employees required to use respirators to assess the employees' views on this program's effectiveness and to identify any problems. Any problems that are identified during this assessment shall be corrected. Factors to be assessed and verified include, but are not limited to:

1. Respirator fit (including the ability to use the respirator without interfering with effective workplace performance); Appropriate respirator selection for the hazards to which the employee is exposed;
2. Proper respirator uses under the workplace conditions the employee encounters; and
3. Proper respirator maintenance.

### **Training**

All employees will receive respirator training during their initial health and safety training class and on at least an annual basis if required for their job classification. Training shall address employee knowledge of respirators, fit, use, limitations, emergency situations, wearing, fit checks, maintenance & storage, medical signs and symptoms of effective use and general requirements of the OSHA standard. The training must be provided before requiring the employee to use the respirator.

### **Retraining**

Retraining shall be administered annually, and when the following situations occur:

1. Changes in the workplace or the type of respirator render previous training obsolete;
2. Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill; or
3. Any other situation in which retraining appears necessary to ensure safe respirator use.

**SAFE WORK PRACTICES**

**RESPIRATORY PROGRAM FIT TEST**

**SCI Qualitative Respiratory Fit Test Record Sheet**

**Note: Employee Must Have Completed Respiratory Protection Training and Passed Airway Exam Before Fit Testing**

<b>Project:</b>	
<b>Test Date:</b>	
<b>Employee Name:</b>	
<b>SS#</b>	

**Test Agent:** Irritant Smoke (Stannic Chloride)

**Respirator Identification:**

Model: North 7700 Series Half Mask                      Size (circle one):      Small    Medium    Large  
 Manufacturer: North Safety Products                      Approval No: 42 CFR 84  
 Additional Information: Respirator must be equipped with North HEPA filters

**Fit Test Protocol (Test Subject Initials indicate steps were performed):**

**TOLD TO KEEP EYES CLOSED DURING SMOKE EXPOSURE**

- |  |  |
|--|--|
| <input type="checkbox"/> Test subject smelled irritant smoke before Fit Test.<br><input type="checkbox"/> Mirror available for use by the subject<br><input type="checkbox"/> Must wear PPE (hard hat, etc.) if needed<br><input type="checkbox"/> Test subject did not have hair in the fitting area<br><input type="checkbox"/> Performed positive pressure & negative fit check successfully after seating respirator | <input type="checkbox"/> Protocol reviewed before fit test<br><input type="checkbox"/> Shown how to wear a respirator<br><input type="checkbox"/> Wore respirator 5 minutes before the fit test<br><input type="checkbox"/> Performed positive pressure & negative fit |
|--|--|

**Fit Test Steps (1 minute each except Grimace = 15 seconds)**

- |  |  |
|--|--|
| <input type="checkbox"/> Breathe normally<br><input type="checkbox"/> Turned head side to side<br><input type="checkbox"/> Talking (Read Rainbow Passage)<br><input type="checkbox"/> Jog in place | <input type="checkbox"/> Breathe deeply<br><input type="checkbox"/> Nod up and down<br><input type="checkbox"/> Grimace<br><input type="checkbox"/> Breathe normally |
|--|--|

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

Fit Test Results: Pass \_\_\_\_\_ Fail \_\_\_\_\_ Test Subject: \_\_\_\_\_  
 Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
 Examiner's Name: \_\_\_\_\_ Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

<b>VOLUNTARY RESPIRATOR USE POLICY</b>
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SCI allows employees the voluntary use of respirators. All employees must follow the OSHA requirements copied from the OSHA Standards below on this.

**(Mandatory) Information for Employees Using Respirators When Not Required Under Standard. - 1910.134 App D**

Regulations (Standards - 29 CFR) - Table of Contents

Part Number	1910
Part Title	Occupational Safety and Health Standards
Subpart	I
Subpart Title	Personal Protective Equipment
Standard Number	1910.134 App D
Title	(Mandatory) Information for Employees Using Respirators When Not Required Under Standard.

**Appendix D to Sec. 1910.134 (Mandatory) Information for Employees Using Respirators When Not Required Under the Standard**

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitations.
2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.

[63 FR 1152, Jan. 8, 1998; 63 FR 20098, April 23, 1998]

I understand the policy listed above and agree to follow it.

Name \_\_\_\_\_

Date \_\_\_\_\_

## ***SAFE WORK PRACTICES***

### ***EXCAVATION STANDARD***

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#### **PURPOSE**

The purpose of this training program is to protect employees from safety hazards that may be encountered during work in trenches and excavations. Our employees at SCI are our most valuable resource. Trench safety is and has always been a high priority at ORC. Our mission is to provide quality construction services to our clients at the most competitive price. To provide this service in our trenching and excavation operations, we expect all SCI employees to maintain a commitment to excellence and compliance in our Excavation and Trenching Program.

#### **SCOPE**

All excavations. The Excavation and Trenching Program is just one of many programs initiated by SCI to eliminate possible hazards. We at SCI will follow all federal, state and local laws, ordinances or guidelines associated with excavation and trenching. At ORC, we expect you to implement, adhere to, and most importantly, improve our safety performance and programs designed to provide a workplace free from all recognized hazards that could potentially affect the safety and health of all SCI employees.

#### **DEFINITIONS**

**Accepted engineering practices** mean the standards of practice required by a registered professional engineer.

**Access and Egress** Relating to the entry and exit of the trench.

**Aluminum Hydraulic Shoring** means a manufactured shoring system consisting of aluminum hydraulic cylinders (cross braces) used with vertical rails (uprights) or horizontal rails (wales).

**Bell-bottom pier hole** means a type of shaft or footing excavation, the bottom of which is made larger than the cross-section above to form a belled shape.

**Benching (Benching system)** is a method of protecting employees from cave-ins by excavating the sides of an excavation to form one or more horizontal steps, usually with vertical or near-vertical surfaces between levels.

**Cave-in** means the movement of soil or rock into an excavation, or the loss of soil from under a trench shield or support system, in amounts large enough to trap, bury or injure and immobilize a person.

**Cross braces** mean the horizontal members of a shoring system installed from side to side of the excavation. The cross braces bear against either uprights or Wales.

**Excavation** means any man-made cut, cavity, trench, or depression in an earth surface formed by earth removal. Faces or sides mean the vertical or inclined earth surfaces formed as a result of excavation work.

**Failure** means the movement or damage of a structural member or connection that makes it unable to support loads.

**Hazardous atmosphere** means an atmosphere that is explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen deficient, toxic, or otherwise harmful, which may cause death, illness, or injury.

**Health Safety Officer** means the individual at SCI responsible for developing and implementing this program, conducting unannounced worksite inspections, and ensuring that the departments comply with the program requirements.

**Kick-out** means the accidental movement or failure of a cross brace.

**The protective system** means a method of protecting employees from cave-ins, from the material that could fall or roll from an excavation face into an excavation, or from the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield systems, and other engineered designed systems that provide the necessary protection.

**Ramp** means an inclined walking or working surface that is used to gain access to one point from another. A ramp may be constructed from earth or structural materials such as steel or wood.

**Sheeting** means the members of a shoring system that retain the earth in position and in turn are supported by other members of the shoring system.

**Shield (Shield system)** means a structure used in an excavation to withstand cave-ins and which will protect employees working within the shield system. Shields can be permanent structures, or portable units moved along as work progresses. Shields used in trenches are usually referred to as "trench boxes" or "trench shields."

**Shoring (Shoring system)** means a structure that is built or put in place to support the sides of an excavation to prevent cave-ins.

**Sides.** See "Faces."

**Sloping (Sloping system)** means sloping the sides of the excavation away from the excavation to protect employees from cave-ins. The required slope will vary with soil type, weather, and surface or near surface loads that may affect the soil in the area of the trench (such as adjacent buildings, vehicles near the edge of the trench and so forth).

**Stable rock** means a natural solid mineral material that can be excavated with vertical sides that will remain intact while exposed.

**Structural ramp** means a ramp built of steel or wood, usually used for vehicle access. Ramps made of soil or rock are not considered structural ramps.

**Support system** means a structure such as underpinning, bracing, or shoring, which provides support to an adjacent structure, underground installation, or the sides of an excavation.

**Tabulated data** means tables and charts approved by a registered professional engineer and used to design and construct a protective system.

**Trench (Trench excavation)** means a narrow excavation (concerning its length) made below the surface of the ground.

**Trench box or shield.** See "Shield."

**Uprights** mean the vertical members of a trench shoring system placed in contact with the earth and usually positioned so that individual members do not contact each other. Uprights placed so that individual members are closely spaced, in contact with or interconnected to each other, are often called "sheeting."

**Wales** are horizontal members of a shoring system placed in the direction of the excavation face whose sides bear against the vertical members of the shoring system or earth (the uprights or sheeting).

## **RESPONSIBILITIES**

ORC, through the direction and leadership of the Safety Director, Project Manager, Superintendent and Site Safety Supervisor, will these safe work practices are adhered to at all time.

## **PROCEDURE**

**Competent Person Duties** – The Site Safety Supervisor or their designee shall have the following duties:



#### **A. Protective Systems or Equipment**

1. Monitoring water removal equipment and operations.
2. Inspecting excavations subject to runoff from heavy rains to determine the need for diversion ditches, dikes, or other suitable protection.
3. Determining cave-in potential to assess the need for shoring or another protective system.
4. Examining damaged material or equipment used for protective systems to determine its suitability for continued use.
5. Classifying soil and rock deposits, by both visual analysis and by testing, to determine appropriate protection; re-classifying, if necessary, based on changing conditions.
6. Determining the appropriate slope of an excavation to prevent collapse due to surcharge loads from stored material or equipment, operating equipment, adjacent structures, or traffic, and assuring that such slope is achieved.

#### **B. Inspecting Trench and Protective Systems**

Authorizing immediate removal of employees from the hazardous area where evidence of possible cave-in, failure of protective systems, hazardous atmospheres, or other hazardous conditions exists.

#### **C. Unsafe Access/Egress**

Designing structural ramps that are used solely by employees as a means of access or egress. Structural ramps used for access or egress of equipment must be designed by a competent person qualified in structural design.

#### **D. Utilities and Pre-work Site Inspection**

The location of underground installations shall be determined before excavation.

When utility companies or owners cannot respond to a request to locate underground utility installations within 48 hours, or cannot establish the exact location of these installations, SCI may proceed, provided it did so with caution and provided detection equipment or other acceptable means to locate utility installations are used.

Excavation shall be done in a manner that does not endanger the underground installations or the employees engaged in the work. Utilities left in place shall be protected by barricades, shoring, suspension or other means as necessary to protect employees.

#### **E. Protection of the public**

Barricades, walkways, lighting, and posting shall be provided as necessary for the protection of the public before the start of excavation operations.

Guardrails, fences, or barricades shall be provided on excavations adjacent to walkways, driveways and other pedestrian or vehicle thoroughfares. Warning lights or other illumination shall be maintained as necessary for the safety of the public and employees from sunset to sunrise.

Wells, holes, pits, shafts and all similar hazardous excavations shall be effectively barricaded or covered and posted as necessary to prevent unauthorized access. All temporary excavations of this type shall be backfilled as soon as possible.

#### **F. Protection against falls**

Walkways or bridges protected by standard guardrails shall be provided where employees and the public are permitted to cross over excavations. Where workers in the excavation may pass under these walkways or bridges, a standard guardrail and toe board shall be used.

#### **G. Protection of workers in excavations**

##### **1. Access and Means of Egress**

Stairs, ladders or ramps shall be provided where employees are required to enter trench excavations

over 4 feet deep. The maximum distance of lateral travel (e.g., along the length of the trench) required to reach the means of egress shall not exceed 25 feet.

2. Structural Ramps

- a. Structural ramps used solely by employees as a means of access or egress from excavations shall be designed by a competent person. Structural ramps used for access or egress of equipment shall be designed by a person qualified in structural design and shall be constructed following the design.
- b. Ramps and runways constructed of two or more structural members shall have the structural members connected to prevent movement or displacement.
- c. Structural members used for ramps and runways shall be of uniform thickness.
- d. Cleats or other appropriate means used to connect runway structural members shall be attached to the bottom of the runway or shall be attached in a manner to prevent tripping.
- e. Structural ramps used in place of steps shall be provided with cleats or other surface treatments on the top surface to prevent slipping.

3. Ladders

- a. When portable ladders are used, the ladder side rails shall extend a minimum of 3 feet above the upper surface of the excavation.
- b. Ladders shall have nonconductive side rails if work will be performed near exposed energized equipment or systems.
- c. Two or more ladders, or a double-cleated ladder, will be provided where 25 or more employees will be conducting work in an excavation where ladders serve as the primary means of egress, or where ladders serve two-way traffic.
- d. Ladders will be inspected before use for signs of damage or defects. Damaged ladders will be removed from service and marked with "Do Not Use" until repaired.
- e. Ladders shall be used only on stable and level surfaces unless secured. Ladders placed in any location where they can be displaced by workplace activities or traffic shall be secured, or barricades shall be used to keep these activities away from the ladder.
- f. Non-self-supporting ladders shall be positioned so that the foot of the ladder is one-quarter of the working length away from the support.
- g. Employees shall not be allowed to carry any object or load while on the ladder that could cause them to lose their balance and fall.

4. Exposure to Vehicular Traffic

Employees exposed to vehicular traffic shall be provided with and shall wear vests or other suitable garments marked with or made of reflectorized or high-visibility material. Warning vests worn by flagmen shall be red or orange and shall be of reflectorized material if worn during night work.

5. Employee Exposure to Falling Loads

No employee shall be permitted underneath loads (or where loads may fall) handled by lifting or digging equipment. Employees shall be 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 provide adequate protection for the operator during loading and unloading operations.

6. Warning System for Mobile Equipment

A warning system shall be used when mobile equipment is operated adjacent to the edge of an excavation if the operator does not have a clear and direct view of the edge of the excavation. The

warning system shall consist of barricades, hand or mechanical signals, or stop logs. If possible, the grade should be away from the excavation.

7. Hazardous Atmospheres

- a. The atmosphere shall be tested for air contaminants (oxygen, flammable gases, etc.) in excavations over 4 feet deep or if a hazardous atmosphere exists or could reasonably be expected to exist. A hazardous atmosphere could be expected, for example, in excavations in landfill areas, in excavations in areas where hazardous substances are stored nearby, or in excavations near or containing gas pipelines.
- b. Adequate precautions shall be 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 forced ventilation of the workspace.
- c. Forced ventilation will be provided where necessary to ensure the atmosphere is safe. When controls are used that are intended to reduce the level of atmospheric contaminants to acceptable levels, continuous air monitoring will be performed. The device used for atmospheric monitoring shall be equipped with an audible and visual alarm.
- d. Atmospheric testing will be performed using a properly calibrated direct reading gas monitor that is approved by the safety director. Direct reading gas detector tubes or other acceptable means may also be used to test potentially toxic atmospheres with the understanding that detector tubes are only accurate to a percentage and not to be used as a sole source for entry.

8. Personal Protective Equipment

- a. All employees working in trenches or excavations shall wear approved hard-hats and proper foot protection.
- b. Employees exposed to flying fragments, dust, or other materials produced by drilling, sawing, sanding, grinding and similar operations shall wear approved safety glasses with side shields.
- c. Employees exposed to hazards produced by or performing, welding, cutting, or brazing operations shall wear approved spectacles or a welding face shield or helmet.
- d. Employees entering bell-bottom pier holes or other similar deep and confined footing excavations shall wear a harness with a lifeline securely attached to it. The lifeline shall be separate from any line used to handle materials and shall be individually attended at all times while the employee wearing the lifeline is in the excavation.
- e. Employees shall wear approved gloves or other suitable hand protection.
- f. Employees using, or working near, hammer drills, masonry saws, jackhammers or similar high noise producing equipment shall wear suitable hearing protection.
- g. Each employee at the edge of an excavation 6 feet or deeper shall be protected from falling. Fall protection shall be provided by guardrail systems, fences or barricades.
- h. Emergency rescue equipment, such as breathing apparatus, a safety harness, and line, and a basket stretcher shall be readily available where hazardous atmospheric conditions exist or may develop during work in an excavation. This equipment shall be attended when in use. Only personnel that have received approved training and have appropriate equipment shall attempt retrieval that would require entry into a hazardous atmosphere.

9. Protection from Hazards Associated with Water Accumulation

- a. Employees shall not work in excavations that contain or are accumulating water unless precautions have been taken to protect employees against the hazards posed by water accumulation. The precautions taken must include inspection by a competent person before work begins, special support or shield systems to protect from cave-ins, water removal to

control the level of accumulating water or use of safety harnesses and lifelines.

- b. If water is controlled or prevented from accumulating by the use of water removal equipment, the water removal equipment and operation shall be monitored by a competent person trained in the use of the equipment.
- c. If excavation work interrupts the natural drainage of surface water (such as streams), diversion ditches, dikes, or other suitable means shall be used to prevent surface water from entering the excavation. Precautions shall also be taken to provide adequate drainage of the area adjacent to the excavation.
- d. The competent person shall inform workers of the precautions or procedures that are to be followed if water accumulates or is accumulating in an excavation.

10. Stability of Adjacent Structures

- a. The competent person will determine if the excavation work could affect the stability of adjoining buildings, walls, sidewalks or other structures.
- b. Support systems (such as shoring, bracing, or underpinning) shall be used to assure the stability of structures and the protection of employees where excavation operations could affect the stability of adjoining buildings, walls, or other structures.
- c. Excavation below the level of the base or footing of any foundation or retaining wall that could be reasonably expected to pose a hazard to employees shall not be permitted.

11. Protection of Employees from Falling Objects and Loose Rocks or Soil

Adequate protection shall be provided to protect employees from loose rock or soil that could pose a hazard by falling or rolling from an excavation face. Such protection shall consist of:

- a. Scaling to remove loose material;
- b. Installation of protective barricades, such as wire mesh or timber, at appropriate intervals on the face of the slope, to stop and contain falling material; or Benching sufficient to contain falling material.
- c. Excavation personnel shall not be permitted to work above one another where the danger of falling rock or earth exists.
- d. Employees shall be protected from excavated materials, equipment or other materials that could pose a hazard by falling or rolling into excavations.
- e. Protection shall be provided by keeping such materials or equipment at least 2 feet from the edge of excavations, by the use of restraining devices that are sufficient to prevent materials or equipment from falling or rolling into excavations, or by a combination of both if necessary.
- f. Materials and equipment may, as determined by the competent person, need to be stored further than 2 feet from the edge of the excavation if a hazardous loading condition is created on the face of the excavation.
- g. Materials piled, grouped or stacked near the edge of an excavation must be stable and self-supporting.
- h. Using the following categories, the soil is classified into different types, which determine the kind of cave-in protection required. Only a competent and trained person can determine the soil type by using these classifications.
- i. Grain sizes are usually classified into four types: gravel, sand, silt, clay. Gravel is the least stable, and clay is the most stable.
- j. Saturation is the amount of water that the soil is currently holding. Complete saturation is

much less stable than soil that is only slightly damp. However, soil with no water content is unstable.

- k. Cohesiveness is a test that determines how well the soil sticks together. The more it sticks together, the more stable the trench walls will be. The field test usually consists of rolling the soil in your hand into the shape of a worm and observing how and when it separates.
- l. Unconfined compressive strength determines how much weight per square foot the soil can withstand. This will determine how easily the soil will shear and cave-in.

#### 12. Soil Types

The most stable type of soil is **Type A**. It is dense and heavy and consists primarily of clay.

**Type B** has a medium level of stability and is made of soils such as silt, sandy loam, and medium clay.

The least stable soil is **Type C**, which consists of gravel, loamy sand, and soft clay.

#### 13. Stable Rock

- a. Stable Rock- Stable rock "means a natural solid mineral material that can be excavated with vertical sides and will remain intact while exposed."
- b. Timber shoring or aluminum hydraulic shoring must be determined according to the appendixes A & C of 29 CFR 1926 (Excavations).
- c. The devices should be used while in good repair and maintenance. If damaged they must be inspected.
- d. Employees should be protected from hazards of falling, rolling or sliding materials or equipment. Shields should not be subjected to excessive forces and will be installed to protect employees from lateral loads. Employees are restricted from being in the shield when installing or removing. The shield must be designed to resist calculated trench forces.

#### 14. Daily Inspection

- a. The competent person shall conduct daily inspections of excavations, adjacent areas, and protective systems for evidence of a situation that could result in possible cave-ins, failure of protective systems, hazardous atmospheres or other hazardous conditions. An inspection shall be conducted by the competent person before the start of work and as needed throughout the shift with a minimum of 3 times per shift. Inspections shall also be made after every rainstorm or other hazard increasing occurrence. These inspections are only required when the trench will be or is occupied by employees.
- b. Where the competent person finds evidence of a situation that could result in a possible cave-in, failure of protective systems, hazardous atmosphere, or other hazardous conditions, exposed employees shall be immediately removed from the hazardous area until precautions have been taken to assure their safety.
- c. There shall be a written log of all inspections conducted. This log shall include the date, worksite location, results of the inspection, and a summary of any action taken to correct existing hazards.

## **H. Training**

1. All personnel involved in trenching or excavation work shall be trained in the requirements of this program and regulatory requirements.
2. Training shall be performed before the employee is assigned duties in excavations.

3. Retraining will be performed whenever work site inspections conducted by the competent person or Health Safety Officer indicate that an employee does not have the necessary knowledge or skills to safely work in or around excavations.

Training records shall include the date(s) of the training program, the instructor(s) of the training program, a copy of the written material presented, and the names of the employee(s) to whom the training was given.

## ***SAFE WORK PRACTICES***

### ***WELDING/HOT WORK***

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#### **PURPOSE**

The purpose of this program is to assure a safe work environment during welding, cutting, and hot work operations.

#### **SCOPE**

This program applies to all employees directly involved or assisting in the welding, cutting and hot work operations. When work is performed on a no owned or operated site, the operator's program shall take precedence, however, this document covers SCI employees and contractors and shall be used on owned premises, or when an operator's program doesn't exist or is less stringent. Operators of equipment shall report any equipment defect or safety hazards and discontinue use of equipment until its safety has been assured. Repairs shall be made only by qualified personnel. If welding and cutting cannot be conducted safely the welding and cutting operation shall not be performed.

#### **DEFINITIONS**

**Welding/Hot Work Procedures** - any activity which results in sparks, fire, molten slag, or hot material which has the potential to cause fires or explosions.

**Examples of Hot Work** - Cutting, Brazing, Soldering, Thawing Pipes, Grinding, using an electric power tool in a hazardous area and Welding.

**Special Hazard Occupancies** - any area containing Flammable Liquids, Dust Accumulation, Gases, Plastics, Rubber and Paper Products.

Hazards-includes, but not limited to the following; fires and explosions, skin burns, welding "blindness," and respiratory hazards from fumes and smoke.

#### **KEY RESPONSIBILITIES**

##### **A. Supervisors**

1. Determine if its property is safe for welding and cutting operations.
2. Establish safe areas for welding and cutting operations.
3. Provide training for all employees whose task includes heat, spark or flame producing operations such as welding, brazing, or grinding.
4. Develop and monitor effective hot work procedures.
5. Provide safe equipment for hot work.
6. Provide proper and effective PPE for all hot work.
7. Monitor all hot work operations.
8. Ensure all hot work equipment and PPE are in safe working order.
9. Allow only trained and authorized employees to conduct hot work and conduct inspections of the hot work area before operations begin.
10. Ensure permits are used for all hot work outside authorized areas.

##### **B. Employees**

1. Follow all hot work procedures.
2. Properly use appropriate hot work PPE.

3. Inspect all hot work equipment before use.
4. Report any equipment problems or unsafe conditions.

## **PROCEDURE**

### **A. General**

1. Before cutting or welding is permitted the area shall be inspected by a SCI supervisor responsible for inspection and granting authorized welding and cutting operations. Precautions that are to be taken shall be in the form of a written Hot Work Permit.
2. Where practicable all combustibles shall be relocated at least 35 feet from the work site. Where relocation is impractical, combustibles shall be protected with flameproof covers, shielded with metal, guards, curtains, or wet down the material to help prevent ignition of material.
3. Ducts, conveyor systems, and augers that might carry sparks to distant combustibles shall be protected or shut down.
4. Where cutting or welding is done near walls, partitions, ceilings, or openings in the floor (grating, manholes, etc.), fire-resistant shields or guards shall be provided to prevent ignition.
5. If welding is to be done on a metal wall, partition, ceiling, or solid decking/flooring, precautions shall be taken to prevent ignition of combustibles on the other side, due to conduction or radiation of heat. Where combustibles cannot be relocated on the opposite side of the work, a fire watch person shall be provided on the opposite side of the work.
6. Welding shall not be attempted on a metal partition, wall, and ceiling or decking/ flooring constructed of combustible sandwich panels.
7. Cutting or welding on pipes or other metal in contact with combustible walls, partitions, floors, ceilings, or roofs shall not be undertaken if the work is close enough to cause ignition by combustion.
8. Cutting or welding shall not be permitted in the following situations:
  - a. In areas not authorized by management.
  - b. In sprinkled buildings, while such protection is impaired.
  - c. In the presence of potentially explosive atmospheres, e.g., flammable.
  - d. In areas near the storage of large quantities of exposed, readily ignitable materials.
  - e. In areas where there is dust accumulation of greater than 1/16 inch within 35 feet of the area where welding/hot work will be conducted.
  - f. All dust accumulation shall be cleaned up before welding, or hot work is permitted.
9. Whenever welding or cutting is performed in locations where other than a minor fire might develop or any of the conditions mentioned above cannot be met, a fire watch shall be provided.
10. The fire watch shall be provided during and for a minimum of 1/2 hour past the completion of the welding project.
11. The fire watch shall be trained in the use of fire extinguishers and the facility's alarm system.
12. During this time the fire watch will have appropriate fire extinguishers readily available.
13. Suitable extinguishers shall be provided and maintained ready for instant use.
14. A hot-work permit will be issued on all welding or cutting outside of the designated welding area.



## **B. Fire Prevention Measures**

1. A designated welding area shall be established to meet the following requirements:
2. Floors swept and cleaned of combustibles within 35 feet of work area.
3. Flammable and combustible liquids and material will be kept 35 feet from work area.
4. Adequate ventilation is providing 20 air changes per hour.
5. At least one 10-pound dry chemical fire extinguisher shall be within access of 35 feet of the work area.
6. Protective dividers such as welding curtains or noncombustible walls will be provided to contain sparks and slag in the combustible free area.

Requirements for welding conducted outside the designated welding area:

1. Portable welding curtains or shields must be used to protect other workers in the welding area.
2. A hot-work permit must be completed and complied with before initiating welding operations.
3. Respiratory protection is mandatory unless an adequate monitored airflow away from the welder and others present can be established and maintained.
4. Plastic materials must be covered with welding tarps during welding procedures.
5. Fire Watch must be provided for all hot-work operations.

After welding operations are completed, the welder shall mark the hot metal or provide some other means of warning other workers.

## **C. Confined Space**

A space that is large enough and so configured that an employee can bodily enter and perform assigned work;

1. Has limited or restricted means for entry or exit (for example, tanks, vessels, coolers, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry); and
2. Is not designed for continuous occupancy.
3. Refer to SCI Confined Space Program before commencing any welding, cutting, and brazing operations in an area meeting the requirements of a confined space.

### **Ventilation is a prerequisite to work in confined spaces.**

1. When welding or cutting is being performed in any confined spaces, the gas cylinders, and welding machines shall be left on the outside. Before operations are started, heavy portable equipment mounted on wheels shall be securely blocked to prevent accidental movement
2. When a welder must enter a confined space through a manhole or other small opening, means shall be provided for quickly removing him in case of an emergency.
3. If safety harness and lifelines are feasible for this purpose, they shall be so attached to the welder's body that it cannot be jammed in a small exit opening.
4. An attendant with a preplanned rescue procedure shall be stationed outside to observe the welder at all times and be capable of putting rescue operations into effect.
5. When arc welding is to be suspended for any substantial period, such as during lunch or overnight, all electrodes shall be removed from the holders and the holders carefully located so that accidental contact cannot occur, and the machine shall be disconnected from the power source.
6. In order to eliminate the possibility of gas escaping through leaks of improperly closed valves, when gas welding or cuffing, the torch valves shall be 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 substantial periods, such as during lunch hour or overnight. If practical, the torch and hose shall also be removed from the confined space.

7. When welding must be performed in a space entirely screened on all sides, the screens shall be so arranged 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.
8. A fixed enclosure shall have a top and not less than two sides which surround the welding or cutting operations, and a rate of airflow sufficient to maintain a velocity away from the welder of not less than 100 linear feet (30 m) per minute.
9. All welding and cutting operations carried on in confined spaces shall be 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 withdrawn will be replaced with air that is clean.
10. 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) will be provided. In areas immediately hazardous to life, a full-facepiece, positive pressure, self-contained breathing apparatus or a combination full-face piece, a positive pressure supplied-air respirator with an auxiliary, self-contained air supply approved by NIOSH must be used.
11. 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, a worker shall be stationed on the outside of such confined spaces to ensure the safety of those working within.

#### **D. Fumes, Gases, and Dust**

1. Fumes produced by some welding processes can be toxic and may require source extraction. An assessment of the work to be performed must be completed before each job is undertaken. Fumes contain particles from the material being welded. Welding fumes can have an acute effect on the respiratory system.
2. Any welding, cutting or burning of lead base metals, zinc, cadmium, mercury, beryllium or exotic metals or paints that could produce dangerous fumes shall have proper ventilation or respiratory protection.
3. Welders and helpers will refer to SCI Respiratory Protection Program to determine the appropriate respiratory protection to be used during welding operations.
4. All welding and cutting operations shall be adequately ventilated to prevent the accumulation of toxic materials. This applies not only to the welder but also to helpers and other personnel in the immediate vicinity.

#### **E. Personal Protection**

1. Helmets and hand shields shall be made of a material, which is an insulator for heat and electricity. Helmets, shields, and goggles shall not be readily flammable and shall be capable of withstanding sterilization.
2. Helmets and hand shields shall be arranged to protect the face, neck, and ears from direct radiant energy from the arc.
3. Helmets shall be provided with filter plates and cover plates designed for easy removal.

4. All parts shall be constructed of a material, which will not readily corrode or discolor the skin.
5. Goggles shall be ventilated to prevent fogging of the lenses as much as practicable.
6. All glass for lenses shall be tempered, substantially free from scratches, air bubbles, waves and other flaws. Except when a lens is ground to provide proper optical vision correction, the front and rear surfaces of lenses and windows shall be smooth and parallel.
7. Lenses shall bear some permanent distinctive marking which may readily identify the source and shade.

The following is a guide for the selection of the proper shade numbers. These recommendations may be varied to suit the individual's needs.

Welding Operation	Shade Number	
Shielded metal — arc welding 1/16, 3/32, 1/8, 5/32-inch	10	
Gas shielded arc welding (nonferrous) 1/16, 3/32, 5/32-inch	11	
Gas shielded arc welding (ferrous) 1/16, 3/32, 1/8, 5/32	12	
Shielded metal arc welding: 3/16	7/32, 1/4-inch	12
	5/16, 3/8-inch	14
Atomic hydrogen welding	10 – 14	
Carbon arc welding	14	
Soldering	2	
Torch Brazing	3 or 4	
Light cutting, up to 1 inch	3 or 4	
Medium cutting, 1 inch to 6 inches	4 or 5	
Welding Operation	Shade Number	
Heavy cutting, 6 inches or over	5 or 6	
Gas welding (light) up to 1/8 inch	4 or 5	
Gas welding (medium) 1/8, 1/2 inch	5 or 6	
Gas welding (heavy) 1/2 inch or over	6 or 8	

**NOTE:**

In gas welding or oxygen cutting where the torch produces high yellow light, it is desirable to use a filter or lens that absorbs the yellow or sodium line in the visible light of the operation. All filter lenses and plates shall meet the test for transmission of radiant energy prescribed in ANSI Z87.1 - 1968 - American National Standard Practice for Occupational and Educational Eye and Face Protection. Where the work permits the welder to be enclosed in an individual booth painted with a finish of low reflectivity's such as zinc oxide (an important factor for absorbing ultraviolet radiation) and lamp black or shall be enclosed with noncombustible screens similarly painted. Booths and screens shall permit circulation of air at floor level. Workers or other persons adjacent to the welding areas shall be protected from the rays by noncombustible or flameproof screens or shields or shall be required to wear appropriate goggles.

Adequate hand protection and clothing must be used to protect the body from welding hazards.

**F. Cleaning Compounds**

1. In the use of cleaning materials, because of their possible toxicity or flammability, appropriate precautions such as manufacturer instructions shall be followed.
2. Degreasing and other cleaning operations involving chlorinated hydrocarbons shall be so located that no vapors from these operations will reach or be drawn into the atmosphere surrounding any

welding operation.

3. Also, trichloroethylene and perchloroethylene shall be kept out of atmospheres penetrated by the ultraviolet radiation of gas-shielded welding operations.
4. Oxygen cutting, using a chemical flux, iron powder or gas shielded arc cutting for stainless steel shall be performed using mechanical ventilation adequate to remove the fumes generated.

## **G. Cylinders**

1. Compressed gas cylinders shall be DOT approved and legibly marked near the shoulder of the cylinder for identifying the gas content with either the chemical or trade name of the gas.
2. All compressed gas cylinder connections must comply with ANSI B57. 1-1965 Standards.
3. Compressed gas cylinders shall be secured in an upright position at all times except, if necessary, for short periods of time while cylinders are being hoisted or carried.
4. All cylinders shall be kept away from sources of heat and from radiators and piping systems that may be used for grounding purposes. Cylinders and cylinder valves including couplings and regulators shall be kept free from oily or greasy substances and must not be handled with gloves or rags in the same condition.
5. Stored oxygen cylinders shall be kept at least 20 feet from the fuel cylinders or combustible materials, especially oil or grease, or separated by a noncombustible barrier at least 5 feet high with a fire rating of at least one-half hour. All empty cylinders shall have closed valves. Valve protection caps shall always be in place and hand-tight except when cylinders are in use or connected for use.
6. Cylinders shall not be kept in unventilated enclosures such as lockers and cupboards.
7. Fuel gas cylinders stored inside buildings shall be limited to a total capacity of 2000 cubic feet (300 pounds) of liquefied petroleum gas, except for those in actual use or attached ready for use.
8. All acetylene cylinders shall be stored valve-end up.
9. Assigned storage spaces shall be located where cylinders cannot be knocked over or damaged by falling objects or subject to tampering by unauthorized persons.
10. Back flow protection shall be provided by an approved device that will prevent oxygen from flowing into the fuel gas system or fuel from flowing into the oxygen system.
11. An approved device that will prevent the flame from passing into the fuel-gas system shall provide flashback protection.
12. An approved pressure-relief device set at the appropriate pressure shall provide backpressure protection.
13. Special care must be taken when transporting gas cylinders:
  - a. Cylinders must be secured with valve cap installed.
  - b. Cylinders shall not be lifted by the valve protection caps, the regulators must be removed, and cylinders shall not be dropped or permitted to strike each other.
  - c. Removed regulators must be carried in the cab of the vehicle.
  - d. Cylinders shall not be tampered with nor should any attempt be made to repair them.
  - e. They shall be handled carefully; rough handling, knocks, or falls are liable to damage the cylinder, valve or safety device and cause leakage.
  - f. Safety devices shall not be tampered with.

## **H. Arc Welding and Cutting**

1. All personnel operating, installing, and maintaining welding equipment shall be qualified or trained to operate and maintain such equipment.
2. All workmen assigned to operate or maintain equipment shall be familiar with, and electrical welding equipment shall be chosen for safe operation and comply with applicable Requirements for Electric Arc Welding Standards to include: 29 CFR 1910.254, 29 CFR 1910.252 (a)(b)(c) and if gas shielded arc welding is done the must be familiar with the American Welding Society Standard A6-1-1966.
3. Arc welding equipment must be designed to meet conditions such as exposure to corrosive fumes, excessive humidity, excessive oil vapor, flammable gasses, abnormal vibration or shock, excessive dust, and seacoast or shipboard conditions.
4. It shall be operated at a recommended voltage following the manufacturer recommendations.
5. All leads shall be periodically inspected and replaced if insulation is broken or splices are unprotected.
6. Leads shall not be repaired with electrical tape.
7. All ground connections shall be checked to determine that they are mechanically strong and electrically adequate for the required current.
8. A disconnecting switch or controller shall be provided at or near each welding machine along with overcurrent protection.
9. All direct current machines shall be connected with the same polarity and all alternating current machines connected to the same phase of the supply circuit and with the same polarity.
10. To prevent electrical contact with personnel, all electrode holders shall be placed where they do not make contact with persons, conducting objects or the fuel of compressed gas tanks.
11. All cables with splices within 10 feet of the holder shall not be used.
12. If the object to be welded or cut cannot readily be moved, all movable fire hazards shall be removed.
13. If an object to be welded or cut cannot be moved, and if all the fire hazards cannot be removed, then guards shall be used to confine the heat sparks and slag and to protect the immovable fire hazards.

## **I. Resistance Welding**

1. All personnel operating, installing, and maintaining welding equipment shall be qualified or trained to operate and maintain such equipment.
2. Voltage, interlocks, guarding, grounding and shields shall be following manufacturer recommendations.
3. Precautions such as flash-guarding, ventilation and shields shall be provided to control flashes, toxic elements and metal fumes.
4. If the object to be welded or cut cannot readily be moved, all movable fire hazards shall be removed.

## **J. Transmission Pipeline**

When arc welding is performed in wet conditions, or under conditions of high humidity, special protection against electric shock shall be supplied.

1. Pressure testing:
  - a. In pressure testing of pipelines, the workers and the public shall be protected against injury by the blowing out of closures or other pressure restraining devices.

- b. Protection shall be provided against the expulsion of loose dirt that may have become trapped in the pipe.
  - c. The welded construction of transmission pipelines shall be conducted following the Standard for Welding Pipelines and Related Facilities, API Std. 1104-1998.
2. Oxygen Fuel Gas Welding and Cutting:
- a. Only approved apparatuses such as torches, regulators or pressure-reducing valves, setting generators and manifolds shall be used:
  - b. Mixtures of fuel gases and air or oxygen may be explosive and must be guarded against.
  - c. All hoses and hose connections shall comply with the Compressed Gas Association and Rubber Manufacturers' Associations' applicable standards. Workers in charge of the oxygen or fuel-gas supply equipment, including generators, shall be instructed and judged competent by the SCI before being left in charge.
  - d. If the object to be welded or cut cannot readily be moved, all movable fire hazards shall be removed.

#### **K. Fire Watch Requirements**

A fire watch shall be under these conditions as a minimum:

- 1. Locations where other than a minor fire might develop.
- 2. Combustible materials are closer than 35 feet to the point of operation.
- 3. Combustibles that are 35 feet or more away but are easily ignited.
- 4. Wall or floor openings within a 35 feet radius of exposed combustible materials.
- 5. Combustible materials are adjacent to the opposite side of metal partitions, ceilings or roofs.
- 6. Fire watch personnel MUST be maintained at least a half an hour after welding or cutting operations have been completed.

#### **L. First Aid Equipment**

First aid equipment shall be available at all times. All injuries shall be reported as soon as possible for medical attention. First aid shall be rendered until medical attention can be provided.

#### **M. Training**

Training shall include:

- 1. Position Responsibilities
- 2. Cutters, welders, and their supervisors must be suitably trained in the safe operations of their equipment and the safe use of the process.

Fire Watch Responsibilities – specifically the fire watch must know:

- a. That their ONLY duty is Fire Watch
- b. When they can terminate the watch
- c. How to use the provided fire extinguisher(s)
- d. Be familiar with facilities and how to activate fire alarm, if the fire is beyond the incipient stage
- e. Operator Responsibilities
- f. Contractor Responsibilities
- g. Documentation requirements
- h. Respirator Usage requirements
- i. Fire Extinguisher training

## ***SAFE WORK PRACTICES***

### ***HAND AND POWER TOOLS***

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#### **PURPOSE**

The purpose of this program is to provide establish requirements for the safe operation of hand and power tools and other portable tools, including proper guarding. All hand and power tools shall be maintained in a safe condition.

This program applies to all SCI employees who use hand and power tools.

#### **SCOPE**

This program applies to all SCI employees while engaged in work at SCI maintenance facilities and project locations.

#### **RESPONSIBILITIES**

Any tool which is not in compliance with any applicable requirement of this plan is prohibited and 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.

##### **A. Supervisors**

1. Ensure that all employees using portable tools have been trained and fully understand the operations and maintenance procedures of such tools, including their proper use.
2. Provide and train employees with all additional PPE that may be needed for the safe operation of portable tools.

##### **B. Employees**

1. Shall ensure they have and properly use the correct tool for each task.
2. Shall follow manufactures safety and operating instructions before using.

#### **REQUIREMENTS**

##### **A. General**

All tools, regardless of ownership, shall be of an approved type and maintained in good condition.

1. Tools are subject to inspection at any time.
2. All employees have the authority and responsibility to condemn unsafe tools, regardless of ownership.
3. Unsafe tools shall be tagged with a “DO NOT USE OR OPERATE” tag to prevent their use.
4. Employees shall always use the proper tool for the job to be performed. Makeshift and substitute tools shall not be used.
5. Hammers with metal handles, screwdrivers with metal continuing through the handle, and metallic measuring tapes shall not be used on or near energized electrical circuit or equipment.
6. Tools shall not be thrown from place to place or from person to person; tools that must be raised or lowered from one elevation to another.
7. Tools shall never be placed unsecured in elevated places.
8. Impact tools such as chisels, punches, and drift pins that become mushroomed or cracked shall be dressed, repaired, or replaced before further use.
9. Chisels, drills, punches, ground rods, and pipes shall be held with suitable holders or tongs (not with the hands) while being struck by another employee.

10. Shims shall not be used to make a wrench fit.
11. Wrenches with sprung or damaged jaws shall not be used.
12. Tools shall be used only for the purposes for which they have been approved.
13. Tools with sharp edges shall be stored and handled so that they will not cause injury or damage. They shall not be carried in pockets unless suitable protectors are in use to protect the edge. They shall not be carried in pockets unless suitable protectors are in use to protect the edge.
14. Wooden handles that are loose, cracked, or splintered shall be replaced. The handle shall not be taped or lashed with wire. The handle shall not be taped or lashed with wire.
15. Tools shall not be left lying around where they may cause a person to trip or stumble.
16. When working on or above open grating, canvas or other suitable covering shall be used to cover the grating to prevent tools or parts from dropping to a lower level where others are present, or the danger area shall be barricaded or guarded.
17. The insulation on hand tools shall not be depended upon to protect users from high voltage shock (except approved live line tools).

#### **B. Portable Electric Tools**

The non-current carrying metal parts of portable electric tools such as drills, saws, and grinders shall be effectively grounded when connected to a power source unless:

1. The tool is an approved double-insulated type, or
2. The tool is connected to the power supply through an isolating transformer or other isolated power supply.
3. All powered tools shall be examined before use to ensure general serviceability and the presence of all applicable safety devices.
4. Powered tools shall be used only within their design and shall be operated per manufacturer's instructions. The use of electric cords for hoisting or lowering tools shall not be permitted.
5. All tools shall be kept in good repair and shall be disconnected from the power source while repairs or adjustments are being made.
6. Electrical tools shall not be used where there is a hazard of flammable vapors, gases, or dust without a valid Hot-work Permit.
7. Ground fault circuit interrupters or use of an Assured Grounding Program shall be used with portable electric tools. This does not apply to equipment run off of portable or truck mounted generators at 5kw, or less that are isolated from ground or to equipment ran directly off of secondary power cords.

#### **C. Pneumatic Tools**

1. Pneumatic tools shall never be pointed at another person.
2. Pneumatic power tools shall be secured to the hose or whip by some positive means to prevent the tool from becoming accidentally disconnected.
3. Safety clips or retainers shall be securely installed and maintained on pneumatic impact (percussion) tools to prevent attachments from being accidentally expelled.
4. Compressed air shall not be used for cleaning purposes, except where reduced to less than 30 psi and then only with effective chip guarding and personal protective equipment.
5. Compressed air shall not be used to blow dust or dirt from clothing.



6. The manufacturers stated safe operating pressure for hoses, pipes, valves, filters, and other fittings shall not be exceeded.
7. The use of hoses for hoisting or lowering tools shall not be permitted.
8. Before adjusting or changing air tools, unless equipped with quick-change connectors, the air shall be shut off at the air supply valve ahead of the hose. The hose shall be bled at the tool before breaking the connection.
9. Compressed air tools, while under pressure, must not be left unattended.
10. All connections to air tools shall be made secure before turning on air pressure.
11. Air at the tool shall not be turned on until the tool is properly controlled.
12. All couplings and clamps on pressurized air hose shall be bridged (pinned) with suitable fasteners.
13. Hose and hose connections used for conducting compressed air to utilization equipment shall be designed for the pressure and service to which they are subjected.
14. Use only approved end-fitting clamps (screw type heater hose clamps are not acceptable).
15. While blowing down, do not point the hose toward people.
16. Power tools are to be operated only by competent persons who have been trained in their proper use.
17. Conductive hose shall not be used near energized equipment.
18. Foot protection shall be worn while operating paving breakers, tampers, rotary drills, clay spades, and similar impactor-type tools or at other times when instructed by supervision.
19. All pneumatically driven nailers, staplers, and other similar equipment provided with automatic fastener feed, which operates at more than 100 psi pressure at the tool shall have a safety device on the muzzle to prevent the tool from ejecting fasteners unless the muzzle is in contact with the work surface.
20. Airless spray guns of the type which atomize paints and fluids at high pressures (1,000 pounds or more per square inch) shall be equipped with automatic or visible manual safety devices which will prevent pulling of the trigger to prevent the release of the paint or fluid until the safety device is manually released.
21. Instead of the above, a diffuser nut (which will prevent high pressure), high-velocity release (while the nozzle tip is removed), plus a nozzle tip guard (which will prevent the tip from coming into contact with the operator), or other equivalent protection, shall be provided.

**D. Powder Actuated Tools (Tools actuated by an explosive charge)**

1. Only those employees who have been certified in their use shall operate these tools.
2. Explosive charges shall be carried and transported in approved containers.
3. Operators and assistants using these tools shall be protected utilizing eye, face, and hearing protection.
4. Tools shall be maintained in good condition and serviced regularly by qualified persons. The material upon which these tools are to be used shall be examined before work is started to determine its suitability and to eliminate the possibility of hazards to the operator and others.
5. Before use, the operator shall ensure that the protective shield is properly attached to the tool.

6. Before using a tool, the operator shall inspect it to determine to his satisfaction that it is clean, that all moving parts operate freely, all guards and safety devices are in place, and that the barrel is free from obstructions.
7. Before using tools, the operator shall read and become familiar with the manufacturers operating guidelines and procedures.
8. When a tool develops a defect during use, the operator shall immediately cease to use it, until it is properly repaired per the manufactures specifications.
9. Tools shall not be loaded until just before the intended firing time, nor shall an unattended tool be left loaded. Empty tools are to be pointed at any workmen.
10. In case of a misfire, the operator shall hold the tool in the operating position for at least 30 seconds. He shall then try to operate the tool a second time. He shall wait another 30 seconds, holding the tool in the operating position; then he shall proceed to remove the explosive load in strict accordance with the manufacturer's instructions.
11. A tool shall never be left unattended in a place where it would be available to unauthorized persons.
12. Fasteners shall not be driven into very hard or brittle materials including, but not limited to, cast iron, glazed tile, surface hardened steel, glass block, live rock, face brick, or hollow tile.
13. Driving into materials easily penetrated shall be avoided unless such materials are backed by a substance that will prevent the pin or fastener from passing completely through and creating a flying missile hazard on the other side.
14. Tools shall not be used in an explosive or flammable atmosphere.

#### **E. Hydraulic Power Tools**

1. The fluid used in hydraulic powered tools shall be fire-resistant fluids approved under Schedule 30 of the U.S. Bureau of Mines, Department of the Interior, and shall retain its operating characteristics at the most extreme temperatures to which it will be exposed.
2. The manufacturer's safe operating pressures for hoses, valves, pipes, filters, and other fittings shall not be exceeded.
3. All hydraulic tools, which are used on or around energized lines or equipment, shall use non-conducting hoses having adequate strength for the normal operating pressures.

#### **F. Hydraulic Jacks**

1. Loading and Marking
  - a. The operator shall make sure that the jack used has a rating sufficient to lift and sustain the load.
  - b. The rated load shall be legibly and permanently marked in a prominent location on the jack by casting, stamping, or other suitable means.
2. Operation and Maintenance
  - a. In the absence of a firm foundation, the base of the jack shall be blocked. If there is a possibility of slippage of the cap, a block shall be placed in between the cap and the load.
  - b. The operator shall watch the stop indicator, which shall be kept clean, to determine the limit of travel. The indicated limit shall not be overrun.
  - c. After the load has been raised, it shall be cribbed, blocked, or otherwise secured at once.
  - d. Hydraulic jacks exposed to freezing temperatures shall be supplied with adequate antifreeze liquid.

- e. All jacks shall be properly lubricated at regular intervals.

Each jack shall be thoroughly inspected before each use. Jacks, which are in unsafe condition, shall be tagged accordingly, and shall not be used until repairs are made.

#### **G. Abrasive Blast Cleaning Nozzles**

The blast cleaning nozzles shall be equipped with an operating valve, which must be held open manually. A support shall be provided on which the nozzle may be mounted when it is not in use.

#### **H. Fuel Powered Tools**

1. All fuel-powered tools shall be stopped while being refueled, serviced, or maintained, and fuel shall be transported, handled, and stored following the Flammable and Combustible Liquids Program.
2. When fuel powered tools are used in enclosed spaces, the applicable requirements for concentrations of toxic gases and use of personal protective equipment shall adhere to.

#### **I. Guarding Portable Tools**

Guards shall be in place and operable at all times while the tool is in use. The guard may not be manipulated in such a way that will compromise its integrity or compromise the protection in which intended. Guarding shall meet the requirements outlined in ANSI B15.1.

##### **1. Portable Circular Saws**

- a. All portable, power-driven circular saws with a blade diameter greater than 2 in. shall be equipped with guards above and below the base plate or shoe.
- b. The upper guard shall cover the saw to the depth of the teeth, except for the minimum arc required to permit the base to be tilted for bevel cuts.
- c. The lower guard shall cover the saw to the depth of the teeth, except for the minimum arc required to allow proper retraction and contact with the work.
- d. When the tool is withdrawn from the work, the lower guard shall automatically and instantly return to covering position.
- e. All cracked saw blades shall be removed from service.

##### **2. Switches and Controls**

- a. All hand-held powered tools, circular saws, drills, tappers, fastener drivers, horizontal or vertical angle grinders, etc., shall be with a constant pressure switch or control and may have a lock-on control provided that turnoff can be accomplished by a single motion of the same finger or fingers that turn it on.
- b. All hand-held powered circular saws having a blade diameter greater than 2 inches, electric, hydraulic or pneumatic chain saws, and percussion tools without positive accessory holding means shall be equipped with a constant pressure switch or control that will shut off the power when the pressure is released. All hand-held gasoline powered chain saws shall be equipped with a constant pressure throttle control that will shut off the power to the saw chain when the pressure is released.
- c. The operating control of hand-held power tools shall be so located as to minimize the possibility of its accidental operation if such accidental operation would constitute a hazard to employees.
- d. The grounding of portable electric powered tools shall meet the electrical requirements that can be found in the Electrical Safety Program. All electric power tools shall be equipped with a three-prong plug.

## **J. Portable Abrasive Wheels**

### **1. Safety Guards Exceptions**

- a. Wheels used for internal work while within the work being ground.
- b. Mounted wheels used in portable operations 2 inches and smaller in diameter.
- c. Types 16, 17, 18, 18R, and 19 cones, plugs, and threaded hole pot balls where the work offers protection.
- d. Guards shall be made of steel or other material with adequate strength.
- e. A safety guard shall cover the spindle end, nut and flange projections. The safety guard shall be mounted to maintain proper alignment with the wheel, and the strength of the fastenings shall exceed the strength of the guard.
- f. Exception: safety guards on all operations where the work provides a suitable measure of protection to the operator may be so constructed that the spindle end, nut, and outer flange are exposed. Where the nature of the work is such as to entirely cover the side of the wheel, the side covers of the guard may be omitted.
- g. Exception: the spindle end, nut, and outer flange may be exposed on portable machines designed for, and used with, type 6, 11, 27, and 28 abrasive wheels, cutting off wheels, and tuck-pointing wheels.

### **2. Mounting and Inspection of Abrasive Wheels**

- a. Immediately before mounting, all wheels shall be closely inspected, and a ring test performed, to make sure they have not been damaged in transit, storage, or otherwise.
- b. Ring Test – “tap” wheels about 45 degrees each side of the vertical centerline and about 1 or 2 inches from the periphery; then rotate the wheel 45 degrees and repeat the test; a sound and undamaged wheel will give a clear metallic tone, if cracked there will be a dead sound and not a clear “ring”.
- c. The spindle speed of the machine shall be check before mounting of the wheel to be certain that it does not exceed the maximum operating speed marked on the wheel.
- d. Grinding wheels shall fit freely on the spindle and remain free under all grinding conditions.
- e. A controlled clearance between the wheel hole and the machine spindle (or wheel sleeves or adaptors) is essential to avoid excessive pressure from mounting and spindle expansion.
- f. The machine spindle shall be made to nominal (standard) size plus zero minus .002 inch, and the wheel hole shall be made suitably oversize to assure safety clearance under the conditions of operating heat and pressure.
- g. All contact surfaces of wheels, blotters, and flanges shall be flat and free of foreign matter.
- h. When a bushing is used in the wheel hole, it shall not exceed the width of the wheel and shall not contact the flanges.

## **K. Portable Grinders**

Special "revolving cup guards" which mount behind the wheel and turn with shall be used. They shall be made of steel or other material with adequate strength and shall enclose the wheel sides upward from the back for one-third of the wheel thickness. It is necessary to maintain clearance between the wheel side and the guard. The clearance shall not exceed a one-sixteenth inch.

Vertical portable grinders, also known as right angle grinders, shall have a maximum exposure angle of 180 degrees and the guard shall be located between the operator and the wheel during use. Adjustment of the guard shall ensure that pieces of an accidentally broken wheel will be deflected away

from the operator.

Other Portable Grinders

The maximum angular exposure of the grinding wheel periphery and sides for safety guards used on other portable grinding machines shall not exceed 180 degrees, and the top half of the wheel shall be enclosed at all times.

**L. Personal Protective Equipment**

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 the PPE necessary to protect them from the hazard.

## ***SAFE WORK PRACTICES***

### ***LADDERS***

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#### **PURPOSE**

The purpose of the program is to prescribe rules and establish minimum requirements for the construction, care, and use of the common types of ladders.

All ladders that are purchased and placed into service; or, any ladders that are engineered, manufactured and installed on any of SCI equipment shall follow the requirements set forth by this program.

#### **SCOPE**

This program applies to all employees who may utilize ladders. When work is performed on a non-owned or operated site, the operator's program shall take precedence, however, this document covers SCI employees and contractors and shall be used on owned premises, or when an operator's program doesn't exist or is less stringent.

#### **DEFINITIONS**

**Ladder** - an appliance usually consisting of two side rails joined at regular intervals by cross-pieces called steps, rungs, or cleats, on which a person may step in ascending or descending.

**Stepladder** - a self-supporting portable ladder, nonadjustable in length, having flat steps and a hinged back. Its size is designated by the overall length of the ladder measured along the front edge of the side rails.

**Single ladder** - a non-self-supporting portable ladder, nonadjustable in length, consisting of but one section. The overall length of the side rail designates its size.

**Extension ladder** - a non-self-supporting portable ladder adjustable in length. It consists of two or more sections traveling in guides or brackets so arranged as to permit length adjustment. Its size is designated by the sum of the lengths of the sections measured along the side rails.

**Fixed ladder** - a ladder permanently attached to a structure, building, or equipment.

**Individual-rung ladder** - a fixed-ladder each rung of which is individually attached to a structure, building, or equipment.

**Cage-a guard** that may be referred to as a cage or basket guard, which is an enclosure that is fastened to the side rails of the fixed ladder or to the structure to encircle the climbing space of the ladder for the safety of the person who must climb the ladder.

#### **RESPONSIBILITIES**

##### **A. Supervisors**

1. Project Manager/Superintendent are responsible for ensuring that all employees and contractors have been trained in the use and inspection of ladders following the manufactures guidelines.
2. Supervisors are responsible for ensuring that all employees and contractors are aware that if an inspection discovers a defect, the ladder shall not be used and taken out of service.

##### **B. Employees**

1. Employees shall inspect ladders prior, during and at the completion of each use to ensure the condition of the ladder and the safety of its occupants.
2. Employees are responsible for following this program and reporting any damage or repairs that may be needed to their supervisor.

## **PROCEDURE**

### **A. Inspection, Care and Safe Work Practices of Ladders**

#### **1. Inspection**

- a. Ladders shall be inspected by a competent person for visible defects on a periodic basis and after any occurrence that could affect their safe use.
- b. Ladder rungs, cleats, and steps shall be parallel, level and uniformly spaced when the ladder is in position for use.
- c. Any ladder has developed defects, shall be withdrawn from service for repair or destruction and tagged or marked as "Dangerous, Do Not Use."
- d. If a ladder is tipped over, it shall be inspected by a competent person for side rail dents or bends, or excessively dented rungs; check all rung to side rail connections; check hardware connections; check rivets for shears.
- e. Ladders with broken or missing steps, rungs, or cleats, broken side rails, or other faulty equipment shall not be used; improvised repairs shall not be made.
- f. All wood parts shall be free from sharp edges and splinters; sound and free from accepted visual inspection from shake, or other irregularities.

#### **2. Care**

- a. Ladders shall be maintained in good condition at all times, the joint between the steps and side rails shall be tight, all hardware and fittings securely attached, and the movable parts shall operate freely without binding or undue play.
- b. Metal bearings of locks, wheels, pulleys, etc., shall frequently be lubricated.
- c. Frayed or badly worn rope shall be replaced. Safety feet and other auxiliary equipment shall be kept in good condition to ensure proper performance.
- d. Rungs shall be kept free of grease and oil.
- e. Ladders shall be stored in a well-ventilated area in a manner to prevent sagging and warping.

#### **3. Safe Work Practices**

- a. Ladders shall be used only for the intended purpose for which they were designed.
- b. The ladder shall be secured at the top or held by another person at the base
- c. The footing of the ladder shall be placed on a stable and level surface.
- d. Ladders shall extend 3 feet above the top of an upper landing surface, and extension ladders shall be placed at a 4:1 ratio.
- e. When ladders are not able to be extended, then the ladder shall be secured at its top to a rigid support that will not deflect.
- f. Ladders shall not be placed on boxes, barrels, or other unstable bases to obtain additional height. Ladders shall not be used in a horizontal position as platforms, runways, or scaffolds.
- g. Ladders shall not be used by more than one man at a time.
- h. Ladders shall not be placed in front of doors opening toward the ladder unless the door is blocked open, locked, or guarded.
- i. If a ladder is used in a high traffic area, barricades shall be placed to avoid accidental displacement due to collisions.
- j. Do not stand on the top two rungs or top of step ladders.

- k. On two-section extension ladders the minimum overlap for the two sections in use shall be as follows:

Size of Ladder (feet)	Overlap (feet)
Up to and including 36.'	3
Over 36 up to and including 48.'	4
Over 48 up to and including 60.'	5

- l. No ladder shall be used to gain access to an elevated surface unless the top of the ladder extends at least 3 feet above the point of support, and properly tied off.
- m. The employee shall maintain a three (3) point grip on the ladder at all times and carry tools/equipment on a belt or hoist up. Do not carry anything in the hands that could cause injury in case of fall.
- n. The employee shall face the ladder while ascending or descending.
- o. The bracing on the back legs of step ladders is designed solely for increasing stability and not for climbing.
- p. The ladder shall not be moved while occupied.

**B. Portable Ladders**

- 1. Stepladders shall not be longer than 20 feet. Single ladders shall not be longer than 30 feet.
- 2. Two-section extension ladders shall not be longer than 60 feet. All ladders of this type shall consist of two sections, one to fit within the side rails of the other and arranged in such a manner that the upper section can be raised and lowered.
- 3. Keep all ladders at least ten (10) feet away from power lines.
- 4. Ladders shall not be loaded beyond the maximum intended load for which they were built or more than the manufacturer's rated capacity. Weight includes the combined weight of the climber and his tools/equipment. Ladders are rated as the following:
  - a. IAA (holds 375 lbs.)
  - b. IA (holds 300 lbs.)
  - c. I (holds 250 lbs.)
  - d. II (holds 225 lbs.)
  - e. III (holds 200 lbs.)

**C. Fixed Ladders**

- 1. Ladders shall be constructed to withstand a minimum of 200 pounds.
- 2. All metal rungs shall have a minimum diameter of 3/4 inches, and wooden rungs shall have a minimum diameter of 1 1/8 inches.
- 3. Rungs shall not be more than 12 inches apart and shall be uniform throughout the length of the ladder. Rungs shall be a minimum length of 16 inches and protect so a foot cannot slip off the end. Rungs shall have a minimum of 7 inches between itself and the structure behind it.
- 4. A fall restraint system must be provided for all fixed ladders greater than six feet in length.
  - a. A Cage is required when the fixed ladder is at least twenty feet tall.
  - b. Cages on fixed ladders shall not begin at a point less than 7 feet nor greater than 8 feet from the walking surface below the cage.



- c. Cages shall provide a clear width of 15 inches in each direction of the rung's centerline.
- d. Cages shall not extend less than 27 inches, but not greater than 28 inches from the centerline of the rung.
- e. A climbing fall restraint system may be substituted for a ladder cage.

## ***SAFE WORK PRACTICES***

### ***HEARING CONSERVATION***

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#### **PURPOSE**

The purpose of this program is to provide a process to minimize employee-hearing loss caused by excessive occupational exposure to noise.

#### **SCOPE**

This program applies to all employees who may be exposed to noise more than 85 decibels (decibels). When work is performed on a non---owned or operated site, the operator's program shall take precedence, however, this document covers SCI employees and contractors and shall be used on owned premises, or when an operator's program doesn't exist or is less stringent.

#### **DEFINITIONS**

**Audiometric testing** – means detection by the person being tested of a series of pure tones. For each tone, the person indicates the lowest level of intensity that they can perceive.

**Decibels** – means the sound energy measured by a sound level meter using the "A" scale. The "A" scale is electronically weighted to simulate the response of the human ear to high and low-frequency noise.

**Slow Response** – means the setting on the sound level meter that averages out impulses of brief duration that would cause wide fluctuation in the sound level meter reading.

**Standard Threshold Shift** – means a change in hearing threshold relative to the baseline audiogram of an average of 10 dB (corrected for age) at 2000, 3000 and 4000 Hz in either ear.

#### **RESPONSIBILITIES**

##### **A. Supervisors**

1. Ensure requirements of this program are established and maintained.
2. Ensure employees are trained and comply with the requirements of this program.

##### **B. Employees**

1. Wear hearing protection when required, attend the training, and cooperate with testing and sampling.

#### **PROCEDURE**

An occupational hearing loss is a cumulative result of repeated or continued absorption of sound energy by the ear; employee protection is based on the reduction of the noise level at the ear or limiting the employee's exposure time.

SCI shall offer hearing protection to all employees exposed to potential high noise levels in working areas and those employees requesting hearing protection.

All employees, who work in areas where the exposure to noise levels are 85 decibels or greater for the 8-hour time-weighted average of 85 decibels, must wear hearing protection and SCI shall implement a monitoring program to identify employees to be included in the hearing conservation program.

##### **A. Surveys**

Surveys will be conducted by a qualified employee or third party.

To evaluate noise exposure concerning possible hearing damage, it is necessary to know the overall sound level ("A" scale measurement), the exposure time of the individual in hours per day and the

length of time the individual has worked in the area being surveyed. This data shall be supplemented by the following:

1. Name of area and location
2. Date and time of the survey
3. Name of person conducting the survey
4. Description of instrument used, model and serial number
5. Environmental conditions
6. Description of people exposed

SCI shall notify each employee of their monitoring results, or if their job is exposed to noise 85 decibels or greater.

A plot of noise levels must be made for owned facilities. The plot must be filed or posted at the facility. SCI shall evaluate hearing protector attenuation for the specific noise environments. The adequacy of hearing PPE shall be re-evaluated whenever noise exposures increase to the point that the PPE provided may no longer provide adequate protection. SCI shall then provide more effective PPE where necessary.

All sound measuring equipment must be calibrated before and after each survey. Records of sound measuring equipment calibration and noise level surveys shall be kept for 20 years.

Noise Surveys must be repeated whenever changes in the workplace may expose additional personnel to high noise or hearing protection being used by employees may not be adequate to reduce the noise exposure to a level below 85 decibels.

7. Sound Level Surveys

- a. All owned facilities that are suspected of having noise levels exceeding 85 decibels must be screened.

8. Exposure Surveys:

- a. A representative sampling of employees shall be conducted to determine the exposure to noise over a period.
- b. Noise dosimeters must be capable of integrating all continuous, intermittent and impulsive sound levels from 80 dB to 130 dB and must be calibrated, so a dose of 50% corresponds to a time-weighted average of 85 dBA.

**B. Signage**

Clearly worded signs shall be posted at entrances to, or on the periphery of, areas where employees may be exposed to noise levels more than 85 decibels. These signs shall describe the hazards involved and the required protective actions.

**C. Audiometric Testing**

Each employee who is exposed to noise 85 decibels (8 hr. TWA) or greater must take an audiogram annually.

1. An employee must receive a baseline audiogram within six months of their first exposure to 85 decibels or greater for an eight-hour period.
2. An employee shall receive an annual audiogram every year they work in a position that is exposed to noise 85 decibels or greater.
3. A qualified third party shall perform all audiometric testing, evaluation, reporting and retesting.
4. Audiometric testing shall be preceded by a period of at least 14 hours during which there is no exposure to workplace sound levels more than 80 decibels.

5. This requirement may be met by the use of hearing protectors that reduce the employee noise exposure level below 80 decibels.
6. An otoscope exam is required before an audiogram is initiated. A qualified person shall examine the ear canal for any ear infections or canal irregularities that might affect the audiogram or rule out the use of earplugs.
7. Annual audiograms shall be evaluated as follows:
  - a. Each audiogram shall be compared to the employees' baseline audiogram to ensure the test was valid and to determine if a standard threshold shift has occurred.
  - b. If a standard threshold shift is determined, the employee will be retested within 30 days.
  - c. The retest results will be considered as the annual audiogram.
  - d. Employees shall be informed of their audiometric test results in writing within 21 days of the determination.
  - e. If the employee has sustained a standard threshold shift, after retesting, that employee shall be retrained and refitted for appropriate hearing protection.
  - f. The employee shall be referred for an additional medical evaluation if indicated.
  - g. Employee audiograms are considered medical/exposure records. These records must be kept for the length of employment plus 30 years.

#### **D. Hearing Protection Devices**

Earmuffs and earplugs shall be made available to the employee in sizes and configurations that will be comfortable to the employee. These hearing protection devices shall be made available to all employees exposed to an 8-hour time-weighted average of 85 dB at no cost to employees. Employees shall be instructed how to obtain the proper fit.

#### **E. Training**

1. A training program shall be established to inform employee, on an annual basis, of the effect of noise on hearing; the purpose of hearing protectors, including the advantages, disadvantages and alternatives of various types, including instructions on selection, fitting, use and care; and the purpose of audiometric testing and an explanation of test procedures.
2. Training shall be updated to be consistent with changes in the work process and PPE requirements.
3. All staff shall have a copy of this program, and it shall be posted at the worksite and a copy made available to all employees, their representatives, and regulatory agencies.
4. The training must be documented.

## ***SAFE WORK PRACTICES***

### ***BLASTING PROGRAM***

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#### **PURPOSE**

SCI will, on occasion, utilize blasting and explosives to excavate areas of hard rock. Before initializing the "Blasting Program" all affected employees and subcontractors will be made aware of the dangers associated with the use of any explosive chosen to facilitate excavation above or below ground.

#### **POLICY**

SCI will follow all Federal, State and Local laws, regulations, and ordinances related to the use of explosives. All persons, employees or subcontractors will be made aware of the hazards associated with the use of explosives. Specific Federal Regulations include, but are not limited to;

1. Bureau of Alcohol, Tobacco and Firearms Publication P5400.7 (1990) Organized Crime Control Act of 1970, Title XI (Public Law 91452).
2. 27 CFR 181 – Commerce in Explosives.
3. 49 CFR 177 – Carriage by Public Highway.
4. 29 CFR 1926.900 Subpart U of the Construction Standards’ “Blasting and the Use of Explosives”.
5. CFR 1926.800, Subpart S, Underground Construction.
6. 29 CFR 1910.109 – Explosives and Blasting Agents OSHA.

All affected persons will receive site-specific training in the recognition of blasting regulations related to their exposure. Procedures identified in each site-specific plan will be designed to eliminate unnecessary exposures and control access to areas where explosives will be used. No unauthorized person will be allowed to access the area designated as a "blast zone." All site-specific blasting plans will be reviewed and initiated using only approved methods and explosive elements designed to produce minimal impact on the associated environment.

#### **GENERAL PROVISIONS (1926.900)**

SCI will permit only trained and authorized personnel to handle and use explosives. No person shall be allowed to use or possess any object that could produce a spark, flame or heat near any explosive or magazine where explosives are stored. The list includes matches, lighters, strikers, or grinders.

Subpart U defines multiple rules and regulations associated with the use of explosives. Many are designed to provide a proactive way to eliminate as many exposures as possible. Most are just good common sense. The minimum requirements are as follows;

1. No person shall be allowed to handle or use explosives while under the influence of drugs or alcohol.
2. All explosives will be accounted for at all times.
3. All explosives shall be stored in an appropriate manner based on the instructions of the manufacturer.
4. No explosive will be abandoned or discarded without permission from local authorities and following the manufacturer instructions.
5. All explosives transported to and from the blasting site will be stored during transit in appropriate containers following the manufactures instructions.

6. Employees authorized to handle explosives or conduct blasting operations shall use every precaution to ensure the safety of everyone affected by the blasting operations including, but not limited to, visual and audible warning signs, flags, or barricades.
7. If using explosives or components of explosives that are sensitive to an electrical current or a transmitter signal all precautions must be taken to eliminate exposure to any type of electrical current including, but not limited to, radar, radio transmitters, lightning, adjacent power lines, dust storms, or any other sources of extraneous electricity.
8. Surface blasting or use of electrically detonated explosives will not be permitted during weather emergencies including heavy thunder, lightning, or dust storms.
9. Signs and placards will be displayed where the use of explosives could affect the general public. Refer to Subpart U of the OSHA Standard for specific instructions on the responsibility of the competent person.
10. Follow all manufactures instruction when using explosives or electricity including transmission.
11. Cartons or boxes used to package, and transport explosives may not be reused for any reason.
12. Use of Black Powder is strictly prohibited.
13. All blasting shall be fired electrically.

SCI will not allow any unauthorized use of catalysts to enhance the explosive ability of any explosive product unless specific instructions are received and monitored by the explosives manufacturer.

#### **BLASTER QUALIFICATIONS (1926.901)**

Blaster qualifications are listed in 1926.901 (a) – (e) and state that a qualified Blaster must be able to understand and give written and oral orders. He or she must be in good physical condition and not a drug addict.

The Blaster will be qualified because of training, knowledge or experience, and must have a working knowledge of state and local laws and regulations. Blasters must be able to furnish satisfactory evidence of competency in handling explosives. He must be competent and knowledgeable in the method of blasting that he uses.

A blaster must be capable of arranging for the authorization and use of explosives related to construction by providing proof of competency and or obtaining a certificate or license from any and all local authorities.

#### **TRANSPORTATION OF EXPLOSIVES (1926.902)**

Transportation of explosives shall meet the DOT provisions contained in 46 CFR parts 146-149 and all other parts related to specific transportation methods covered in 902.

1. All drivers must be physically fit to perform their job and must not carry matches or any other flame producing device while transporting explosives.
2. Explosives and blasting agents shall not be transported with other materials or cargo. Blasting caps shall not be transported with other explosives.
3. All vehicles that transport explosives will be in good shape and have an open body, a class II magazine or original manufactures container securely attached or mounted on the bed.
4. All truck beds shall be lined with spark proof material to inhibit contact with metal that may produce a spark.
5. All vehicles used to transport explosives shall have the proper placards and marking to indicate that explosives are in transport.
6. All trucks or vehicles used to transport explosives will carry a fire extinguisher with a minimum of A10 – ABC rating.

7. No motor vehicle carrying explosives will be left unattended for any reason.

#### **UNDERGROUND TRANSPORTATION OF EXPLOSIVES (1926.903)**

During ongoing underground construction operations, all explosives will be transported to storage magazines immediately by a competent person. The stored quantity shall not exceed the amount of blasting agent needed for a full shift. All affected employees will be made aware of the transport of blasting supplies. If the transportation of blasting supplies is done with a truck or electric locomotive, the standards require the equipment be inspected weekly to make sure the electrical system is operating properly, and there is no possibility the electrical current could affect the explosives during transportation. Other rules include, but are not limited to;

1. Installation of auxiliary lighting in a truck bed is prohibited.
2. Explosives and blasting agents are transported independently of any other supplies or materials.
3. Only the Operator, Blaster, and Helper are allowed to ride on a conveyance transporting explosives and Blasting Agents.
4. No explosives or blasting agents shall be transported on a locomotive. At least two car lengths shall separate the blasting agents from the locomotive.
5. No blasting agents shall be transported during a "Man Haul."
6. Explosives shall be hauled in a special powder-can where practical.
7. Detonators and explosives shall NOT be conveyed on the same trip.
8. Detonators, primers and other explosives shall be carried in separate containers when transported manually.

#### **STORAGE OF EXPLOSIVES (1926.904)**

All storage facilities above or below ground shall meet or exceed the requirements contained in the ATF Regulation R7 CFR part 55.

1. Blasting caps, electric blasting caps, detonating primers, or primed cartridges shall be stored or transported on the same magazine as explosives or blasting agents.
2. No explosive can be stored underground unless there are two areas of access and egress.
3. Permanent underground storage of explosives shall be at least 300 feet from the shaft, exit or active underground work area.
4. Magazines that contain detonators and explosive shall be kept a minimum of 50 feet apart.

#### **LOADING OF EXPLOSIVES OR BLASTING AGENTS (1926.905)**

All policies and procedures for safe loading of explosives will be established before work begins. Trained and qualified blasters or engineers will establish patterns and depths suitable for effective blasting and removal of material. Drilled holes and tamping methods will be monitored by the competent person. No hole will be loaded that will not be shot in the same sequence. Underground blast patterns will be established and monitored for their effectiveness. No holes will be drilled through water or debris. Other rules associated with loading of explosives are as follows;

1. No explosives will be left unattended at the blast site.
2. Machines and drills shall be removed from the immediate location of the holes drilled while the holes are being loaded. Machines may not be operated within 50 feet of loaded holes.
3. Any source of power or electricity shall be locked out or de-energized before loading holes.
4. No explosive shall be loaded or used underground if there is a dangerous presence of combustible gas or dust.

5. Warning signs shall be posted and maintained at approaches to the blast area. Warning sign lettering shall be no less than 4 inches high.
6. The Blaster shall keep accurate, up-to-date records of explosives, blasting agents, and supplies used in each shift and shall keep a running inventory of all explosives and blasting agents stored on the job.

**INITIATION OF EXPLOSIVE CHARGES – ELECTRICAL BLASTING (1926.906)**

The Blaster or Shooter is responsible for identifying any source of extraneous electricity that would make the use of electrical blasting caps dangerous. Blasting cap leg wires shall be kept short-circuited (shunted) until they are connected to the circuit for firing. All manufacturers' recommendations for using electric blasting caps will be followed with no exceptions. Other rules that apply to initiating electrical blasting are;

1. All blasting equipment supplied by a recognized manufacturer will be tested per the manufacturer's recommendations before placing into service.
2. The power circuit designed for use with an electric blasting cap will not be grounded.
3. The Blaster shall be in charge of all blasting machines, and no other person is allowed to connect the blasting wires to the blasting machine.
4. The Blaster will be in charge of firing the shot.
5. The Blaster will not connect lead wires until the shot is ready to be made.
6. After firing, the lead wires will be removed immediately by the Blaster.
7. Before allowing any employee back in the area that was shot, the Blaster will make sure the area is secure.

**THE USE OF SAFETY FUSE**

The use of Safety Fuse (1926.907) and the use of Detonating Cord (1926.908) shall be determined by the Blaster and coordinated with the manufacturer’s representative. At no time will the blaster have the ability to ignore or override local laws or ordinances that prohibit the use of a safety fuse or the use of a detonating cord.

**FIRING THE BLAST (1926.909)**

Blast signals shall conform to Table U-1 in the OSHA Standard. Before a blast is fired, a loud warning signal shall be given by the Blaster in charge. The Blaster will make sure that all surplus explosives, employees, vehicles, and equipment are at a safe distance or under cover.

Table U-1

Warning Signal	A 1-minute series of long blasts 5 minutes before blast signal.
Blast Signal	A series of short blasts 1 minute before the shot.
All Clear Signal	A prolonged blast following the inspection of the blast area.

If blasting at the surface, all affected individuals including public traffic will be warned and removed from the area to be shot before the Blaster is allowed to begin the warning sequence. The Blaster is responsible for all safety on site.

**INSPECTION AFTER BLASTING (1926.910)**

Immediately after the blast has been fired, the Blaster will disconnect all firing lines from the blasting machine. Power switches, if used, will be locked open or in the off position.



If a shot is made in underground construction, there will be a minimum of 15 minutes allowed for the ventilation of smoke and fumes from the face of the tunnel before an inspection of the face is performed by the Blaster. Once the Blaster has inspected the area shot, the muck pile will be wet down before the pile is removed. Once the pile is removed, the Blaster and crew can begin drilling for the next shot. In underground construction, all muck and debris have to be removed before drilling and loading can proceed.

#### **MISFIRES (1926.911)**

In the event there is a misfire above or below ground, the Blaster will follow the manufacturer's instruction to isolate or attempt to detonate the explosive. At no time will the Blaster allow any drilling, digging or picking until the misfire has been detonated or the authorized representative has approved that work may proceed.

#### **UNDERWATER BLASTING (1926.912)**

The Blaster shall conduct all blasting operations, and no shot shall be fired without his approval. The Blaster will follow all manufacturer instruction in the proper use of explosives used underwater. At no time will a shot be made if there is any vessel within 1500 ft of the blasting area. No blasting will be allowed if there is anyone in the water. Blast signals shall be used before a shot being made.

Blasting flags will be used to warn every affected person that underwater blasting is in progress. Storage of blasting materials will follow manufacturer's recommendations and the provisions outlined in 1926.904 of this standard.

#### **BLASTING IN EXCAVATION WORK UNDER COMPRESSED AIR (1926.913)**

All blasting in work areas under compressed air shall be considered site-specific. All rules and requirements of Subpart U will be followed by the Blaster and qualified engineer who will coordinate blasting operations at all times. All blasting operations will be monitored by a qualified person.

#### **DEFINITIONS APPLICABLE TO THIS SUBPART (1926.914)**

Refer to definitions as needed to comply with all referenced rules and regulations recommended by "Subpart U." Zero tolerance will be maintained at all times regarding the manufacturer's recommendation and regulations required in Blasting Operations on all SCI projects.

## ***SAFE WORK PRACTICES***

### ***TUNNEL SAFETY PROGRAM***

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#### **PURPOSE**

On many sites where SCI employees are employed, multiple operations are taking place simultaneously. Excavation and tunneling are a good example of job site operations that are being accomplished concurrently. They are similar in some ways but very different in regards to compliance and safety. Excavations are governed by CFR 1926.650 Subpart P and underground construction or tunneling is governed by CFR 1926.800 Subpart S. The Tunnel Safety Program covers topics and compliance issues related only to Subpart S.

#### **POLICY**

OSHA requires that any contractor or employer who participates in underground construction (tunneling) provide a safe and healthful workplace. Therefore, all construction operations associated with tunnels (see definition below), including cut and cover excavations connected to a tunnel, are governed by the OSHA Construction Standard, Subpart S (CFR 1926.800). As a tunneling contractor, SCI will adhere to all rules and regulations mandated by this standard.

#### **APPLICABLE DEFINITIONS**

**Tunnel:** An underground passageway, other than those excavated by mine or quarry operations, that is excavated by workers and equipment working below the earth's surface and provides a subterranean route along which workers, equipment, and substances can move.

**Competent Person (Tunneling):** A competent person is one who is capable of identifying existing and predictable workplace hazards and is authorized to take corrective action to eliminate them. In tunneling operations, the competent person sometimes called the "Walker," is responsible for maintaining the safety of all work areas and systems. Tunneling work areas include but are not limited to the portal and vertical and horizontal shafts, the stability of which is essential. Systems related to tunneling operations include access and egress, air monitoring, ventilation, illumination, cranes and hoists, fire prevention and control, and the emergency action plan. The competent person is specifically responsible for the monitoring of airborne contaminants as often as necessary, based on some factors.

In tunneling, the competent person must ensure that atmospheric testing is done as required and that all work areas are safe before employee exposure. These work areas include but are not limited to: the portal, horizontal or vertical shaft, ground stability inside and out and all systems necessary to maintain a safe workplace environment. Those systems include but are not limited to access & egress, air monitoring, ventilation, illumination, fire prevention & control, cranes & hoists, and the site-specific emergency action program.

#### **PROCEDURE**

##### **A. Access & Egress**

The employer shall provide and maintain a safe means of access and egress to all workstations. Such means must ensure that employees are protected from being struck by either loose material or mobile equipment. Access and egress will be controlled at all times by an attendant to prevent unauthorized entry. Unused openings must be tightly closed and appropriate warning signs posted. Completed sections must be barricaded. The tunnel attendant will be responsible for coordinating emergency crews if necessary.

**B. Check-in / Check-out**

The assigned attendant will monitor all access to and egress from the tunnel portal and will have authority to halt operations in the event of any attempted entry by an unauthorized person. All entry will be tracked by a check-in/check-out system and will be verified by each shift supervisor at shift change.

**C. Safety Instruction**

All employees assigned to tunneling operations will be instructed in the recognition and avoidance of hazards associated with underground construction activities including the following subjects:

1. Air monitoring
2. Ventilation
3. Tunnel illumination and emergency lighting
4. Communications (voice and signal)
5. Flood control
6. Mechanical equipment
7. Personal protective and rescue equipment
8. Explosives
9. Fire prevention and protection
10. Emergency procedures, including evacuation and check-in/check-out systems

**D. Notification**

Any hazardous conditions or occurrences that have or might affect employee safety will be communicated to oncoming shifts. The employer will also establish direct communications with other employers at the job site to coordinate any activities that might affect the safety of employee's underground.

**E. Communication**

Two forms of communication will be necessary during tunneling operations, at least one of which shall be vocal. Once the tunneling process is launched, a hard-wired phone system will be installed and tested. The mine phones must be maintained on their own power source. Communication must be tested at the beginning of each shift and as necessary after that.

The second form of site-specific communication will be established on each job site. If voice communication is lost, the secondary form of communication will be used to advise the tunnel crew to shut down operations until voice communication is reestablished. Under no circumstances will tunnel operations proceed without voice communication.

**F. Emergency Provisions**

When a shaft is used as a means of egress, the company will ensure that power-assisted hoisting is readily available in the event of an emergency, unless the regular means of hoisting will remain operational in the event of an electrical power failure. The emergency hoist drum must be bidirectional and designed so that its brake is automatically applied upon power release or failure.

The company will provide NIOSH-approved self-rescuers to employees in underground workstations where they may be trapped by smoke or gas. Requirements for respirators may be found in 29 CFR 1910.134. Additionally, each employee will be supplied with a hand or cap light for emergency use.

The designated attendant will be responsible for keeping a continuous and accurate count of employees underground in case of an emergency. The attendant will also be responsible for securing immediate

aid in an emergency. A rallying point will be established at each specific job site for employees to gather in the event of a catastrophic emergency which requires evacuation of the tunnel or shaft.

On job sites with more than 25 employees working underground, the company will ensure that there are at least two 5-person rescue teams, one either onsite or within a half hour travel time from the entry point and the other within two hours travel time. For job sites with less than 25 underground workers, there must be one 5-person team either onsite or within a half hour of the entry point. The company must make these rescue teams aware of conditions on the job site. Team members must be qualified annually in rescue procedures and the use of breathing equipment. Should flammable or noxious gases be anticipated in an emergency, team members must also be qualified monthly in the use of self-contained breathing apparatuses.

## **G. Hazardous Classifications**

Typical hazardous classifications relate to conditions identified thru atmospheric monitoring. Any gaseous residual during normal tunnel operations where ventilation is ongoing is considered unusual and will be cause for an increase in monitoring throughout the excavated tunnel.

If and when the tunnel becomes “gaseous” all operations will cease until the project manager and safety director reevaluate all working conditions in the tunneling process. Refer to 1926.800(H) 1, 2, & 3 in Subpart S.

### **1. Gassy Operations – Additional Requirements**

- a. Refer to OSHA 1926.800 (i) 1-6. All hand tools, equipment, and their operations shall conform to or be the equivalent of MSHA requirements and shall be operated following 30 CFR Part 36 of the MSHA Standards.
- b. Smoking is prohibited in all Gassy Operations. All ignition sources, i.e., matches and lighters are prohibited.

## **H. Air Monitoring**

According to the Underground Construction Standard, airborne contaminants are to be monitored by a competent person "as often as necessary." The competent person is required to determine which substances to monitor and how frequently, taking into consideration factors such as job site location, geology, history, work practices and daily conditions.

The atmosphere in all underground construction areas shall be tested quantitatively for oxygen, methane, carbon monoxide, hydrogen sulfide and other toxic gases, dust, vapors, mists, and fumes as often as necessary to ensure that prescribed limits are not exceeded. Testing is to be performed to ensure that the oxygen level at normal atmospheric pressure remains between 19.5 and 23.5 percent at all times. If atmospheric testing detects low oxygen levels or continuous exposure to any contaminant, refer to the current PEL (Permissible Exposure Levels) contained in 1926.55 and to CFR 1926.800, designate the atmosphere as gassy or non-gassy, and proceed with the appropriate actions. If contaminants are present in sufficient quantities to be dangerous to life, the employer must prominently post warning signs at all entrances.

A record of all air quality tests (including location, date, time and substance) is to be kept above ground at the worksite and shall be made available to the Secretary of Labor upon request.

## **I. Ventilation**

Fresh air must be provided to all underground work areas to prevent the dangerous accumulation of dust, fumes, mists, vapors, or gases. A minimum of 200 cubic feet of fresh air per minute is to be supplied to each employee who works underground. Mechanical ventilation with reversible airflow is to be provided in all work areas except where natural ventilation is demonstrably sufficient. Where drilling or blasting is performed, the velocity of air flow must be at least 30 feet per minute. For gassy or potentially gassy operations, refer to CFR 1926.800 for additional information. For operations with

underground diesel engines the additional ventilation requirement is for 100 CFM per brake horsepower of the engine.

#### **J. Illumination**

The Standard requires that proper illumination is provided during tunneling operations. Table D3 of 29CFR 1926.56 stipulates the acceptable illumination intensities for underground construction. When or if explosives are handled, only acceptable portable lighting equipment shall be used within 50 feet of any underground heading.

All workers who access the tunnel must be supplied with emergency lighting to prevent the dangerous accumulation of dust, fumes, mists, vapors, or gases. Lamps or flashlights are required to back up the main lighting system in case of emergency or power failure.

#### **K. Fire Prevention and Control**

Fire prevention and protection requirements may be found in CFR 1926.150, Subpart F, except as modified by the additional standards in Subpart S. Open flames and fires are prohibited in all underground construction operations except as permitted for hot work operations. Appropriate warning signs must be posted. Fire extinguishers shall be provided as required.

The employer may store underground no more than a 24-hour supply of diesel fuel for equipment used underground. Acceptable diesel piping systems must be used to transfer fuel and must remain empty when not in use. Oil, grease, and diesel fuel shall be stored in tightly sealed containers in fire-resistant areas. Underground storage areas shall be positioned and designed to prevent spills from leaving the area. Above ground, flammable or combustible materials shall not be stored within 100 feet of any access area. All leaks and spills of flammable or combustible material shall be cleaned up immediately.

In addition to the welding and cutting requirements given in CFR 1926.350, Subpart J, underground construction operations require that noncombustible barriers be installed below hot work being done in or over a shaft or raise. Additionally, no more than a 24-hour supply of fuel gas and oxygen cylinders shall be permitted underground. All empty cylinders must be removed from the underground construction area.

#### **L. Welding, Cutting and Other Hot Work**

1. Refer to Subpart J, CFR 1926.350.
2. No more than the amount of fuel gas and oxygen cylinders necessary to perform welding, cutting, or other hot work during the next 24-hour period shall be permitted underground.

#### **M. Ground Support**

A competent person will inspect all portal areas, access areas, roof, face and walls of the tunnel before the start of each shift. Any evidence of an unstable condition will be addressed and eliminated before allowing employees to begin their shift.

All shifts will be supported by a casing or brace designed by a registered professional engineer.

A guardrail or extended casing shall be at a finished height of 42" plus or minus 3 inches above ground level, and the grade at ground level shall slope away from the shaft.

#### **N. Blasting**

In addition to requirements of Subpart U of the OSHA Standards, all employees will be protected from contact with electrical current used in blasting operations.

No employee will be allowed to re-enter an area that has been shot until atmospheric conditions in the work area have returned to normal.

A site-specific blasting plan shall be required for ongoing tunnel operations.

Any subcontracted blasting work related to a SCI contract will meet all Federal, State, and local requirements. Subcontractors will be required to submit a site-specific engineered blasting plan before mobilization at any SCI site.

#### **O. Drilling**

A competent person will monitor and inspect all drilling operations. All drilling equipment will be operated as specified by the manufacturer. The competent person is in charge of all jumbo drills and tools that support the drill.

Employees working around jumbo drills will be warned whenever drilling is about to begin.

Scaling bars shall be available and maintained in good condition at all times.

Blasting holes shall not be drilled through blasted rock (muck) or water.

#### **P. Haulage**

The competent person shall inspect haulage equipment before each shift. Any equipment related defects will be corrected before the equipment is used.

All horns and warning lights will be checked by the competent person before each shift.

All warning lights will be mounted at both ends of any mobile equipment and visible to employees at all times.

No employee shall ride haulage equipment unless it is equipped with seating for each passenger. Only small hand tools, lunch pails or similar items may be transported with employees in man cars or on top of a locomotive. Crew trips shall consist of personnel loads only.

#### **Q. Electrical Safety**

In underground construction/tunneling, all live electric power lines shall be insulated or located away from water lines, telephone lines, airlines or other conductive materials so that a damaged circuit will not energize the other circuits.

General requirements for electrical safety are found in Subpart K, CFR.1926.400.

#### **R. Cranes & Hoists**

In addition to the crane and hoist standards of CFR 1926.1400, Subpart CC, there are the crane and hoist rules specific to underground construction found in Subpart S. The following is a summary of the general requirements for cranes, hoists, and personnel hoists.

1. Materials, tools, and supplies being raised or lowered must be secured or stacked to prevent the load from shifting, snagging, or falling into the shaft.
2. Unless the shaft is fully enclosed, a flashing warning light must be used to warn employees in the shaft that a load is being moved. When there are employees and equipment at the bottom of a shaft, the signalman shall stop the lowering of loads at 15 feet above the bottom of the shaft before continuing.
3. The operator and employees must be informed before maintenance work begins in a shaft served by a cage, skip, or bucket. A warning sign shall be posted at the shaft collar, the operator's station, and at each landing when work is being done in the shaft.
4. Any connection between the hoisting rope and the cage, skip, or load shall be compatible with the type of wire rope used for hoisting. Connections shall be well maintained and cleaned and must be capable of withstanding hoist forces, vibrations, impact, and misalignment without disconnecting. When using wire rope wedge sockets, a means must be provided to ensure the wedge is properly seated.

5. Cranes must be equipped with limit switches to protect over travel at the boom tip should normal operational controls fail.
6. Additionally, more specific requirements for cranes, hoists, and personnel hoists are provided in CFR 1926.800, Subpart S.

## ***SAFE WORK PRACTICES***

### ***PERSONAL PROTECTIVE EQUIPMENT***

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#### **PURPOSE**

The purpose of the Personal Protective Equipment section is to set forth the procedures for the use, care, and maintenance of personal protective equipment required to be used by employees for the prevention of injuries.

#### **SCOPE**

Applies to all SCI employees. When work is performed on a non-owned or operated site, the operator's program shall take precedence, however, this document covers SCI employees and contractors and shall be used on owned premises, or when an operator's program doesn't exist or is less stringent.

#### **KEY RESPONSIBILITIES**

##### **A. Site Safety Supervisor**

1. Assists in the selection of appropriate PPE. If a task exposes an employee to hazards which cannot be eliminated through engineering or administrative controls, the HSE Manager assists the supervisor and project manager to identify and select PPE suitable for the specific task performed, conditions present, and frequency and duration of exposure. Employees need to give feedback to the supervisor about the fit, comfort, and suitability of the PPE being selected. Employees are provided reasons for selection of PPE.
2. Assists supervisor and site managers in assuring all PPE obtained meets regulatory and this procedure's requirements.
3. Performs Worksite Hazard Assessments - The hazard assessment must indicate a determination if hazards are present or are likely to be present, which necessitate the use of PPE. Sources of hazards include but are not limited to: hazards from impact/motion, high/low temperatures, chemicals, materials, radiation, falling objects, sharp objects, rolling or pinching objects, electrical hazards, and workplace layout.
4. Certifies in writing the tasks evaluated, hazards found, and PPE required to protect employees against hazards and ensures exposed employees are made aware of hazards and required PPE before they are assigned to the hazardous task. The certificate shall include certifier's name, signature, dates, and identification of assessment documents.

##### **B. Supervisors**

1. Supervisors and managers shall regularly monitor employees for correct use and care of PPE and obtain follow-up training if required to ensure each employee has adequate skill, knowledge, and ability to use PPE.
2. Supervisors and managers shall enforce PPE safety rules following the guidance of the SCI progressive disciplinary procedures and ensure Required PPE Poster is posted properly.

##### **C. Employees**

1. Complying with the correct use and care of PPE.
2. Reporting changes in exposure to hazardous conditions that might require a follow-up assessment of the task for PPE.
3. Reporting and replacing defective PPE, which shall not be used.
4. Wearing of required PPE is a condition of employment.



## **PROCEDURE**

### **A. General**

1. Employee-owned equipment is NOT permitted, except for safety toe footwear and prescription safety glasses. SCI is still responsible for the assurance of its adequacy, maintenance and sanitation of those two items.
2. All PPE issued shall be at no cost to the employee and PPE shall be used and maintained in a sanitary and reliable condition.
3. All employees will know and follow the procedures outlined in this Program.
4. Eye Protection
5. Employees must use appropriate eye or face protection when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids or chemical gases or vapors. Eye and Face PPE must comply with ANSI Standard Z87.1-2003 (Z87+), Occupational and Educational Personal Eye and Face Protective Devices.

### **B. Safety Glasses**

1. Safety glasses, with side shields, which meet ANSI Z87.1-2003 standards with "high Impact lenses" are required to be worn by all employees, subcontractors, and visitors while on SCI property, at all times, as described below:
  - a. At field locations, in shops and warehouses, except in approved, designated, striped safety zones.
  - b. In all yard work zones or by everyone when in the vicinity of loading or unloading equipment, performing mechanic or maintenance work, test stands operations, operating equipment such as forklifts, welding, or any work which has the potential to inflict an eye injury.
  - c. In any office, restroom, or any other building while performing any work where a potential eye injury may be present.
  - d. Visitors will be provided with visitor glasses. In the absence of approved prescription safety glasses, "Over the glass" type safety glasses or goggles, must be worn over the non-safety glasses until the employee acquires approved prescription safety glasses.
  - e. Workers assisting welders must wear absorbent safety glasses that protect the wearer from ultraviolet (UV) and infrared rays (IR).
  - f. Dark shaded lens (sunglasses) darker than a # 1 shade is prohibited to be worn indoors unless welding or assisting a welder.
  - g. A doctor must support "exceptions for medical reasons" in writing to exempt safety eyewear requirements.

### **C. Safety glasses are not required:**

1. Inside offices.
2. Parking lots when traveling from vehicles to and from office buildings by way of main doors that do not pass through shops.

### **D. Goggles**

1. Chemical splash proof goggles shall be worn when handling or mixing liquid chemicals, solvents, paints, etc., and as recommended on the Material Safety Data Sheet of the material being handled.
2. Dustproof goggles shall be worn when blowing equipment down with air or while performing other jobs where safety glasses are not adequate to prevent airborne particles from entering the openings around the lenses and side shields.

### **E. Face Shields**

Full face shields shall be worn over safety glasses when operating handheld or stationery grinders with abrasive or wire wheels while chipping paint or concrete or, performing jobs where there is the potential for flying objects striking the face and safety glasses or goggles would not provide adequate protection.

### **F. Head Protection**

Employees must wear protective helmets when working in areas where there is a potential for injury to the head from employee-initiated impact or impact from falling or other moving objects. Helmets must comply with ANSI Standard Z89.1-1997 Class E, American National Standard for Industrial Head Protection for Type II head protection or be equally effective.

Employees must wear protective helmets when working in areas where there is a potential for injury to the head from falling objects.

1. Hardhats are to be worn at all field, shop and warehouse locations, or where deemed necessary as per each location's PPE Hazard Assessment.
2. Hardhats will not be altered in any way.
3. Do not paint or apply unauthorized stickers, nameplates, etc.
4. Do not drill, cut, bend, or apply heat.
5. Do not alter the suspension system.
6. Hardhats will be inspected by the employee regularly for cracks, chips, scratches, signs of heat exposure (sun cracks), etc.
7. Defective hardhats will be replaced immediately.
8. Hardhats shall not be placed in rear windows of vehicles where they will be exposed to the sun or become projectiles during an accident.
9. A supply of hardhats must be made available to visitors.
10. SCI shall provide hardhats.
11. Employees will be trained in the use, care, and maintenance of head protection equipment.

### **G. Hearing Protection**

1. Hearing protection is required to be worn by all employees, subcontractors, and visitors while in posted "High Noise" areas. Refer to the SCI Hearing Conservation Program for more information.
2. Warning signs will be posted in areas known or suspected to have noise levels exceeding 85 dBA either constantly or intermittently.
3. When signs are not posted, employees shall wear hearing protection when noise caused by machinery, tools, etc., prevents normal conversations to be heard clearly.
4. Rule of thumb: If you have to yell to be heard, hearing protection is required.
  - a. Types
    - i. Molded Inserts (earplugs)
    - ii. Canal Caps (headband type)
    - iii. Muff, either headband or hard hat mounted Earmuffs and earplugs shall be provided to the employee in sizes and configurations that will be comfortable to the employee.
  - b. Care and Maintenance
    - i. Inspect hearing protection before each use.

- ii. Hearing protection must be kept clean to prevent ear infections.
  - iii. Most earplugs used today are disposable and must be discarded when they become dirty, greasy, or cracked.
  - iv. Earmuffs that have deteriorated foam inserts, cracked seals or are defective must be replaced.
- c. Fit
- i. Due to individual differences, not everyone can wear the same type of hearing protection. A variety of styles may have to be tried before one is found to be comfortable and provide adequate protection.
  - ii. Employees shall be instructed how to obtain the proper fit.

## **H. Hand Protection**

### Gloves

1. Gloves are required to be worn when performing work, which may expose the hands to extreme temperatures, cuts, and abrasions, or exposure to chemicals.
2. Welding: Welding gloves made of leather or other heat resistant materials shall be worn when performing arc welding or oxy/gas cutting.
3. Chemical: Impervious (chemical resistant) gloves shall be worn when handling chemicals that specify gloves as personal protection equipment when handling.
4. Refer to the specific chemical's Material Safety Data Sheet for the correct glove type.
5. Persons assigned to working with chemicals, i.e., solvent vats, shall be issued their own individual gloves for hygiene purposes.
6. Leather: Leather gloves shall be worn when working with sharp materials or when handling rigging equipment.
7. Cloth: Cloth gloves shall be worn when handling objects or materials, which could cause blisters, splinters, cuts, etc.
8. Heat Resistant: Heat resistant gloves shall be worn when handling hot bearings, races, or other materials or objects that have been heated beyond ambient temperatures.
9. Insulated: Insulated gloves shall be worn to prevent frostbite in extremely cold climates.

### Glove Inspections

10. Gloves shall be inspected before each use for holes, tears, and worn areas.
11. Chemical gloves shall be periodically air tested for pinholes by twisting the cuff tightly, apply low air pressure to expand the glove, and then submersed in water to check for bubbles.
12. Defective gloves shall be discarded immediately.
13. Exception: machinists are exempted from wearing gloves while working with rotating machinery.

## **I. Foot Protection**

1. Safety footwear shall be worn by all employees with regularly assigned duties at field locations, in shops and warehouses.
2. Office workers and visitors who enter these areas on an infrequent basis will not be required to wear foot protection provided they stay clear of the work being performed.
3. If required to be in the proximity of the work, the work will be stopped while visiting the area or safety footwear will be worn.

4. Shops, Field Locations, Warehouses and Parts Departments: Leather or equivalent steel-toed boots, either lace up or pull up, shall be worn.
5. The boot must provide ankle protection and have soles designed to protect from punctures with defined heels for climbing ladders.
6. Metatarsal guards will be worn when duties present a hazard of equipment or material crushing the foot.
7. All safety footwear must meet ANSI Z41-1999 standards.
8. Client locations may require safety footwear to be worn by everyone; check with the local supervisor for client requirements before visiting field locations.

#### **J. Fall Protection**

Personal fall protection is required when performing certain elevated jobs more than six feet. Consult the SCI Fall Protection Program.

#### **K. Electrical Protection**

Consult the SCI Electrical Safety Program

#### **L. Worksite Hazard Assessment**

During a hazard assessment the following sample hazard sources will be identified:

1. High or low temperatures; Chemical exposures (use MSDS for guidance)
2. Flying particles, molten metal, and other eye, face, or skin hazards
3. Falling objects or potential for dropping objects; employee falling from a height of 6' or more
4. Sharp objects; Rolling or pinching that could crush the hands or feet;
5. Electrical hazards

Where these hazards could cause injury to employees, personal protective equipment must be selected to substantially eliminate the injury potential. Employees will be notified of the selection and reason.

The results of this assessment shall be communicated to each affected employee and kept at the local office.

Selected/identified PPE shall be fitted to each affected employee. Exemptions for the use of PPE must be supported by the PPE hazard assessment.

#### **M. Monitoring**

Supervisors and site managers monitor worksite tasks for changes in or the introduction of new hazards. If new hazards are discovered, they advise the HSE Manager who then conducts a hazard assessment for appropriate PPE. The HSE Manager monitors the effectiveness of the PPE Procedure and makes recommendations to management to improve the procedure.

#### **N. Training**

Each employee who requires PPE shall be properly trained. Training shall include:

1. When PPE is necessary
2. What PPE is necessary
3. How to properly don, doff, adjust and wear PPE
4. The limitations of PPE
5. How to maintain PPE in a sanitary and reliable condition

#### **O. Retraining**

Retraining is required when:

1. The workplace changes, making the previous training obsolete.
2. The type of PPE changes.
3. When the employee demonstrates lack of use, improper use, or insufficient skill or understanding in PPE selection, necessity, use, and limitations.

**P. Documentation**

Training shall be documented, and records kept at the local office. The training documentation shall include:

1. Name of employee(s) trained
2. The dates of training
3. Training subject.

## ***SAFE WORK PRACTICES***

### ***PILE DRIVING***

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#### **PURPOSE**

This policy pertains to SCI and participating subsidiary and affiliated companies (the "Company").

The purpose of the policy is to set forth the policy and procedures for pile driving operations including the use and maintenance of all vibratory ("Vibro") and diesel hammer.

#### **RESPONSIBILITY**

Project Managers, Crane Operators, Piledrivers and pile driving work crews are responsible for ensuring compliance with this policy.

Health, Safety & Environmental Managers are responsible for the administration of this policy.

#### **DEFINITIONS**

**Battered Pile** - A pile driven at an angle.

**Blow Count** - A so-called Driving Resistance - The number of hammer impacts or blows required to move the pile a given unit of measurement.

**Cut-Off Elevation** - The finish elevation of the pile top as shown in the Plans.

**Driving Criteria** - Engineer's recommended blow count for piles to provide the bearing capacities required for carrying the design loads shown in the plans.

**Elevation** - The height above or depth below sea level.

**Fixed Leads** - Fixed Leads-The leads are attached at the top of the boom and to the crane at the bottom with a brace.

**Jetting**- Consists of a jet pump, supply lines and one or more jet pipes which use water to displace soil and advance a pile into the ground.

**Lead** - means a wood or steel frame with one or two parallel members for guiding the hammer or piles in the correct alignment.

**Minimum Penetration** - Minimum depth below the ground surface, scour elevation, or bottom of the excavation, to which a pile must be driven.

**Pile** - refers to a long slender column, usually of timber, steel, or reinforced concrete that is pre-manufactured, driven into the ground to carry a vertical load.

**Pile Cushion** - Used to protect pile top and help control pile stresses in concrete piles. Steel and timber piles do not use a pile cushion.

**Pile Splice** - Piles that do not achieve the required driving criteria or are driven below the cut-off elevation need to be extended. A splice is a structural connection between the original pile and another. Spliced piles may be driven or non-driven.

**Production Pile** - Term given to all permanent piles that are not test piles. Note: test piles are usually at production pile locations.

**Ram** - Striking part of the hammer. The weight (pounds) of the Ram is a part of the equation for Hammer Energy.

**Semi-Fixed Leads** - Semi-Fixed Leads-If the leads are attached to the boom at the top, then they are not connected at the bottom. If they are attached at the bottom, then they are not attached at the top.

**Stroke** - This is the term used to describe the height or length of the ram drop. With diesel hammers, stroke is dependent upon fuel and resistance. Air and hydraulic hammers have a set stroke independent of resistance.

**Swinging Leads** - Swinging Leads-The leads are suspended from the boom by the cable and are not attached to the boom.

**Template** - Used to maintain the pile in the proper position and alignment during driving with swinging or semi-fixed leads. It shall be constructed of steel and be rigid enough to hold the pile in place.

**Test Pile** - An exploratory pile driven to develop recommendations for the installation of permanent piles, to determine information on the pile, soil, hammer, and method of installation. Test pile information is used to determine pile lengths and driving criteria for all production piles.

## **PROCEDURES**

### **A. General**

Vibratory and diesel hammer operation is one of them or activities performed by marine construction crews to successfully install or extract pile on a project site.

Boilers, piping systems, and all pressure vessels used with pile driving equipment shall meet the applicable requirements of the American Society of Mechanical Engineers including periodic inspections and certifications.

### **B. General Requirements- Pile Driving Operations**

1. The location of underground wiring or piping and overhead power lines shall be determined before the start of pile driving operations.
2. The work area including barge platforms and ramp walkways shall be free of debris, with tools and equipment in their proper place, ensuring free movement in the work area.
3. All ladders and platform ramps and handrails shall regularly be inspected.
4. All guy lines and leads shall frequently be inspected and tightened as necessary.
5. The ground crew shall be restricted from the driving operations and barricades shall be used to keep unauthorized personnel from entering the pile driving work area.
6. When hammers are not in use, they shall be blocked or chained in a crossover configuration at the base to prevent falling or tipping over, or they shall be appropriately stored on the barge or ground.
7. All wire ropes and slings, chains shall frequently be inspected for cuts, abrasions or kinks and defective rigging equipment and material shall be replaced.
8. Standard signals shall be used. Except for an emergency signal stop, the operator shall recognize signals only from a designated signaler.
9. When piles are placed at the pile driving rig for hoisting, the driving end shall be nearest the operation, and in such a position that it will not swing or whip while being raised.
10. When lifting a pile into the driving leads, all personnel not actually engaged in this operation shall be kept a safe distance from the area.
11. The pile driving rig shall not be operated nor pressured up during maintenance or repair work. Lockout tag-out procedures will apply.

12. When the pile driving rig is shut down, pressure shall be relieved from the lines and the hammer shall be lowered to the base and blocked or chained in a crossover configuration.
13. All welds and bracing shall be checked at the start of each day as stress along with adverse conditions (during the night or time elapsed from previous work) can create hazards.
14. The counterweight swing area of the pile driving rig shall be barricaded to prevent workers from being struck or pinned.
15. Overhead protection for the operator shall be provided that will not obscure vision. Protection shall consist of 2 in. planking or equivalent.
16. Stop blocks shall be provided for the leads to prevent the hammer from being raised against the head block.
17. Guards shall be provided across the top of the head block to prevent the cable from jumping out of the sheaves.
18. At least three full wraps of cable shall be maintained on the hoisting drum.
19. Pulling piles with the hammer or pile line rigged through the head block is prohibited unless driver and rigging are designed to withstand the imposed strain safely. The crane shall be tied to a fixed object with alternate crane line not being used in pulling pile to prevent crane boom from going over backward if the pull line or rigging fails.
20. Pile hammer and leads shall have tagline long enough to handle the load but also keeps the crew at a safe distance.

#### **C. Pile Driving Operations on Over, Over or Adjacent To**

1. The operating deck of floating pile drivers shall be guarded to prevent piles, which are being hoisted into the driving position, from swinging in over the deck.
2. Life rings with 90ft of 1/2 in. nylon line attached shall be provided in easily accessible locations when working near or over water.
3. Pile driving operations on or adjacent to navigable waterways may require a U.S. Army Corps of Engineers and/or a U.S. Coast Guard permit.
4. All walkways over water shall be a minimum of 20 in. wide with standard handrails along both sides on structures and gangplanks.
5. Spill boom shall be readily accessible in case of fuel line leak to contain a spill.

#### **D. Personal Protective Equipment**

1. Hearing protection shall be worn by personnel in the work area during pile driving operations where noise levels exceed 85 decibels or when a customer requires continuous protection.
2. All personnel working over water shall be required to wear U.S. Coast Guard approved life vests.
3. When driving creosoted wood piles, the hammer impact can spray creosote. The need and use of eye protection and protective clothing shall be required. Washing facilities shall be available.
4. Gloves shall be worn by personnel who are involved in the rigging and set-up of the pile driving rig and when handling piles.

#### **E. Vibratory Hammer Procedures**

The following guidelines must be adhered to when a vibratory hammer is used on any job:

1. Close supervision while in operation.
  - a. Crewmembers need to pay close attention while the vibratory hammer is in use.



- b. Special precaution must be taken when underwater operations are involved, and the possibility exists for the Vibro or hoses to become entangled with underwater obstructions. This includes providing an airline with proper air pressure and a vent line attached to the rigging which is long enough to clear the water line.
  - c. Superintendent shall check operation frequently to ensure that procedures are being followed.
- 2. Job Safety Analysis (JSA) must be completed for each different use of the vibratory hammer.
  - a. If a JSA already exists for the particular application of the Vibro on a given job, review it with all the crewmembers before the job begins.
  - b. If no JSA exists for the specific use in question, one must be completed and reviewed by the job superintendent and the Safety Department before Vibro activity begins.
- 3. Prior to and after hook-up, conduct a close visual inspection of all hoses and fittings. Check all fluid levels in the "Power Pak" and Vibro system.
- 4. The foreman completes a Daily Vibratory Hammer Inspection Report
- 5. Lead lines (hoses) must have a line attached whenever the Vibro is in use to keep lead lines out of the way.
- 6. Two taglines should be attached to the Vibro whenever possible.
- 7. Containment spill booms shall be in place around designated work area anytime the Vibro is in operation over water. The oil used in the Vibro must be bio-degradable.
- 8. Absorbent pads shall be on site for immediate response in the event of an oil spill.
- 9. Nylon slings shall be used in handling the Vibro lead hoses. The slings accompany the Vibro wherever it is transported.
- 10. The Vibro operator must ensure that the Crane Operator has the Vibro adequately seated on the pile and that crew is off the template in case of excessive vibration before turning on the switch.
- 11. Care must be exercised when handling the Vibro and hoses to and from delivery vehicles to assure that hoses are clear of obstructions that may cause damage. Hoses will be coiled and secured for transportation and handling.

#### **F. Diesel Hammer Procedures**

The following guidelines must be adhered to when a diesel hammer is used on any job:

- 1. Close supervision while in operation.
  - a. Crewmembers need to pay close attention while the diesel hammer is in use.
  - b. Special precaution must be taken when underwater operations are involved, and the possibility exists for the diesel hammer or hoses to become entangled with underwater obstructions.
  - c. Superintendent shall check operation frequently to ensure that procedures are being followed.
- 2. Job Safety Analysis (JSA) must be completed for each use of the diesel hammer.
  - a. If a JSA already exists for the particular application of the diesel hammer on a given job, review it with all the crewmembers before the job begins.
  - b. If no JSA exists for the specific use in question, one must be completed and reviewed by the job superintendent and the Safety Department before diesel hammer activity begins.

3. Prior to and after hook-up, conduct a close visual inspection of all hoses and fittings. Check all fluid levels in the diesel hammer system.
4. The foreman completes a Daily Diesel Hammer Inspection Report
5. Lead lines (hoses) must have a line attached whenever the diesel hammer is in use to keep lead lines out of the way.
6. Containment spill booms shall be in place around designated work area anytime the diesel hammer is in operation over water.
7. Absorbent pads shall be on site for immediate response in the event of an oil spill.
8. All diesel hammer controls shall have adequate length control ropes to enable full operations from a safe distance.
9. When driving batter pile, a snatch block of proper tonnage shall be attached to the tops of leads to ensure that the hammer slides properly in the leads.
10. Care must be exercised when handling the diesel hammer to and from delivery vehicles to assure that hoses are clear of obstructions that may cause damage.
11. Crews must be trained and knowledgeable in all means of shutting down the diesel hammer including the use of the kill rope, the fuel cut-off setting, and holding down the fuel setting.

#### **G. Handling Piles**

1. Piles are usually delivered to the job site on material barges or trailer trucks.
2. Upon arrival at the job site, an inspection shall be made of each load.
3. In transit, spacers, binders or dunnage may shift causing problems in that piles could fall, roll, or slip during unloading.
4. Taglines will provide proper control during placement of the pile by crane to the storage area.
5. Piles shall be placed appropriately for handling by the driving rig as close to the hoisting center as possible.
6. Proper spacing with dunnage is necessary for the rig to hook onto the next desired pile safely.
7. Taglines are essential for the proper placement of the pile by the rig.
8. Workers shall not guide the pile directly by hand until the pile is close to the driving lead.

#### **H. Safety Precautions in The Use of Sheet Piles**

1. A mechanical device shall be used to guide the pile into place, especially if threading sheets above ground or in high wind situations. If required to go aloft on sheet piling, the worker shall use an aerial lift or man lift.
2. Fixed leads shall be provided with a ladder and adequate slings (or similar attachment points) so that the loft worker may engage the safety belt lanyard to the leads.
3. If the leads are provided with loft platforms, the platforms shall be protected by standard guardrails.
4. While employees are working under the hammer, a blocking device capable of safely supporting the weight of the hammer shall be provided for placement in the leads under the hammer.
5. No personnel shall ride the hammer or other suspended loads.

6. Electrical wires and other overhead obstructions in the work area shall be protected or shut off.
7. A handling eye or a handling hole in the top of the sheet is necessary for safe handling.
8. Hoisting of steel piling shall be, done by use of a closed shackle or other positive means of attachment that will prevent accidental disengagement. The use of friction or grab clamps is prohibited when lifting sheet piles.
9. Sheet piling with interlocking grooves shall be checked for damage in the grooves and excess rust removed prior to use.

#### **I. Pile Extraction**

1. Extreme stress on equipment can develop during pile extraction especially in water where the current is strong. Standard extraction is done with an extracting hammer designed for this purpose.
2. For pile extraction, the following shall be observed and executed:
  - a. If piling cannot be pulled without exceeding the load rating of equipment, a pile extractor shall be used.
  - b. When pulling piling, crane booms shall not be raised in excess of the crane manufacturer's written specifications for such operations, and the crane shall not be allowed to tip.
  - c. Extractor hooks shall be carefully inspected daily for signs of failure.
  - d. The screw bolt shall be locked in the extractor pin with a spring clip, or the vibration may loosen the bolt.
  - e. The rig boom shall be tied down with crane line not being used in the pulling operation.

#### **J. Equipment Inspection**

1. Daily inspections of pile driving rigs are required at the beginning of each work shift to control potential hazards caused by loosening of bolts and other connections.
2. Supplemental inspections may be required as determined necessary by work conditions.

## ***SAFE WORK PRACTICES***

### ***MARINE OPERATIONS***

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#### **PURPOSE**

To prevent injury and/or accidents to employees working on floating equipment or working over or near water. To ensure and improve the safety, efficiency, and productivity of offshore operations.

#### **SCOPE**

Applies to all SCI Team Members and its subcontractors associated with and performing work on the project

#### **RESPONSIBILITIES**

Project supervision will ensure that all marine operations are performed in accordance with this procedure and all federal, state, and local regulations.

#### **PROCEDURE**

##### **A. General Safe Work Requirements**

Workers and visitors shall wear a U. S. Coast Guard approved personal flotation device (PFD) while working over or near water, when transferring to or from marine transportation and where there is a risk of personnel falling into the water. A fall restraint or physical barriers shall be considered before personal protective equipment is utilized.

1. PFD shall be inspected prior to and after each use. PFD's shall be securely fastened when worn.
2. Where there is the possibility that a person might drift away, the PFD shall be equipped with a whistle and water activated light. PFD's must be equipped with reflective material in appropriate conditions such as darkness at night or early morning hours.
3. Ring buoys with at least 90' feet of line shall be provided and readily available for emergency rescue operations. The distance between ring buoys shall not exceed 200'.
4. At least one lifesaving skiff shall be immediately available at locations where employees are working over or adjacent to water. Skiffs shall be kept afloat or ready for instant launching.
5. Effective means of communication by radio, maritime, or cellular telephone to shore base and other vessels from manned vessels shall be established as required.
6. All marine barges, skiffs, and floating equipment shall be inspected as required U. S. Coast Guard regulations.
7. All vessels, regardless of size, shall be operated according to the applicable navigational rules and regulations of the Federal, State, and Municipality being used, and shall be lighted in accordance therewith.
8. **No diving operations of any type shall be allowed without full compliance with U. S. Coast Guard and OSHA regulations. All dive plans shall be approved prior to dive operations taking place. This applies to all subcontractors and third parties as well.**
9. Where applicable, first response and rescue team shall be organized, trained, and equipped to respond to emergencies on the water. Practice drills shall be conducted periodically, and an adequate amount of personnel on this team shall have up to date first aid and CPR training.
10. Smoking Shall Be Prohibited during fueling operations.
11. All open hatches shall be guarded and lighted during hours of darkness.

12. Vessel fire extinguisher and hose stations shall be readily accessible and distinctly marked. Fire extinguishers shall be inspected, serviced, and maintained in accordance with regulations and manufacturer's recommendations.
13. All highly flammable liquids, including paints and thinners, shall be stored in metal lockers in accordance with NFPA approved double-walled metal cabinets.
14. Man overboard drills will be conducted periodically.
15. Warning signs shall be placed on unattended floating plant and land-based heavy equipment accessible to the public and shall read "NO TRESPASSING."

#### **B. Reporting Accidents**

1. Any and all accident, incident, employee injury, equipment damage, environmental spill, potential or actual incident involving the general public no matter how minor will be reported immediately. Vessel/tug Captain shall make the required radio calls (reports) to the U. S. Coast Guard.
  - a. Material damage is affecting the seaworthiness or efficiency of the vessel.
  - b. Stranding or grounding.
  - c. Loss of life
  - d. Serious injuries
2. Any accident resulting in serious injury requiring the transportation of an injured person to the shore for medical aid shall be reported immediately.
3. U. S. Coast Guard will provide search and rescue when necessary.

#### **C. Weather Reports and Forecast**

1. Weather reports and forecast will be obtained prior to daily operations and updated as necessary throughout the work shift.
  - a. Project supervision will make the necessary weather calls when weather deteriorates.
  - b. Site-specific storm plans will be executed when applicable.
  - c. Weather conditions must be discussed and agreed before starting heavy lift operations and may cause other operations to be suspended.

#### **D. Vessel Master**

1. Is the principal authority on a vessel, and as such, is responsible for the safety of the vessel and crew working on and from the vessel. The Master is obligated to comply with U. S. Coast Guard regulations or other relevant marine legislation and, in particular, any action to save life.
2. Is at all times responsible for safety of his crews, vessels and cargo and marine environment protection. The Master must stop operations that threaten the safety of the vessel, crew, or any installation's integrity. Other pressures must not interfere with the Master professional judgment.
3. Approve loading plans before cargo (construction equipment) is loaded on board the vessel or barges.
4. Approve sea fastening of cargo.
5. Ensure his vessel is maintained in a seaworthy condition at all times. Any defects or malfunction of equipment shall be reported to project supervision immediately and recorded in a vessel defects file/logbook. If the deficiencies are such as to endanger the vessel or its crew, the vessel or equipment shall not be used until the necessary repairs have been completed.

6. The Master of the vessel determines that a Safe Operation cannot be conducted because of weather conditions or vessel performance, he will inform project supervision. He will wait until weather conditions abate and safe operations can commence or cease operations.
7. Master must allow time for vessel to seek shelter in the event of adverse forecast.
8. Any marine incident must be reported immediately.
9. Third party "Trip Captains" must be approved by SCI management prior to entering a PO or contract. If a tow requires two Captains, each must be approved. Professional qualifications review is required:
  - a. Current license. Verified via Homeport—Merchant Mariner Credential Verification; <https://homeport.uscg.mil/mycg/portal/ep/channelView.do?channelId=-35921&channelPage=%252Fep%252Fmmlid%252FMmCVSearchBody.jsp&pageTypeId=13489>
  - b. Current endorsement
  - c. Current TWIC
  - d. Current physical
  - e. Current alcohol and drug screen (within the last 180 days).

#### **E. Deck Barge Safety**

1. Barges shall be inspected on a regular basis and as necessary, to prevent problems related to missing equipment, hazardous working surface conditions, and mechanical failures that could contribute to falls overboard.
2. Barge edges shall be kept clear of debris to allow access to the bitts.
3. Appropriate control measures and training will be implemented to reduce the hazards associated with falling overboard.
4. Before a barge is moved, the spuds need to be raised so that the pinhole is above the resting area of the securing pin. Proper clearance shall be maintained from all overhead obstructions and power lines.
5. The Master of a towing vessel, who is responsible for ensuring that the vessels under his or her control are safe to move, needs to ensure that spud securing pins are in place and have a means to prevent inadvertent disengagement before the tow is underway.
6. If the spuds must be lowered to stop the barge in an emergency situation (for example, in case of a power failure of the tug or an imminent collision), a supervisor needs to direct the barge employees on how and when to lower the spuds.
7. Before attempting to lower mooring spuds, ensure that spud securing pins are entirely removed and that employees are clear of the immediate area. Employees shall avoid pinch points at all times.
8. Ramps for access for equipment to or between barges shall be of adequate strength, provided with sideboards, well maintained and properly secured.
9. Unless employees can step safely to or from the wharf, float barge, or river towboat, either a ramp, meeting the ramp requirements above or a safe walkway, shall be provided.
10. Jacob's ladders shall be of the double rung or flat tread type. They shall be well maintained and properly secured.
11. Jacob's ladder shall either be hung without slack from its lashings or be pulled up entirely.

12. When the upper end of the means of access rests on or is flush with the top of the bulwark, substantial steps properly secured and equipped with at least one handrail approximately 33 inches in height, shall be provided between the top of the bulwark and the deck.
13. Obstructions shall not be laid on or across the gangway.
14. The means of access shall be adequately illuminated for its full length.
15. Unless the structure makes it impossible, the means of access shall be so located that the load will not pass over employees.
16. Decks and other working surfaces shall be maintained in a safe condition.
17. Project supervision shall ensure that there is in the vicinity of each barge in use at least one U. S. Coast Guard-approved 30-inch life ring with not less than 90 feet of line attached, and at least one portable or permanent ladder which will reach the top of the apron to the surface of the water.
18. Before personnel enters any barge or closed compartment for inspection or repair, positive steps shall be taken to remove flammable vapors and ensure oxygen supply for breathing is adequate. Confined Space procedures shall be followed.

#### **F. Winches**

Winches expose employees to hazards such as body parts caught in winch drum, being struck by a broken line or cable, and tripping over a line or cable.

1. Use a device or tool, never your hand, to keep the winch line spooling properly.
2. Enclose the winch drum in a cage if practical.
3. Stay off the deck unless you are part of the operation.
4. Never stand in, on, over, or in line with the lines or cables connected to winches when they are under tension. The danger zone lies within 15 degrees of either side of a line under tension.
5. Never step on or walk over the winch drum.
6. Inspect the winch system regularly for problems associated with general or localized deterioration, cracked welds, and other structural, mechanical, or electrical deficiencies.
7. Inspect lines and cable systems prior to each use, including blocks, hooks, and associated components, for signs of damage or deterioration. The winch break shall be slowly released to prevent cable backlash or shock loading.
8. A guard shall be installed between the winch operator and the connected cables to protect the operator from potential whiplash.
9. Never stand in the bight of a line.

#### **G. Fire Hazards**

Steps to be taken to prevent fires onboard.

1. Store engine fuel tanks and compressed gas tanks properly, away from sources of ignition. Only keep onboard quantities of flammable and combustible materials that are necessary for operations and maintenance. Post appropriate danger signs.
2. When dealing with work that is capable of providing a source of ignition through a flame or spark (hot-work), such as welding, cutting, burning, drilling, and grinding.
  - a. Ensure the space is properly tested by a qualified or competent person and deemed safe before work is begun.

- b. Make sure that proper fire extinguishing equipment is near the work area and that it is maintained in a state of readiness for emergency use.
- c. Do not leave oxygen or acetylene hoses unattended.
- d. Consider where sparks will fall when doing hot-work and provide a fire watch. Do not perform hot-work on or near crane mats.
- e. Shield fuel sources to protect them from ignition sources.
- f. Cover openings to prevent sparks from entering.
- g. Stop any hot-work if you smell fuel or gas until the source has been identified and the problem fixed.
- h. When welding or burning on the deck of a barge, space below shall be inspected to ensure that no flammable atmosphere or combustible materials are present.
- i. Use good housekeeping practices to limit the amount of clutter, debris, and combustible/flammable material.
- j. Make sure electrical systems are installed by a competent electrician and that electrical systems are regularly inspected.
- k. Regularly conduct visual inspection of connections switches and wiring, which may be subject to corrosion from saltwater and damage from use.
- l. Fire extinguishers shall be inspected according to U. S. Coast Guard regulation 46 CFR 25.30.

#### **H. Cranes on Barges**

1. Crane mats are required for a stable, level work surface for crane operations. The matting material shall be in good condition and adequate thickness, width, and length as to completely support the crane. The mats shall be laid perpendicular to the crane travel path and shall be placed as close to each other as possible. A spotter shall be used to guide the crane when it moves on the mat surface to prevent the crane from traveling beyond the limit of the crane mats. Crane mats shall be secured to the barge deck to prevent shifting during crane or barge movement.
2. Cranes must be attached to barges using one of the following methods: (a) physically, (b) corraling, (c) rails system or (d) centerline cable system.
  - a. Physical attachment; the crane is physically attached to the barge, pontoons, vessel or other means of flotation.
  - b. Corraling; the crane is prevented from shifting by installing barricade restraints. The crane is not allowed to shift by any amount in any direction.
  - c. Rails; the crane must be prevented from shifting by being mounted on a rail system. Rail claims and rail stops are used unless the system is designed to prevent movement during operation by other means.
  - d. Centerline cable system; the crane is prevented from shifting by being mounted on a wire rope system:
    - i. Wire rope and attachments are of sufficient size and strength to support the side load of the crane.
    - ii. The wire rope is attached physically to the vessel/barge.
    - iii. The wire rope is attached to the crane by appropriate attachment methods on the undercarriage, and that the process used will allow the crew to secure the crane from



movement during operation and to move the crane longitudinally along the vessel/barge device for repositioning.

- iv. Means are installed to prevent the crane from passing the forward or aft end of the wire rope attachments.
- v. The crane is secured from movement during operation.
- e. Exception; for mobile cranes used on the deck of a barge does not apply when the project supervision demonstrates implementation of a plan and procedures that meet the following requirements:
  - i. Registered professional engineer develops and signs a written plan for the use of the mobile crane.
  - ii. The plan is designed so that the applicable one of the above options are met despite the position, travel, operation, and lack of physical attachment (or corralling, use of rails or cable system) of the mobile crane.
  - iii. The plan specifies the areas of the deck where the mobile crane is permitted to be positioned, travel, and operate, and the parameters and limitations of such movements and operations.
  - iv. The deck is marked to identify the permitted areas for positioning, travel, and operation.
  - v. The plan specifies the dynamic and environmental conditions that must be present for the use of the plan.
  - vi. The barge, pontoons, vessel or other means of floatation used
  - vii. Are structurally sufficient to withstand the static and dynamic loads of the crane when operating at the cranes maximum rated capacity with all anticipated deck loads and ballasted compartments
  - viii. Have a subdivided hull with one or more longitudinal watertight bulkheads for reducing the free surface effect
  - ix. Have access to void compartments to allow for inspection and pumping

## ***SAFE WORK PRACTICES***

### ***SCAFFOLD TAGGING PROCEDURE***

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#### **PURPOSE**

The purpose of this program is to prevent injuries due to falls from elevated work areas and ensure employees and contractors are able to inspect scaffolding materials and erected scaffolds.

#### **SCOPE**

This program is applicable to every work area where scaffolding is erected. When work is performed on a non-owned or operated site, the operator's program shall take precedence, however, this document covers SCI employees and contractors and shall be used on owned premises, or when an operator's program doesn't exist or is less stringent.

#### **DEFINITIONS**

**Bearer** - A horizontal member of a scaffold upon which the platform rests and which may be supported by ledgers.

**Brace** - A tie that holds one scaffold member in a fixed position with respect to another member.

**Coupler** - A tie that holds one scaffold member in a fixed position with respect to another member.

**Double pole or independent pole scaffold** - A scaffold supported from the base by a double row of uprights, independent of support from the walls and constructed of uprights, ledgers, horizontal platform bearers, and diagonal bracing.

**Guardrail** - A rail secured to uprights and erected along the exposed sides and ends of platforms.

**Heavy Duty Scaffold** - A scaffold designed and constructed to carry a working load not to exceed 75 pounds per square foot.

**Ledger (stringer)** - A horizontal scaffold member which extends from post to post and which supports the putlogs or bearer forming a tie between the posts.

**Light Duty Scaffold** - A scaffold designed and constructed to carry a working load not to exceed 25 pounds per square foot.

**Manually Propelled Mobile Scaffold** - Manually propelled mobile scaffold.

**Maximum intended load** - The total of all loads including the working load, the weight of the scaffold, and such other loads as may be reasonably anticipated.

**Medium duty scaffold** - A scaffold designed and constructed to carry a working load not to exceed 50 pounds per square foot.

**Mid-Rail** - A rail approximately midway between the guardrail and platform, used when required, and secured to the uprights erected along the exposed sides and ends of platforms.

**Putlog** - A scaffold member upon which the platform rests.

**Runner** - The lengthwise horizontal bracing or bearing members or both.

**Scaffold** - Any temporary elevated platform and its supporting structure used for supporting workmen or materials or both.

**Toe Board** - A barrier secured to the sides and ends of a platform, to guard against the falling of material.

**Tube and coupler scaffold** - An assembly consisting of tubing, which serves as posts, bearers, braces, ties,

and runners, a base supporting the posts, and special couplers which serve to connect the uprights and to join the various members.

**Tubular welded frame scaffold** - A sectional, panel, or frame metal scaffold substantially built up of prefabricated welded sections that consist of posts and horizontal bearer with intermediate members. Panels or frames shall be braced with diagonal or cross braces.

**Working Load** - Load imposed by men, materials, and equipment.

## **RESPONSIBILITIES**

### **A. Supervisors**

1. Responsible for ensuring that scaffolds are erected by a qualified person, that set up inspections are performed, and all daily inspections are performed before work starts for the day.
2. Responsible for ensuring that all employees, and/or contractors have been trained in the use and inspection methods for scaffolds.
3. Responsible for ensuring that all employees and contractors are aware that if an inspection discovers a defect, the scaffold cannot be used until repairs are made.

### **B. Employees**

1. Responsible for following this program by inspecting the scaffolds daily and report any damages or repairs that may be needed to their supervisor.

## **PROCEDURE**

### **A. General Requirements**

1. Scaffolds shall be furnished and erected in accordance with applicable standards for persons engaged in work that cannot be done safely from the ground or from solid construction. Except that ladders used for such work shall conform to ladder safety standards.
2. Scaffolds shall only be erected by a qualified third party, who is competent to certify the scaffolding safe to use.
3. The footing or anchorage for scaffolds shall be sound, rigid, and capable of carrying the maximum intended load without settling or displacement. Unstable objects such as barrels, boxes, loose boards shall not be used to support scaffolds or planks.
4. Scaffolds and their components shall be capable of supporting without failure at least four times the maximum intended loads. Scaffold components must meet OSHA requirements 29 CFR 1910.28 and 29 CFR 1926.451.
5. Wood scaffold planks must be cross-supporting every 8 feet. Scaffold deck boards shall be cleated, wired or nailed into place.
6. All working levels of scaffolds will be floored completely except where internal ladders require space for ladder openings.
7. Scaffolds and other devices mentioned or described in this program shall be maintained in safe condition. Scaffolds shall not be altered or moved horizontally while they are occupied.
8. Any scaffold damaged or weakened from any cause shall be immediately repaired and shall not be used until repairs have been completed.
9. Scaffolds shall not be loaded in excess of the working loads for which they are intended.
10. Bolts used in the construction of scaffolds shall be of adequate size and in sufficient numbers at each connection to develop the designed strength of the scaffold.

11. All platforms shall be overlapped (minimum 12 inches) and secured from any movement.
12. An access ladder or equivalent safe access shall be provided.
13. Scaffold planks shall extend over their end supports not less than 6 inches or more than 18 inches.
14. The poles, legs, or uprights of scaffolds shall be plumb, and securely and rigidly braced to prevent swaying and displacement.
15. Materials being hoisted onto a scaffold shall have a tagline.
16. Overhead protection shall be provided for workers on a scaffold exposed to overhead hazards.
17. Toe-boards and guardrails shall be installed if a scaffold or platform is erected to a height of 6 feet or more. Scaffolds shall be provided with a screen between the toe board and the guardrail, extending along the entire opening, consisting of No. 18-gauge wire one-half inch mesh or the equivalent, where workers are required to work or pass under the scaffolds.
18. Work shall not be performed on a scaffold during storms or high winds.
19. Work shall not be performed on scaffolds that are covered with snow or ice unless all snow and ice have been removed and all planking has been sanded to prevent slipping.
20. Tools, material, and debris shall not be allowed to accumulate in quantities to cause a hazard.

#### **B. Inspections**

1. Scaffolding shall be inspected, by a qualified person, in conjunction with the manufactures required recommendations. The Competent Person must ensure scaffolds are safe prior to and during scaffold use.
2. At a minimum, the following shall be inspected after erection, before the start of the day or beginning of a shift change:
  - a. Ground or surface footing shall be inspected to ensure that there is no settling.
  - b. All main supports and cross braces shall be inspected for any signs of damage, missing pins, bolts and any locks and/or safety keepers.
  - c. All walking surfaces and/or planks shall be inspected for damage and proper placements and any possible movement.
  - d. All walkways and planks must be secure to prevent any movement.
  - e. An inspection shall be made to ensure that the scaffold is stable, and any movement is prevented.
  - f. If during the inspection, a defect or damage to the scaffold is discovered, the scaffold shall be tagged out and use prohibited until needed repairs are made.

#### **C. Mandatory Signs and Tags**

1. Signs and tags shall be visible at all times when work is being performed and shall be removed or covered promptly when the hazards no longer exist.
2. Defective or unsafe equipment or conditions shall be tagged out by the competent person using a weather-resistant tag secured to the scaffolding structure on all four sides and must be complied with.
3. Danger signs shall be used only where an immediate hazard exists. Danger signs must be posted around the immediate area of the scaffold, to alert other workers of possible danger from falling objects from the scaffold.
4. Caution Signs and/or barricade tape shall be used to mark off a more extensive area around

scaffolding warning other workers to use caution.

**D. Modifications**

1. Modification and repairs shall be performed by a qualified person, who is competent to certify the scaffolding safe to use.
2. Employees shall not perform any modifications or repairs, unless they have been trained and certified, failure to comply may result in disciplinary action and or termination.

**E. Training Requirements**

The supervisor shall have 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 shall occur before use and include the following areas, as applicable:

1. Basic safety information.
2. The nature of any electrical hazards fall hazards and falling object hazards in the work area.
3. The proper use of the scaffold, and the proper handling of materials on the scaffold.
4. 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. The maximum intended load and the load-carrying capacities of the scaffolds used.

The supervisor shall have 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 shall include the following topics, as applicable:

6. The nature of scaffold hazards.
7. The correct procedures for erecting, disassembling, moving, operating, repairing, inspecting, and maintaining the type of scaffold in use.
8. The design criteria, maximum intended load-carrying capacity and intended use of the scaffold.
9. When the employer has reason to believe that an employee lacks the skill or understanding needed for safe work.

Retraining is required in at least the following situations:

10. Where changes in scaffolding at the worksite present a hazard about which an employee has not been previously trained.
11. 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.
12. Where inadequacies in an affected employee's work involving scaffolds indicate that the employee has not retained the requisite proficiency.



## ***SECTION 11***

### ***SAFETY AND HEALTH INSPECTIONS: General***

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#### **PURPOSE**

To monitor working conditions, correct unsafe acts, and to prevent potential injury and accidents.

#### **SCOPE**

Applies to all SCI operations and those of its subcontractors' while performing work on the Project.

#### **RESPONSIBILITIES**

All SCI line supervisory personnel and the Site Safety Supervisors are required to conduct Safety and Health inspections on an ongoing basis.

#### **PROCEDURES**

1. All supervisory personnel will conduct daily inspections of the work areas to correct and prevent safety and health problems.
2. The Supervisory Personnel or designated person will ensure that regular safety inspections are being performed safety inspections of all work activities.
3. Deficiencies found during each of these inspections shall be corrected as soon as possible.
4. During the inspections, the Site Safety Supervisor will record all the deficiencies that are noted.
5. Deficiencies will be corrected, and a copy of the inspections (*11.0.1* and *11.0.2*) will be submitted to the Project Safety Manager.
6. Full cooperation will be given to the project management representatives as they conduct impromptu inspections to monitor the Safety and Health activities of the subcontractors.

***SAFETY AND HEALTH INSPECTIONS***  
**ON-SITE SAFETY REVIEW**

---

Project: \_\_\_\_\_

Location: \_\_\_\_\_

Review Performed by: \_\_\_\_\_

Date: \_\_\_\_\_

	<b>ITEMS WHICH NEED CORRECTIVE ATTENTION:</b>	<b>CORRECTIVE ACTION TAKEN:</b>
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		

Site Safety Supervisor or Superintendent shall initial, date, and return the original of this review to the Safety Department when all items are corrected. The Project Manager shall also receive a copy.



### ***HEAVY EQUIPMENT***

- 1) Seatbelts are worn on equipment with rollover protection
- 2) Vehicles with obstructed rear vision have backup alarms or signalman
- 3) Power lines de-activated or at least 10 feet away
- 4) Spot-check at random condition of equipment. For example, seatbelts, access steps, lights, etc.
- 5) *Slow Moving Vehicle* signs on all equipment operating on roadways or at night
- 6) Front and rear lights on all equipment used at night
- 7) Equipment parked with blade or bucket on the ground
- 8) Equipment locked at night
- 9) Equipment parked near roadway overnight must be marked with TC flashers
- 10) No cracked glass

### ***TRUCK HAULING***

- 11) Drive with lights on
- 12) Backup alarms or signalmen
- 13) Emergency flares or triangles and fire extinguishers in trucks
- 14) Accident packet in the glove compartment
- 15) Drivers making a walk-around inspection at the beginning of each shift
  - a) checking lights, flashers, mud flaps, horn, etc.
- 16) Check traffic control and flagging:
- 17) Proper traffic control equipment in use
- 18) Flag person received orientation and given DOT flagging pamphlet
- 19) Flag person wearing reflective vest; has stop/slow sign
- 20) Pictures of TC setups sent to Safety Department
- 21) TC setups checked once a week during nighttime

### ***EXCAVATIONS***

- 22) Excavation adequately sloped
- 23) Equipment operating at a safe distance from ditch or excavation edges
- 24) Deep excavations or drop-off's protected with snow fence or barricade

### ***EQUIPMENT MAINTENANCE***

- 25) Blocking used when working under equipment
- 26) Tag equipment that needs repair and refrain from operating
- 27) Proper cleaning solvent being used (not gasoline)
- 28) Equipment oilers not riding backhoe platforms

### ***FALL PROTECTION***

- 29) Employees exposed to fall over 6 feet adequately protected.
- 30) Fall not to exceed 6 feet when using belt and lanyard.
- 31) Lanyard in good condition and no knots in lanyards.
- 32) Safety D-rings in center of the back and on hips.
- 33) Standard guardrails being used.

### ***SCAFFOLDING***

- 34) Solid planking material in good condition and of adequate size.
- 35) Guardrails and toe boards on scaffolding over 6 feet in height.
- 36) Scaffolding not overloaded and good housekeeping conditions being maintained
- 37) Team Member's on suspended scaffolding must be independently tied off.

### ***CONCRETE CONSTRUCTION***

- 38) Form structures properly supported to withstand high winds.
- 39) Protruding rebar covered where Team Members are working above.
- 40) Proper fall protection used.
- 41) In winter LP tanks not to be stored inside the space heaters not to be located near combustibles.

### ***CRANE***

- 42) Critical lift format used on all critical lifts.

- 43) Appropriate load rating charts in crane and regularly used with supervision.
- 44) Annual and monthly crane inspections up to date.
- 45) Crane cables and slings in good condition and not overloaded.
- 46) Power-lines deactivated or 10-foot minimum clearance is maintained.
- 47) Outriggers fully extended and being used.
- 48) No cracked windshields.
- 49) Skip boxes in good condition and Team Members are tied off when riding in the box.
- 50) New crane operators & supervisors encouraged to participate in "CWC" home study course.
- 51) Swing radius protection installed.

***WATER***

- 52) A life vest is worn and fastened when working over or adjacent to water.
- 53) Lifeboat is readily available.
- 54) Boats are not exceeding capacity.
- 55) Ring buoys with rope positioned on each barge.
- 56) Cranes secured on barges.

***GENERAL***

- 57) Emergency phone numbers posted.
- 58) First aid equipment is available.
- 59) No smoking signs posted where necessary.
- 60) Ground fault or Assured Equipment Maintenance program up to date.
- 61) Two first aiders on each shift.
- 62) Excavations properly sloped or protected.
- 63) Areas illuminated at night.
- 64) An adequate supply of personal protective equipment on the job and being utilized; i.e.,
  - a) hardhats, eye protection, hearing protection, traffic vest, harnesses and lanyards, life vest, etc.
- 65) Safety gas cans utilized.
- 66) Backup alarms are functioning on equipment with obstructed rear vision.
- 67) Properly equipped and trained flag-person used in directing traffic.
- 68) Ladders in good condition: top extended 36 inches above the landing and tied off.
- 69) Good housekeeping conditions in the yard and on site.
- 70) Roadway and sidewalks effectively barricaded and protected
- 71) Gas cylinders in an upright position, secured and capped.
- 72) Floor openings protected.
- 73) Hearing protection being worn near pile driver and other high noise equipment.
- 74) Proper personal protective equipment available and being used
- 75) Fire extinguishers in equipment with cabs
- 76) No unauthorized riding on equipment
- 77) Good housekeeping conditions in the yard and on site
- 78) Material and fuel stored properly
- 79) Hearing protection being worn by operators of heavy equipment.
- 80) Underground utilities have been located
- 81) Gas cylinders in an upright position
- 82) Light plants grounded and secured
- 83) Traffic vests on everyone on the ground at night

## ***SECTION 12***

### ***ENVIRONMENTAL CONTROL PLAN: General***

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#### **PURPOSE**

Provide guidelines to prevent environmental contamination and procedures to follow should hazardous materials be encountered.

#### **SCOPE**

Applies to all areas of the Project.

#### **RESPONSIBILITIES**

Project Management shall have the overall responsibility for policy and procedure compliance. The Project Superintendent will ensure all aspects of this environmental control plan are followed.

#### **PROCEDURES**

##### **1. Prevention**

- a. Every effort will be made to prevent spills and leaks of any kind.
- b. All operators will be trained in the inspection procedures which will be completed daily.
- c. Any equipment problems detected during the daily inspection will be communicated to the Project Maintenance Manager and/or Project Mechanic and any subsequent operators. Appropriate repairs will be made.
- d. An attendant will maintain control of the fueling nozzle during refueling operations.
- e. Containment will be provided for fuel storage to capture any unexpected releases of fuel.
- f. Oil and lubricant dispensing drums will have drip pans and/or liners to contain material.
- g. All used oils, lubricants, solvents, and filters will be recycled whenever possible. Vendors who recycle or dispose of these products will provide manifestation to assure proper disposal or reuse.
- h. The Excess Product Disposal policy will be implemented, providing necessary guidelines for the proper disposal of excess products during the course of construction, and at project completion. *(See 12.0.4)*
- i. If a hazardous waste material is encountered, the Project Safety Manager shall be notified immediately. See the following:
  - i. *12.0.1* Alert, Rescue, Notify
  - ii. *12.0.2* Spill Response Flowchart
  - iii. *12.0.3* Reportable Quantity Flowchart

Every effort will be made to reduce dust from the haul site and excavation areas. Water trucks will be available to mitigate dust and assist in dust control.

##### **2. Spill Clean-Up**

In the unlikely event of a spill or release of any material, the substance will be immediately cleaned up and disposed of in an approved manner.

- a. The Project Safety Manager will be notified immediately in the event of a major spill or release.
- b. The area surrounding the spill will be secured and contained to minimize additional contamination.

- c. Absorbent pads or granules will be available at refueling and dispensing areas to assist in and expedite clean up.
  - d. When necessary, contaminated soils will be removed and disposed of according to local regulations.
  - e. In addition to the above procedures, SCI has a formal Pollution Control Plan that contains additional information should a spill occur. *(See 12.0.5)*
3. Petroleum Contaminated Water Clean-Up  
Maintenance personnel will adhere to our Petroleum Contaminated Water Clean-up procedure when they drain water from the spill protection containers.

## ***ENVIRONMENTAL CONTROL PLAN***

### **ALERT, RESCUE, AND NOTIFY**

---

**Note: “Alert and Rescue” is usually not required for small recurring spills.**

As soon as a spill occurs, you must sound the alert that a problem requiring immediate attention has been identified.

#### **ALERT**

Issue the alert quickly! The person who discovers any spill must notify fellow workers, activate the alert system, or use the mobile radio to inform the Supervisor that a spill has occurred. Due to our size and scope of our job site, the alert will be given verbally.

React promptly to **ALL** spills.

Do not be afraid to sound the alert.

Give as much information to the Supervisor as possible about the spill location, type of material, approximate quantity, and extent of the damage.

#### **RESCUE**

The person who discovers any spill or the person who causes a spill must make a quick assessment of the need to rescue or assist any person in the area of the spill.

Wait for assistance before giving medical attention or attempting to rescue any person. Do not take personal risks; heroism can result in serious harm to yourself or others.

#### **NOTIFY**

Once the alert has been issued, notify the appropriate chain of command.

The Supervisor will immediately notify the Safety Representative and emergency preparedness team members. The Supervisor will provide information about the spill and indicate whether the discoverer will proceed with cleanup. For small, non-hazardous spills, the Safety Representative or an alternate will go to the spill area to review the situation and ensure that cleanup has been performed properly.

For all chemical, fuel, or waste spills, the Supervisor will contact the Project Manager and Safety Representative immediately.

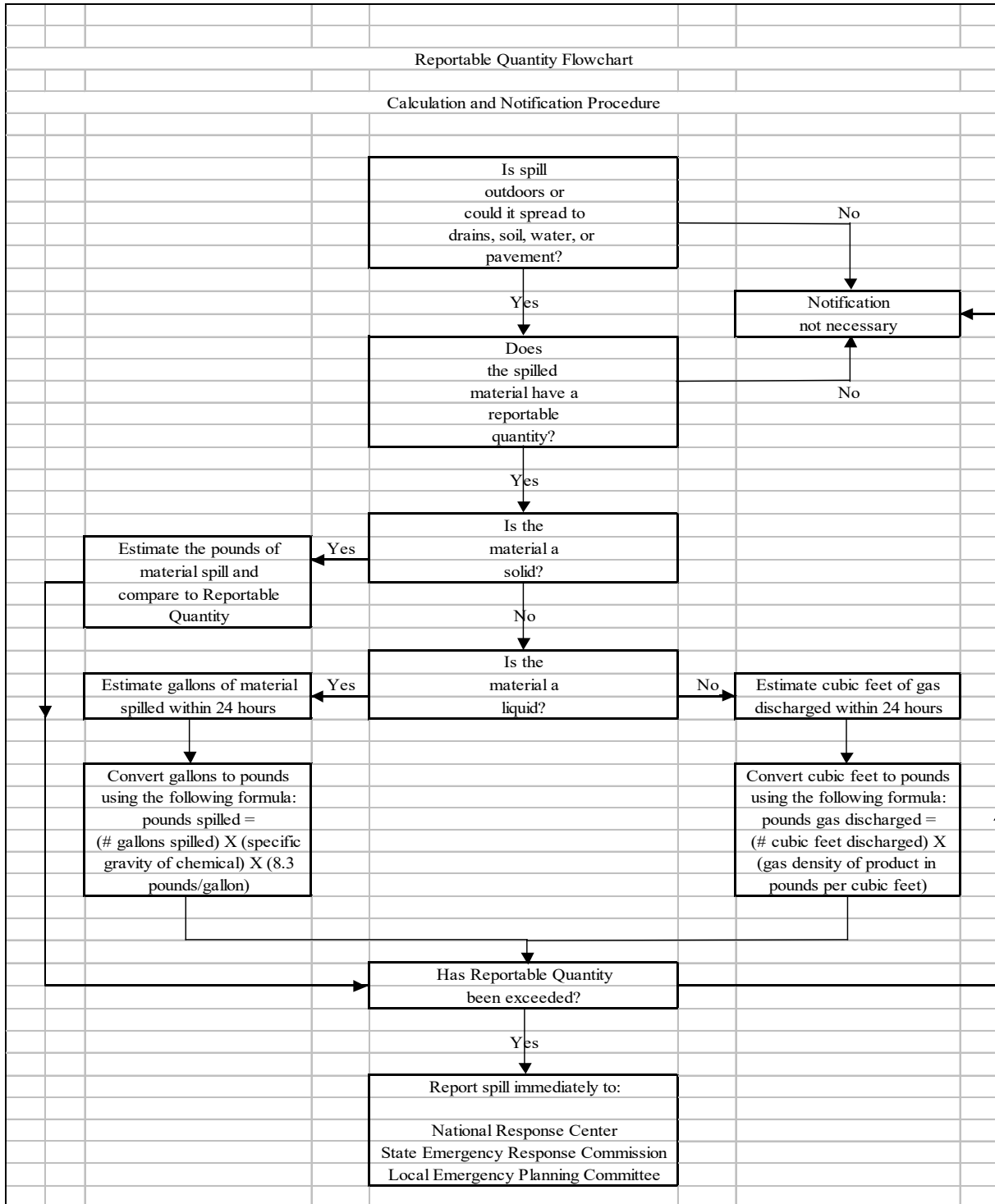
The Project Manager will, in turn, notify the company's Safety Department. Local authorities may also be notified if the Safety Representative determines evacuation is necessary due to an imminent threat to human health or environment.

In all spill cases, the Safety Department will be notified as soon as possible.

**ENVIRONMENTAL CONTROL PLAN**  
**SPILL RESPONSE FLOWCHART**

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<b>Item</b>	<b>Party Responsible</b>	<b>What to Do</b>
<b>Alert, Rescue and Notify</b>	<p>Person Who: Discovers Spill Causes Spill</p> <p>Supervisor</p> <p>Project Manager</p> <p>Safety Representative</p>	<p>Sound Alert Rescue Notify Supervisor Evacuate and Keep Area Secure</p> <p>Secure Area Notify Project Manager / Safety Representative Isolate Contaminated Equipment Ensure Safety of Personnel</p> <p>Notify Safety Representative Notify Construction Manager Ensure Safety of Personnel</p> <p>Notify Project Safety Department Ensure Safety of Personnel Notify Owner Environmental Coordinator Ensure Safety of Personnel</p>
<b>Spill Assessment</b>	<p>Owner: Environmental Coordinator Owner: Emergency Response Team Member</p>	<p>Determine Action Required Determine Help Needed Who Will Perform Determine if Outside Help Needed Notify Appropriate Agency</p>
<b>Action</b>	<p>Emergency Response Team Outside Agency or Contractor</p> <p>Superintendent</p>	<p>Ensure Safety of Personnel Define Source and Contain Spill Clean up Spill Determine Follow-up Action</p> <p>Decontaminate Equipment</p>
<b>Follow Up</b>	<p>Owner: Environmental Coordinator Owner: Construction Management Team</p> <p>Project Manager</p>	<p>Call National Response Center 800-424-8802 Call State Agency Call Local Emergency Planning Committee File Reports Issue Continue Work Authorization</p> <p>After Action Report</p>



## ***ENVIRONMENTAL CONTROL PLAN***

### **EXCESS PRODUCT DISPOSAL POLICY**

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#### **PURPOSE**

To provide guidelines for the proper disposal of excess products during the course of construction and at project completion.

#### **SCOPE**

Applies to all companies, areas, projects, and employees within ORC.

#### **RESPONSIBILITIES**

Project Management shall have the overall responsibility for policy and procedure compliance. The Project Superintendent will ensure all aspects of this environmental control plan are followed.

#### **INTRODUCTION**

Each project could have an assortment of products ranging from curing compounds, oils, paints, epoxies, solvents, etc. OSHA's "Right to Know" law provides information about the disposal of these substances. When disposing of these substances, these procedures shall be followed:

#### **PROCEDURES**

##### 1. Labeling

Just as OSHA "Right to Know" law requires all primary and secondary containers to be properly labeled, pollution control laws also require containers to be labeled. Unknown substances in containers without labels are not only illegal but can also be very expensive to dispose of.

- a. Each container upon arrival at the job site must be permanently labeled with the products name, any known hazards (toxic, flammable, combustible, etc.), and any protective gear required. This information can be found on the SDS. A metal ball point marker is an excellent tool to be used for labeling. We cannot rely on the manufacturer label to stick forever.

##### 2. Inventory

- a. Place the SDS for all substances received in your Project "Right To Know" manual.
- b. Control your inventory; buy only what you will use for that job.
- c. In situations where a container has been opened, try to use what is left, i.e., multiple applications. It is far more cost effective to consume the products on the job site than to ship, store and then reship the same product.
- d. If you have unopened containers, ask the supplier to re-stock unused amounts and issue a credit. In some instances, where it is obvious we will have no future use, we should request the supplier to take it back even without credit.

**Note:** Whenever possible get a "return agreement" from the supplier when you purchase these products.

##### 3. Disposal

A close working relationship between the Project and waste hauler/disposal company can ease job site problems. The local hauler will be able to identify the product they may accept. If your hauler cannot accept a product, they may be able to refer you to someone who can.



- a. Empty containers which cannot be recycled or returned shall be properly disposed of. Some suppliers will collect empty barrels for re-use. Do not use a torch or any power tools to remove barrel lids. A "can opener" designed for such use shall be used.
- b. When possible, recycle used material, i.e., oil, batteries, etc.
- c. Local or state laws typically prohibit burning of dimensional lumber. If a burning permit can be obtained, it must be strictly followed.
- d. SCI drivers are not allowed to transport unlabeled products by law and by this policy.

## ***ENVIRONMENTAL CONTROL PLAN***

### **POLLUTION CONTROL PLAN**

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#### **PURPOSE**

To provide information on what to do should a spill occur or if the hazardous material is encountered on the job site.

#### **SCOPE**

Applies to all companies, areas, projects, and employees within ORC.

#### **RESPONSIBILITIES**

Project Management shall have the overall responsibility for the policy and procedure compliance. The Project Superintendent will ensure all aspects of this environmental control plan are followed.

#### **PROCEDURES**

##### **A. OIL SPILLS**

In anticipation of an oil spill, each Project that will be working on or over water shall have oil booms, absorbent pads or other approved methods available. This material is readily available in most areas of the country.

To prevent spills on the ground from spreading, all fuel storage areas shall be properly contained. Spills that occur in the contained area shall be collected and disposed of properly. Absorbent pads can also be placed under above ground tanks to collect the fuel should the tank develop a leak.

The Safety Department will work with each Project to obtain a local firm to clean up any spill that SCI cannot handle. This phone number shall be posted at each job site.

##### **B. HAZARDOUS MATERIALS**

If a barrel or tank is discovered containing unknown material during excavation, the following steps shall be taken:

1. Take immediate preventive action to assure the container will not rupture.
2. Issue alerts, notify an immediate supervisor, evacuate and keep area secure.
3. Notify the Safety Department.
4. Notify the Owner, Environmental Coordinator, and Emergency Response Team Members.
5. Unknown materials will not be handled until the owner can verify the contents and provide a plan for disposal.

**\*NOTE:** Most state laws require notification of significant spills. The Superintendent shall make sure these agencies are notified.

New York	800-457-7362	Iowa	515-281-8694
Minnesota	612-296-8100	Wisconsin	608-266-3232
Texas	512-463-7727	Florida	904-488-1320
Louisiana	504-925-695		

You may also need to contact the **NATIONAL RESPONSE CENTER 1-800-424-8802**. If a spill occurs on the water, the Coast Guard will also be notified.

**ENVIRONMENTAL CONTROL PLAN**  
**PETROLEUM CONTAMINATED WATER CLEANUP**

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**PURPOSE**

Provide guidelines to prevent environmental contamination and procedures to follow when draining water from spill protection containers.

**SCOPE**

Applies to all SCI operations and those of its subcontractors while performing work on the Project.

**RESPONSIBILITIES**

Project Management shall have the overall responsibility for policy and procedure compliance. The Project Superintendent will ensure all aspects of this environmental control plan are followed. Maintenance personnel will ensure compliance with all aspects of this procedure.

**PROCEDURES**

*Every effort will be made to prevent spills and leaks of any kind.*

1. Fueling, oil, and lubricant areas will be lined or constructed to capture any unexpected releases of fuel.
2. Absorbent pads will be available at refueling and dispensing areas to assist in clean up.
3. Absorbent pads will be used to remove all sheen from the water prior to it being released on the ground.
4. When necessary, contaminated soils will be removed and disposed of according to local regulations.

A log will be maintained indicating each date the water is drained. Completed forms shall be submitted to the Site Safety Supervisor.

DATE	LOCATION	NAME OF PERSON PERFORMING DRAINING TASK	COMMENTS

## **SECTION 13**

### *CONTROLLED SUBSTANCE PROGRAM: General*

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#### **CONTROLLED SUBSTANCE PROGRAM**

**And**

#### **DRUG-FREE WORKPLACE POLICY**

### **INTRODUCTION**

SCI is committed to providing our Team Members with a Safe Workplace and to establish programs that promote high standards of health. Consistent with the spirit and intent of this commitment, we developed this policy regarding alcohol and drug abuse. Quite simply, our goal is to establish and maintain a safe work environment free from the effects of alcohol and drug abuse.

While we have no intention of intruding in your private life, we do expect you to report to work in condition to perform your duties. We recognize that substance abuse, at any time, can have an impact on the workplace and on our ability to accomplish our goal of a safe, alcohol and drug-free environment.

Any drug use which imperils the health and well-being of our Team Members or threatens our business will not be tolerated. The use of illegal drugs and abuse of other controlled substances on or off duty is inconsistent with the law-abiding behavior expected of citizens. Team Members who use illegal drugs or abuse other controlled substances on or off duty tend to be less productive, less reliable, and prone to greater absenteeism. This, in turn, can result in increased costs, delays, and risks to company business.

Drug use in the workplace puts the health and safety of the abuser and all other workers around them at increased risk. Team Members should have the expectation of working in a drug-free environment. In addition, drug abuse inflicts a terrible toll on our nation's productive resources and the health and well-being of American workers.

Early recognition and treatment of drug abuse is important for successful rehabilitation. Whenever feasible, SCI will assist Team Members in overcoming drug abuse by providing information on treatment opportunities and programs. However, the decision to seek diagnosis and accept treatment for drug abuse is primarily the individual Team Member's responsibility.

#### **A. Purpose and Intent**

SCI has established this alcohol and controlled substances testing program for all DOT and Non-DOT covered employees. It is the purpose of this policy to assure Team Members' fitness for duty and to protect Team Members from risks posed by the use of alcohol and prohibited drugs as defined in the policy. It is the intent of SCI that the drug and alcohol testing conducted pursuant to this policy shall be in compliance with all applicable federal and state statutes, and the federal Drug-Free Workplace Act, 41 U.S.C., §701, and any amendments that may be made thereto. It is also the intent of this policy that drug and alcohol testing conducted pursuant to this policy be in compliance with the Omnibus Transportation Team Member Testing Act of 1991 (Pub. L. 102-143, Title V) and regulations of the Federal Motor Carrier Safety Administration ("FMCSA") contained in 49 C.F.R. parts 40 and 382 and any amendments that may be made to them. Additionally, all Team Members who meet the definition of a crewmember, are subject to US Coast Guard Drug and Alcohol Testing and program requirements, in accordance with 46 CFR §4 and §16 as well as random alcohol testing in accordance to 49 CFR §655.

It is further the intent of ORC, that drug and alcohol abuse be prohibited and that Team Members who choose to engage in drug or alcohol abuse face the risk of unemployment as well as the forfeiture of Workers' Compensation benefits, as permitted by applicable law.

This policy supersedes any information provided to applicants and/or Team Members, either written or oral. SCI reserves the right to change provisions of this policy and testing program at any time in the future.

This policy applies to all Team Members and job locations, except to the extent that any particular provision conflicts with local, state, or federal law.

The overall goals of this testing program are to ensure a safe and drug-free work environment, to reduce the potential for accidents and casualties related to accidents on a job site or involving Company-owned /leased vehicles, and to cooperate with the U.S. Department of Transportation and the transportation industry in efforts to eliminate the misuse of alcohol and the illegal use of controlled substances.

With these objectives in mind, SCI has established the following policy and procedures for DOT and Non-DOT covered employees. Full compliance with this policy is a condition of employment with each individual.

## **B. Effects of Misuse of Alcohol and Drugs.**

The problems of substance abuse, including alcohol, the potential effects of drug abuse, and alcohol misuse are substantial in terms of lives lost, injuries, and damage to environment and property. Drug and/or alcohol addictions are complex but treatable diseases. This policy is designed to not only eradicate drug and alcohol abuse in our workplace but also to encourage drug and/or alcohol abusers to seek the assistance they may need. Management should be immediately notified when alcohol or drug abuse problem is suspected.

Two of every three adults in the United States drink, but ten percent of those drinkers consume half of the nation's beer, wine, and liquor. An estimated seventeen million U.S. adults are alcoholics, which is about six times higher than the number of cocaine users. Alcohol misuse alone claims at least 100,000 lives annually, 25 times as many as all illegal drugs combined. Alcohol abuse can ruin one's life affecting one's job, health, and all aspects of one's personal life.

Clinical symptoms of physical dependence on alcohol are tolerance to the effects of alcohol or withdrawal symptoms that develop when one abstains from its use. These include protracted headache, anxiety, insomnia, and nausea. Tolerance can be an early sign of alcohol dependence. A longtime user of alcohol may appear sober even if he or she has a blood alcohol concentration that would normally indicate intoxication. Behavior signs of alcohol abuse include ignoring continued warnings that alcohol is causing problems in one's life, missing days of work, more than one arrest for an alcohol-related incident, or signs of impaired health from alcohol usage. Excessive alcohol use can cause damage to one's liver, pancreas, brain, nerves, and cardiovascular system.

Signs of alcohol abuse can include preoccupation, looking forward to the next opportunity to have a drink; a tendency to select social activities where alcohol is available or excessive talk about drinking; use of alcohol as medicine, for example, to help one sleep; increased tolerance to alcohol intake; loss of the ability to control one's consumption of alcohol; the inability to have just one drink; solitary drinking; drinking excessively, for example, ordering doubles or gulping down drinks; making excuses for drinking; temporary lapses in memory (blackouts); and denial, the inability to see the damage that drinking is causing in one's life.

Helping someone with a drinking problem frequently requires intervention. Because of the serious consequences to the public and to other Team Members from a Team Member who is impaired by alcohol, a Supervisor or Manager should be notified immediately if an alcohol problem is suspected. If you, or a co-worker, has an alcohol problem, seek help or bring the matter to management's attention.

### **C. Conditions of Employment**

1. Team Members are prohibited from possessing, consuming, or reporting to work or working with the presence of alcohol or drugs in their body as defined by the statutes cited in Section 13.0(A). Violation of this policy shall result in immediate discipline up to and including discharge and/or denial of eligibility for Workers' Compensation medical and indemnity benefits. Any illegal substances on our premises, projects, or on your person while at work will be turned over to the appropriate law enforcement agency and may result in criminal prosecution.
2. A Team Member who is arrested for a drug-related violation of federal or state law will be subject to drug and/or alcohol testing. An arrest for off-the-job activities may also be considered a violation of this policy. In deciding what action to take, we will take into consideration the nature of the charges, present job assignment, and record, among other things. Unlawful off-the-job activities may be grounds for discipline, up to and including discharge. If the Team Member is found guilty of a drug-related felony, he or she will be subject to immediate termination.
3. Off-the-job alcohol and illegal drug use which could adversely affect your job performance, or which could jeopardize the safety of other Team Members, the public, or our equipment is grounds for discipline, up to and including discharge.
4. SCI considers a conviction for criminal drug activity to be severe. If a Team Member is convicted of a drug statute violation occurring in the workplace, he or she must notify SCI in writing no later than five (5) days after the conviction. An employee who fails to report such a conviction will, upon discovery of the conviction, be subject to immediate termination from employment.
5. Team Members must adhere to the requirements of any drug treatment or counseling program in which the Team Member is involved.
6. All information, interviews, reports, statements, memoranda, and drug test results written or otherwise, received by the employer through our Controlled Substance program will be confidential. Management level Team Members may be provided with confidential information only on a need-to-know basis in order to carry out the terms of this policy.
7. Team Members must sign a statement agreeing to abide by SCI Controlled Substance Program and Drug-Free Workplace Policy.

### **D. Commercial Motor Vehicle Drivers and Safety-Sensitive Functions**

This Policy has additional requirements for all Team Members who operate commercial motor vehicles for SCI under the FMCSA regulations. Commercial motor vehicles include vehicles with a gross combination weight rating of 26,001 pounds or more inclusive of a towed unit with a gross vehicle weight rating of more than 10,000 pounds, or vehicles with a gross weight rating of 26,001 pounds or more, or which is designed to transport 16 or more passengers, or is of any size and is used in the transportation of materials found to be hazardous for the purposes of the Hazardous Materials Transportation Act, 49 U.S.C. §5103(b) and which require the motor vehicle to be placarded under the Hazardous Materials Regulations (49 CFR, part 172, F).

Safety-sensitive functions are classified as functions pertaining to the operation, controlling, and maintenance of commercial motor vehicles for the Company. An employee is considered to be performing a Safety-sensitive function from the time he or she begins work or is required to be in readiness to work until the time he or she is relieved from work and all responsibility for performing work-related duties. Safety-sensitive functions include:

1. time waiting to be dispatched; all-time inspecting equipment or otherwise inspecting, servicing or conditioning any commercial motor vehicle
2. time spent at the driving controls of a commercial motor vehicle in operation

3. time loading or unloading a vehicle, supervising or assisting the loading or unloading of a vehicle; remaining in readiness to operate the vehicle; giving or receiving receipts for shipments loaded or unloaded
4. Time repairing, obtaining assistance or remaining with a disabled vehicle.

#### **E. Prohibited Conduct**

1. Pursuant to the federal Drug-Free Workplace Act, 41, U.S.C., §701, Team Members are prohibited from engaging in any of the following activities:
  - a. Use, possession, manufacture, distribution, dispensation, or sale of illegal drugs on Company premises, Company business, in Company supplied vehicles, or during working hours.
  - b. Unauthorized use or possession or any manufacture, distribution, dispensation or sale of a controlled substance on Company premises, on Company business or in Company supplied vehicles.
  - c. Storing in a toolbox, desk, automobile, or another repository on Company premises, any controlled substance the use of which is unauthorized.
  - d. Being under the influence of a controlled substance on Company premises, Company business, or in Company supplied vehicles.
  - e. Any possession, use, manufacture, distribution, dispensation, or sale of illegal drugs off Company premises that adversely affects the individual's work performance, their own safety or that of others at work, or the Company's regard or reputation in the community.
2. Pursuant to the Drug-Free Workplace Program:
  - a. The term “drugs” includes, but will not be limited to alcohol, amphetamines, cannabinoids, cocaine, phencyclidine (PCP), hallucinogens, methaqualone, opiates, benzodiazepines, synthetic narcotics, designer drugs, or a metabolite of any of the substances listed herein.
  - b. The term “alcohol” includes the intoxicating agent in beverage alcohol, ethyl alcohol, medications containing alcohol, and other low molecular weight alcohols including methyl and isopropyl alcohol.
  - c. In addition, pursuant to this policy, the term “drugs” used herein shall include the use of any illegal substance as well as the misuse or abuse of alcohol, prescribed drugs or over the counter medication.
3. Pursuant to the FMCSA regulations, 49 CFR Part 382 and this policy.
  - a. No driver shall report for duty, or remain on duty, requiring the performance of safety-sensitive function while having an alcohol concentration of 0.04 or greater or when the driver uses any controlled substance except those used pursuant to the instruction of a licensed medical practitioner.
  - b. No driver shall perform safety-sensitive functions within four (4) hours after using alcohol.
  - c. No driver shall use alcohol while performing safety-sensitive functions
  - d. No driver, required to take a post-accident alcohol test, shall use alcohol for eight (8) hours following the accident, or until he or she undergoes a post-accident test, whichever is first.
  - e. No driver shall refuse to submit to post-accident alcohol or controlled substances test.

If it is not possible for the supervisor to delay the requested start time so as to accommodate DOT's pre-duty requirement, the employee will not report to work. If an on-call employee acknowledges the use of alcohol, he/she will be permitted to determine a start time that will comply with the 4-hour prohibition. Under each employer's independent authority, no discipline will be taken against an

employee who acknowledges his/her use of alcohol during the four (4) hours prior to being called to duty, unless such conduct has the effect of making that employee repeatedly unavailable for duty.

#### **F. Procedure for Testing**

For FMCSA mandated testing of commercial motor vehicle drivers, the tests will be conducted pursuant to the procedures set forth in 49 CFR Part 40. Drug test, or test, means any chemical biological or physical instrument analysis, administered by a laboratory certified by the U.S. Department of Health and Human Services, for the purpose of determining the presence or absence of alcohol, drugs or their metabolites, or other illegal substances.

Testing under this policy may also include testing products of the human body, capable of revealing the presence of alcohol, drugs or the metabolites as approved by the U.S. Food and Drug Administration, the Agency for Health Care Administration, or other applicable agency. Blood alcohol testing may be used for Workers' Compensation testing. Collection of specimens will be under medical supervision at the Company's direction.

**The decision to conduct testing as defined in Section 13.0 shall be made without any prior notice to the Team Member. Team Members may be tested at any time they are on duty. Scheduling for any testing or examination will be during duty hours, at the discretion of SCI and the results will become part of the Team Member's permanent medical record. If a Team Member refuses to cooperate with the testing, including refusal to submit to the test at the time ordered, failure to provide an adequate specimen for testing without a valid medical explanation after receiving notice of the requirement for testing, refusal to complete the required form, or engaging in conduct that clearly obstructs the testing process, the Team Member will be removed from duty immediately and disciplined up to and including immediate discharge. Such refusal will also result in forfeiture of eligibility for Workers' Compensation medical and indemnity benefits**

#### **G. Types of Testing**

The following types of tests will be administered:

##### **1. Pre-Employment Testing**

All applicants for positions with SCI shall undergo urine testing and pre-employment alcohol testing before being hired. Temporary Team Members are usually tested by the agency or company that places them with SCI and are covered by that agency or company's Workers' Compensation Policy. Temporary Team Members placed at SCI will be tested under this Drug-Free Workplace Policy prior to working at SCI. Temporary Team Members, who become regular SCI Team Members shall undergo drug testing and alcohol testing prior to being placed in the position. Team Members transferring to a safety-sensitive position shall undergo urine drug testing and alcohol testing. Receipt of verified negative test results of both tests is required prior to placement of a Team Member by hire or transfer.

##### **2. Reasonable Suspicion Testing**

All Team Members, including safety-sensitive Team Members, are subject to drug and alcohol testing when SCI believes that the Team Member has used or misused drugs or alcohol in accordance with this policy. For purposes of this section, "reasonable suspicion" drug testing means drug testing based on a belief that a Team Member is using or has used alcohol or drugs in violation of the Company's policy drawn from specific visual or verbal facts that would lead a reasonable person, without any medical training but normal life experiences, to conclude the possibility of drug and/or alcohol use.



Whenever possible, the Foreman or Team Leader who is suspicious of a Team Member's behavior should have the suspicious behavior confirmed by the Project Superintendent, Project Manager, or any other Senior Manager before requiring the Team Member to be tested. Team Members who refuse to be tested will be terminated.

If there is reasonable suspicion that a Team Member is under the influence of drugs and/or alcohol, the Team Member will be required to undergo drug and/or alcohol testing at a laboratory chosen by ORC

Occurrences that may be indicators of substance abuse and are considered grounds for reasonable suspicion include, but are not limited to:

- a. Observable phenomena while at work, such as direct observation of drug use or of the physical symptoms or manifestations of being under the influence of a drug.
- b. Abnormal conduct or erratic behavior while at work or a significant deterioration in work performance.
- c. A report of drug use provided by a reliable and credible source.
- d. Evidence that an individual has tampered with a drug test during his employment with the current employer.
- e. Information that a Team Member has caused contributed to or been involved in an accident while at work.
- f. Evidence that a Team Member has used, possessed, sold, solicited, or transferred drugs while working, or while on the employer's premises, or while operating the employer's vehicle, machinery, or equipment.

A written record shall be made of the observations leading to an alcohol or controlled substance reasonable suspicion test and signed by the Supervisor or Company Official who made the observations within twenty-four (24) hours of the observed behavior, or before the results of the alcohol or drug test are released.

If a Team Member is arrested for or convicted of a drug-related crime, SCI will investigate all of the circumstances, and Company Officials may utilize the drug-testing procedure. An arrest for a drug-related crime constitutes reasonable suspicion of drug use, under this policy. As a condition of employment, a Team Member must notify the Human Resource Officer, or his designee, of any criminal drug statute arrest or conviction within five (5) days of such arrest or conviction.

### 3. Post-Accident Testing

Any Team Member involved in a work-related accident, which requires medical treatment above and beyond first aid, must first receive treatment. The Team Member must then submit to a post-accident drug screen. A post-accident alcohol test may also apply. The Team Member must report for testing to the designated collection site within twenty-four (24) hours of the accident if the screening is not performed following treatment. Failure to do so will be considered a refusal to test, resulting in immediate termination.

Team Members will be tested for drugs and alcohol after an accident whenever:

- a. They are hospitalized or treated for an on-the-job injury (which requires medical care beyond the initial doctor treatment);
- b. They caused, contributed to, or were involved in an on-the-job injury (which required a drug and/or alcohol test of the injured party as stated above); and/or

- c. They caused or contributed to a liability accident of any kind (including vehicle, equipment damage, and general liability) with estimated damage to be over \$300.

**If Team Members are not tested immediately after an accident (for various reasons such as incomplete investigation or absence from work), testing will be performed as soon as the Team Member becomes available.**

Pursuant to FMSCA regulations, safety-sensitive Team Members will be required to undergo drug and alcohol testing as follows:

4. Fatal Accident

A safety-sensitive Team Member shall be required to undergo urine drug and breath alcohol testing if involved in an accident resulting in a fatality (regardless of whether or not the driver receives a traffic citation). Any other Team Member whose performance contributed to the accident (for example, performing maintenance on the vehicle) shall also be tested. As soon as practicable following an accident involving the loss of human life, surviving safety-sensitive Team Members shall undergo drug and alcohol testing.

5. Non-Fatal Accident

A post-accident test shall be conducted if an accident results in injuries requiring immediate medical treatment away from the scene or if one or more vehicles incur disabling damage that requires towing from an accident site, unless the Company determines, using the best information available at the time of the decision, that the Team Member's performance can be completely discounted as a contributing factor to the accident. Any other safety-sensitive Team Member whose performance could have contributed to the accident shall be tested. The decision regarding whether a Team Member's performance could have contributed to the accident will be made at the sole discretion of the Company, using the best information available at the time of the decision.

Following an accident, the Team Member must be readily available for testing. Post-accident tests will be done as soon as possible, however, in any case, all reasonable efforts shall be made to test the safety-sensitive Team Member(s) within two (2) hours of the accident but not after eight (8) hours for alcohol testing and thirty-two (32) hours for drug testing. If a drug or alcohol test required by this section is not administered within the required time period following the accident, the Company shall prepare and maintain on file a record stating reasons why the testing was not promptly administered.

- a. Any safety-sensitive Team Member involved in an accident must refrain from alcohol use for eight (8) hours following the accident or until the Team Member undergoes a post-accident alcohol test. Any safety-sensitive Team Member, who leaves the scene of the accident without a justifiable reason or explanation prior to the requirement for drug and alcohol testing, shall be considered to have refused the test. This action will result in immediate removal from safety-sensitive duties and a referral to a Substance Abuse Professional ("SAP"). A Team Member must complete the evaluation and treatment prescribed by the Substance Abuse Professional, submit to a return to duty test with negative results, and adhere to the follow-up testing schedule as prescribed by the SAP in order to be reinstated to safety-sensitive duties.
- b. The post-accident testing requirements shall not delay necessary medical attention for injured persons. They will never prohibit a Team Member, who was performing a safety-sensitive function, from leaving the scene of an accident to obtain assistance in responding to the accident, nor to obtain necessary emergency medical care.
- c. In the rare event that a Team Member is unable to submit to a post-accident test within the required time period (i.e., eight (8) hours for alcohol and thirty-two (32) hours for drugs) due to circumstances beyond the Company's control, the results of a blood, urine or breath alcohol test conducted by a federal, state, or local official having independent authority for the test, will

be considered to meet the requirements for a post-accident test. This test must conform to the applicable federal, state, or local testing requirements and the results must be obtained by the Company.

Pursuant to US Coast Guard Drug and Alcohol Testing and program requirements, Team Members who meet the definition of a crewmember are subject to testing anytime they are involved in a Serious Marine Incident.

**Serious Marine Incident** means any reportable marine casualty as defined in 46 CFR §4.03-1 and 46 CFR §4.05-1, involving a vessel in commercial service, which results in any of the following:

- a. One or more fatalities,
- b. An injury to crewmember, passenger, or other person which requires professional medical treatment beyond first aid and, in the case of person employed on board a vessel in commercial service, which renders the individual unfit to perform routine vessel duties,
- c. Damage to property, as defined in 46 CFR §4.05-1, in excess of \$100,000,
- d. The actual or constructive total loss of any vessel subject to Coast Guard Inspection,
- e. The actual or constructive total loss of any self-propelled vessel, not subject to inspection by the Coast Guard, or 100 gross tons or more,
- f. A discharge of oil of 10,000 gallons or more, into a navigable waterway,
- g. A release of hazardous substance equal to or greater than its reportable quantity into the navigable water of the United States, or into the environment of the United States, whether or not the release resulted from a marine casualty.

SCI is responsible for determining what personnel were directly involved in a **Serious Marine Incident**. This determination should be based on the operation being performed at the time of the accident, and what personnel could have or should have had a role in that operation. A guideline is to test any personnel whose negligence cannot be discounted as contributing to the serious marine incident. A law enforcement officer has the authority to further name personnel as being directly involved in a **Serious Marine Incident** and as such, direct them to submit to alcohol and drug testing.

SCI will also test any covered employee whose performance could be contributed to the accident.

#### 6. Routine Fitness-for-Duty

A Team Member must submit to a drug test upon return to work from Family and Medical Leave and other extended leave, along with a fitness-for-duty medical examination certified by the Team Member's medical doctor, or any other fitness-for-duty medical examination, that may be required in the future for all Team Members or Team Members of a specified employment classification or group. Team Members subject to any routine fitness-for-duty testing will be notified in writing and are required to sign a routine fitness-for-duty consent drug testing form.

#### 7. Random Testing

Except where prohibited by state law, at its discretion, SCI may conduct random drug testing of its Team Members by a third-party company, designated by ORC, will generate a computerized random list of Team Members who would be required to submit to a random drug screen. When a Team Member is chosen for a random drug screen, his/her name automatically returns to the pool for future random tests.

Team Members in safety-sensitive positions shall be subject to random, unannounced testing. The minimum annual percentage rates for random alcohol testing shall be 10% of the average number

of safety-sensitive Team Members. The minimum annual percentage rate for random controlled substance testing shall be 50% of the average number of safety-sensitive Team Members.

The dates for administering unannounced testing of randomly selected safety-sensitive Team Members shall be spread reasonably throughout the calendar year, and throughout all times of day, when safety-sensitive functions are performed. Team Members who are notified of selection for random alcohol or drug test shall immediately proceed to the test site.

Alcohol testing shall be conducted while a Team Member is performing a safety-sensitive function, just before the Team Member is to perform a safety-sensitive function, or just after the Team Member has performed a safety-sensitive function. A safety-sensitive Team Member may be randomly tested for prohibited drug use anytime while on duty.

The selection of Team Members for random alcohol and drug testing shall be made by a scientifically valid method. The selection process shall provide each covered Team Member an equal chance of being tested each time selections are made. A computerized random number generator that is fair and equitable for the safety-sensitive Team Members shall make up the list.

#### 8. Return to Work and Follow-Up Drug Testing

If a Team Member, in the course of employment, voluntarily enters a Team Member assistance program for drug/alcohol related problems or an alcohol/drug rehabilitation program, SCI requires that the Team Member submit to a drug and/or alcohol test as a follow-up to the program. Follow-up testing must be conducted at least once a year for a two (2) year period after completion of the program. Advanced notice of a follow-up testing date will not be given to the Team Member to be tested.

In addition, any Team Member who voluntarily enters a Team Member assistance program for drug/alcohol related problems or an alcohol/drug related rehabilitation program, or any Team Member who has a verified positive drug or alcohol test and completes a Team Member assistance program for drug/alcohol problems or an alcohol/drug rehabilitation program, must agree to a return-to-work agreement as set forth in Section 13.0(Y) of this policy.

Before a Team Member may return-to-work to perform a safety-sensitive function following a confirmed positive drug or alcohol test, he or she must be evaluated by a substance abuse professional (SAP) as defined by FMSCA and U.S. DOT regulations and the Team Member must take a return-to-work test. The return-to-work test will be conducted both for drugs and alcohol without regard to whether the original positive test was for drug or alcohol misuse. A Team Member who returns to work after meeting these requirements will be subject to unannounced follow-up testing for drugs and/or alcohol at least six (6) times during the first twelve (12) months following return to work. The Team Member may be subject to follow-up testing as deemed by a substance abuse professional. Follow-up testing will not exceed sixty (60) months from return to a safety-sensitive position.

#### **H. Prescription and Non-Prescription Medication**

No prescription drug shall be brought upon the premises by any person other than the person for whom the drug is prescribed by a licensed medical practitioner and shall be used only in the manner so prescribed. Team Members must keep all such prescription medicines in the original container which identifies the date of the prescription and the prescribing physician. SCI requests that Team Members in safety sensitive positions report to his or her Team Leader the use of any prescribed medication which may alter the Team Member's physical or mental ability prior to commencing work. This information will be treated confidentially by the Company. The Company retains the right to change the Team Member's job assignment during the term of treatment.

**I. Alcohol Testing**

In testing for the presence of alcohol pursuant to FMCSA regulations, the Company shall utilize testing procedures in accordance with 49 C.F.R. Part 40: Procedures for Transportation Workplace Drug and Alcohol Testing Programs (as amended to date). As discussed in Section 13.0 of this policy when testing is done pursuant to SCI ' Drug-Free Workplace Program the Team Member will be permitted to report to the Medical Review Officer confidentially, the use of prescription or nonprescription medications both before and after being tested.

Alcohol testing done pursuant to FMCSA regulations will be done by breath testing only. Alcohol testing for safety-sensitive Team Members is only permissible just before a Team Member performs safety-sensitive duties, during that performance, and just after a Team Member has performed safety-sensitive duties.

No safety-sensitive Team Member shall report for duty, or remain on duty, requiring the performance of safety-sensitive functions, with an alcohol concentration of 0.04 or greater. Pursuant to this appendix, any Team Member with a breath alcohol concentration of 0.02 up to 0.039 will be removed from his or her safety-sensitive position for a period of time not less than eight (8) hours. Any Team Member with breath alcohol concentration of 0.04 or higher will be disciplined up to and including discharge.

There are federally mandated cut-off limits for the minimum quantity of alcohol that must be detected in the initial test. Pursuant to 49 C.F.R. Part 40, the limit for the initial test is a breath alcohol concentration greater than .02. In the event that the results of the confirmatory test and the initial test are not identical, the confirmatory test is deemed to be the final result on which any action by the Company is taken.

**J. Drug Testing and Basis for Discipline or Termination**

1. Illegal Drug Use and Alcohol Abuse:

Any Team Member using, selling, purchasing, possessing, soliciting, or distributing illegal drugs and/or unauthorized alcoholic beverages on SCI property or projects will be in violation of this policy, resulting in immediate termination of employment.

Any Team Member who has a confirmed positive drug and/or alcohol test, as listed below, will be subject to discipline up to and including termination.

**Table of Positive Drug Levels in Urine**

Drug	Initial	Confirmation
Alcohol (blood)	.04 g/dL	.04 g/dL
Amphetamines	500 ng/ml	250 ng/ml
Barbiturates	300 ng/ml	150 ng/ml
Benzodiazepines	300 ng/ml	150 ng/ml
Cannabinoids	50 ng/ml	15 ng/ml
Cocaine	150 ng/ml	100 ng/ml
Methaqualone	300 ng/ml	150 ng/ml
Methadone	300 ng/ml	150 ng/ml
Opiates	2000 ng/ml	2000 ng/ml
Phencyclidine	25 ng/ml	25 ng/ml
Propoxyphene	300 ng/ml	150 ng/ml

Any Team Member who has a confirmed positive drug and/or alcohol test may forfeit eligibility for medical and indemnity benefits and may also forfeit unemployment benefits.

**Refusal to Test:** Refusal to Test includes failure to appear for any test within a reasonable time, failure to remain at the collection site until the testing process is complete, refusal to provide a urine specimen for a required drug test, failure to permit a directly observed or monitored collection when required, failure to provide a sufficient amount of urine without a medical explanation, failure to take a second test when required by a collector or by his/her employer, failure to undergo a medical examination following inability to provide a sufficient urine sample, and failure to cooperate with the collection/testing process (including refusing to empty pockets at the collection site and refusing to wash hands when instructed), behaving in a confrontational way that disrupts the collection process, possessing or wearing a prosthetic or other device that could be used to interfere with the collection process, or admitting to the collector or MRO that the specimen had been adulterated or substituted. Any employee who refuses to submit to required alcohol and drug testing will be subject to terminated from employment.

#### **K. Consequences of Positive Results and Disciplinary Actions**

1. A Team Member who violates the Company's Controlled Substance Abuse Program and Drug-Free Workplace Policy is subject to disciplinary action up to and including termination of employment at the Company's sole discretion.
2. In addition to any disciplinary action, the Company may, in its sole discretion, refer a Team Member who has a verified positive test for drugs or alcohol, to a treatment and counseling program for drug/alcohol abuse. Team Members referred to such a program by the Company, must immediately cease any drug use, may be subject to periodic unannounced testing for a period of twenty-four (24) months, and must comply with all other conditions of the treatment and counseling program. SCI shall determine whether a Team Member, referred for drug treatment and counseling, should work during participation in the program. A Team Member may be temporarily reassigned to another position for safety reasons.
3. Team Members, who are referred to a treatment and counseling program for drugs or alcohol, must agree to a return to work agreement as set forth in Section 13.0(Y) of this policy.
4. SCI will promptly terminate any Team Member who tests positive for drugs while undergoing treatment and counseling for drug abuse.
5. Within five (5) working days after receipt of a positive confirmed test result from the Medical Review Officer, the Company will inform the Team Member, in writing, of such positive test results. The Company will include the consequences of such results, and the options available to the Team Member.

#### **L. Drug and Alcohol Abuse Discipline**

1. **An applicant who tests positive will not be hired under any circumstance.**
2. Any Team Member whose alcohol test has a result of at least 0.02, up to but less than 0.04, will be given a written warning and be placed on probation for twelve (12) months. During that time, he or she is subject to random alcohol and drug screens at any time. If any of these alcohol or drug screens are positive, he or she will immediately be terminated.
3. If a Team Member tests positive for illegal drugs, he or she will be terminated. If he or she has an alcohol result of 0.04 or greater, he/she will be considered positive for alcohol and be terminated. The Project Superintendent would normally be the person to release a Team Member who tests positive but if the Superintendent is absent from the job, the next in command will assume this responsibility. When a person is released from our employment due to a positive drug result, he or she will be offered a copy of their positive drug result.

#### **M. Challenges to Test Results (Worker Compensation Testing)**

1. Within five (5) working days after receiving notice of positive, confirmed test result, the Team Member will be allowed to submit information to the Medical Review Officer explaining or contesting the test results. All documentation shall be kept confidential by the employer and shall be retained by SCI for at least twelve (12) months.
2. A Team Member, or job applicant, may undertake an administrative challenge by filing a claim for benefits with a Judge or Compensation Claims pursuant to §440.102(3)(a)(8) or if no workplace injury has occurred, the person must challenge the test results in a court of competent jurisdiction.

#### **N. Team Member's Responsibility**

When a Team Member challenges the result of his or her drug or alcohol, it shall be the Team Member's responsibility to notify the Medical Review Officer and the laboratory. The sample shall be retained by the laboratory until the case is resolved.

#### **O. Confidentiality**

Except as provided below, information concerning drug test results will be kept confidential. Information on drug test results shall not be released or used in any criminal proceeding against the Team Member. No physician/patient relationship is created between a Team Member and SCI or any person performing or evaluating a test, solely by the administration of a testing program.

1. ORC, or its designee, shall have access to Team Member testing information. If disciplinary actions are brought forth or are related to this policy, ORC, or its designee, as well as the laboratory which conducted the test, shall have access to the Team Members' testing information when consulting with legal counsel. ORC, or its designee, and the laboratory which conducted the test shall also have access to the Team Members' drug testing information when the information is relevant to its defense in a civil or administrative matter.
2. The Team Member is responsible for notifying the laboratory of any administrative or civil action brought pursuant to this policy.
3. SCI shall comply with requests by state and federal agencies to prepare and submit required reports of alcohol and drug testing programs.
4. SCI may only release Team Member test results based on a written release, signed by the Team Member whose tests results are to be released unless such release is compelled by an Administrative Law Judge, Hearing Officer, or a Court of Competent Jurisdiction.

#### **P. Drugs to Be Tested for Common and Chemical Name**

1. **Over the counter and prescription drugs**: which could alter or affect the outcome of a drug test
2. **Alcohol**: (booze, drink, beer, liquor, wine, moonshine) All liquid medications containing ethyl alcohol (ethanol). Please read the label for alcohol content. As an example, Vick's Nyquil is 10% (20 proof) ethyl alcohol, Comtrex is 20% (40 proof), and Listerine is 26.9% (54 proof).
3. **Amphetamines**: (bennies, black beauties, crystal, speed, uppers, crank) Obetrol, Biphphetamine, Desoxyn, Dexedrine, Direx.
4. **Cannabinoids**: (marijuana, hashish, mary jane, grass, reefer, pot, dope, etc.) Marinol (Dronabinol, TEC)
5. **Cocaine**: (coke, crack, blow, nose candy, toot, snow) Cocaine HCl topical solution (Roxanne).

6. **Phencyclidine**: (PCP, angel dust) Not legal by prescription.
7. **Methaqualine**: (ludes, qualude, optimal, parest) Not legal by prescription.
8. **Opiates**: (heroin, horse, smack, powder) Paregoric, Prepectolin, Donnagel PG, Morphine, Tylenol with Codeine, Empirin with Codeine, APAP with Codeine, Aspirin with Codeine, Robitussin AC, Guituss AC, Novahistine, DM, Novahistine Expectorant, Dilaudid (Hydromorphone), M-S Contin and Roxanol (morphine and sulfate), Percodan, Vicodin, etc.
9. **Barbiturates**: (barbs, rainbows, downers, golfballs, reds, blues) Phenobarbital, Tuinal, Amytal, Nembutal, Seconal, Lotusate, Fiorinal, Fioricet, Esgic, Butisol, Mebaral, Butabarbital, Butalbital, Phrenilin, Triad, etc.
10. **Benzodiazepines**: Ativan, Azene, Clonopin, Dalmane, Diazepam, Librium, Xanax, Serax, Tranxene, Valium, Vestran, Halcion, Paxipam, Restoril, Centrax.
11. **Methadone**: Dolphine, Methadose.
12. **Propoxyphene**: Darvocet, Darvon N. Dolene, etc.

The Company will test for the minimum of drugs, which is described as a five (5) panel test (amphetamines, opiates, cocaine, PCP, cannabinoids), but is allowed to test up to all ten (10) drugs and alcohol, as previously listed.

#### **Q. Laboratory Assistance**

The Medical Review Officer designated by SCI shall provide clinical/technical assistance to Team Members for the purpose of interpreting positive, confirmed test results which could have been caused by prescription or non-prescription medication taken by the Team Members. Additionally, Team Members and job applicants have the right to consult the laboratory for technical information regarding a prescription or non-prescription medication.

#### **R. Certified Testing Laboratories and MRO**

SCI uses only AHCA (Agency for Health Care Administration) or U.S. Department of Health and Human Services certified testing laboratories and AAMRO Certified Medical Review Officers.

#### **S. Drug and Alcohol Referral Sources**

To be provided upon request.

#### **T. Voluntary Rehabilitation**

Team Members with drug abuse problems should request assistance from the Human Resource Officer or his designee. SCI will treat all such requests confidentially and will refer the Team Member to the appropriate treatment and counseling services. Team Members who voluntarily request SCI ' assistance in dealing with a drug abuse problem, may do so without jeopardizing their continued employment, provided they strictly adhere to the terms of their treatment and counseling program and their return to work agreement under this policy as set forth in Section 13.0(Y). At a minimum, these terms include the immediate cessation of any use of drugs and participation where required by a program and periodic unannounced testing for a twenty-four (24) month period following enrollment in the program.

Pursuant to this appendix, a Team Member who has not undergone previous rehabilitation for a drug or alcohol abuse problem may voluntarily request a leave of absence of up to 30 days, without pay, to seek rehabilitation. The Company will provide the name(s) of Team Member assistance programs and local drug and alcohol rehabilitation programs. Such a request will not jeopardize the Team Members' continued employment provided he or she follows a formal, structured treatment plan and strictly



adheres to the terms of the rehabilitation program. Voluntary requests for assistance will not, however, prevent disciplinary action for violation of company policy, this policy, or other Company rules or policies unrelated to the voluntary request.

Before being allowed to return to work following voluntary rehabilitation, the Team Member will be evaluated by a substance abuse professional under Section 13.0(Y) of this Policy and given a drug or alcohol screening test. The Team Member must also agree to a return-to-duty agreement as set forth in Section 13.0(Y) of this policy. Failure to pass the test will result in immediate discharge. If the test is passed, as a condition of returning to work, the Team Member must consent to periodic random drug and alcohol testing, upon the demand of the Company, at any time, without notice, during the following twenty-four (24) month period. Having had the benefit of rehabilitation, a Team Member found to be unable to pass a drug or alcohol test at any time in the future, (i.e., a second offense) shall be discharged immediately.

#### **U. Return to Work Agreements**

Team Members who return to work after a verified positive drug or alcohol test must agree to a return to work agreement. In addition, Team Members who voluntarily enter a drug or alcohol counseling or rehabilitation program must also agree to a return to work agreement. Return to work agreements will include the following requirements:

1. A release to work statement from the drug or alcohol counseling or rehabilitation program and a certificate of completion of the drug or alcohol counseling or rehabilitation program by the licensed medical practitioner or substance abuse professional responsible for the program.
2. A negative test for drugs and/or alcohol.
3. An agreement to at least twenty-four (24) months of at least one unannounced follow-up drug and alcohol test every twelve (12) months.

In addition, the agreement may include (but is not limited to):

1. A statement of expected workplace behaviors
2. An agreement to follow specified after-care requirements, with the understanding that violation of the return to work agreement is immediate grounds for termination

#### **Z. Rehire**

First-time offenders terminated for violation of this Alcohol and Drug Abuse policy **may have an opportunity to be rehired**. An internal committee consisting of Superintendent(s), Project Management and Area and Executive Management representatives will oversee the possible return to work of Team Members who test positive. The Human Resource representative is on this committee to act as a technical advisor and liaison between field management and committee members.

1. The Company Drug and Alcohol Management Panel will await a possible written request from the former Team Members Project Superintendent. This request should be addressed to the Chairman of the Drug and Alcohol Management Panel and should outline:
  - a. Why the Superintendent recommends this Team Member be considered for reemployment.
  - b. The proposed terms and conditions of reinstatement, including dates.
  - c. The current status of this individual.
  - d. Any additional relevant information.
1. This Panel will reach a decision within three (3) days, providing all the necessary information has been submitted for the Project.

2. The Chairman will route the decision to the Human Resource representative who, in turn, will notify the Superintendent.
  3. If the decision is “not eligible for rehire,” the case is closed. If the decision is “eligible for rehire,” the Superintendent and Human Resource representative will work together to get this Team Member back to work according to the terms approved by the Panel.
2. The terms of rehiring typically include the following:
    - a. The Team Member is off work a minimum of 30 days.
    - b. At their own expense, they immediately seek rehabilitation counseling and/or treatment satisfactory to ORC
    - c. They must participate in and complete any rehabilitation treatment recommended. Their rehabilitation counselor (SAP) must furnish SCI with documentation verifying completion of the subject’s rehabilitation program, including approval for their return to work.
    - d. In all cases, the offender may not return to work until the company has obtained a negative drug and alcohol screen result.
    - e. There must be work available for which they are qualified for employment.
    - f. They participate in at least six (6) periodic drug/alcohol tests, at any time, for a twelve (12) month period after rehiring. If any of these tests show positive, the Team Member will be terminated without conditional re-hire.
    - g. A letter prepared by the Drug and Alcohol Management Panel outlining the conditions of rehiring will be delivered by the Human Resource representative and presented to the Team Member. The Team Member must sign the letter acknowledging receipt and agreeing to all the terms of rehire.

INITIAL SCREEN

ALCOHOL BREATH TEST  
ALCO-SENSOR IV CHECKLIST

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Company: \_\_\_\_\_ Location of test: \_\_\_\_\_

Subject: \_\_\_\_\_ Social Security # \_\_\_\_\_

Tester: \_\_\_\_\_

Test #1 (Check as completed)

\_\_\_\_\_ Has subject used alcohol in the last 15 minutes? If yes, wait 15 minutes before beginning test.  
Continuously observe subject during the 15-minute wait and do not allow liquids, gum,  
candy, or tobacco product.

\_\_\_\_\_ Mount new mouthpiece to turn on the unit  
\_\_\_\_\_ Observe & record temperature \_\_\_\_\_ °C (must be between 10°C & 40°C)

\_\_\_\_\_ When the display shows BLNK, the unit runs a Blank automatically & display shows .000

\_\_\_\_\_ If the display shows SET, depress SET button - display shows TEST

\_\_\_\_\_ Instruct subject to take a deep breath and hold; then blow into the mouthpiece.

\_\_\_\_\_ Record sample 3-digit reading  (Positive is .020 or over.)  
\*See footnotes

\_\_\_\_\_ When display changes to SET, depress the SET button

\_\_\_\_\_ Release & discard mouthpiece

\_\_\_\_\_  
Subject signature

\_\_\_\_\_  
Operator signature

\_\_\_\_\_  
Witness signature

IF TEST IS POSITIVE, WAIT 15 MINUTES & RETEST USING FORM HR9402, EVIDENTIAL  
POSITIVE BREATH TEST. OBSERVE SUBJECT, ALLOW NO LIQUIDS, GUM, CANDY,  
TOBACCO, ETC.

---

ALCOHOL BREATH TEST  
ALCO-SENSOR IV CHECKLIST

**Retest after an initial positive test**

Date: \_\_\_\_\_ Time of initial test: \_\_\_\_\_ Time of retest: \_\_\_\_\_

Company: \_\_\_\_\_ Location of the test: \_\_\_\_\_  
\_\_\_\_\_

Subject: \_\_\_\_\_ Social Security # \_\_\_\_\_  
\_\_\_\_\_

Tester: \_\_\_\_\_

Test #2 (Check as completed)

\_\_\_\_\_ Has subject used alcohol in the last 15 minutes? If yes, wait 15 minutes before beginning test. Continuously observe subject during 15-minute wait and do not allow liquids, gum, candy, or tobacco product.

\_\_\_\_\_ Mount new mouthpiece to turn on the unit

\_\_\_\_\_ Observe & record temperature     °C (must be between 10°C & 40°C)

\_\_\_\_\_ When the display shows BLNK, the unit runs a Blank automatically & display shows .000

\_\_\_\_\_ If the display shows SET, depress SET button - display shows TEST

\_\_\_\_\_ Instruct subject to take a deep breath and hold; then blow into the mouthpiece.

\_\_\_\_\_ Record sample 3-digit reading  .  (Positive is .020 or over.)

\*See footnotes

\_\_\_\_\_ When display changes to SET, depress the SET button

\_\_\_\_\_ Release & discard mouthpiece

\_\_\_\_\_ Subject signature \_\_\_\_\_ Operator signature

\_\_\_\_\_ Witness signature

ANY *APPLICANT* WITH A TEST RESULT OF 0.02 OR GREATER WILL NOT BE HIRED. ANY *EMPLOYEE* WHOSE ALCOHOL TEST HAS A RESULT OF 0.02 UP TO BUT NOT INCLUDING 0.04 WILL BE GIVEN A WRITTEN WARNING AND BE PUT ON PROBATION AS SPELLED OUT IN OUR DRUG PROGRAM. ANY EMPLOYEE WHOSE ALCOHOL TEST HAS A RESULT OF 0.04 OR OVER WILL BE CONSIDERED POSITIVE AND BE TERMINATED.

Form BR9402

***CONTROLLED SUBSTANCE PROGRAM***  
*POST-ACCIDENT DRUG AND ALCOHOL TESTING*

---

An employee will be tested for drugs and alcohol after an accident under the following circumstances:

1. He or she is hospitalized or treated for an on-the-job injury that requires medical care beyond the initial doctor appointment.
2. He or she caused contributed to or was involved in an on-the-job injury that required a drug and alcohol test of the injured party (as stated above). This will be done at the Superintendent's discretion.
3. He or she caused or contributed to a liability accident of any kind (including vehicle, equipment damage, and general liability) with estimated damage to be over \$300.

Any parties who are not tested immediately after an accident (for various reasons such as incomplete investigation or absence from work) will be tested as soon as they are identified or become available.

It will be the responsibility of the Project Superintendent to ensure that the above policy is carried out.

## ***SECTION 14***

### ***ACCIDENT REPORTING AND INVESTIGATIONS: General***

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#### **PURPOSE**

A significant portion of this Accident Reporting and Investigation Procedure will be tailored for each Project Owner's Safety and Health Plan, which was developed specifically for that project. This data will be used to track historical performance and subsequently to enhance SCI and other contractors' safety measures while working on this project. The goal of the accident investigation is to identify causal factors and determine the root cause so that corrective actions will eliminate or minimize them.

#### **SCOPE**

Applies to all SCI Team Members and its subcontractors working on the project.

#### **RESPONSIBILITY**

The Superintendent, Safety Supervisor, and Foreman will be responsible for accident reporting and investigations.

#### **PROCEDURES**

1. Supervisor receives notice from employee(s) of actual or alleged:
  - a. Occupational illness or injury
  - b. Near miss incident
  - c. Equipment or property damage loss
2. The supervisor determines the extent of injury or loss. In the case of an injury, he/she will see that the injured party receives proper treatment (see Section 15.0 - Treatment of Injured).
3. Supervisor, with the assistance of the Safety Supervisor, will complete the necessary reporting and investigations in accordance with the Safety and Health Plan.
4. A superintendent or Safety Supervisor is to notify the Safety Department in the Home Office by phone of any "serious, multiple, fatal, or recordable accident."
5. Use detail in filling out the accident reports. Pictures should always accompany serious accident reports when there is a significant loss of company or other property.
6. Always state what corrective action has been taken to prevent similar accidents from occurring.
7. Police reports shall be obtained regarding any vehicle or other accident that is investigated by the authorities.

In the event of an OSHA inspection or investigation, SCI will adhere to the Owner's Safety and Health Plan in addition to following SCI procedural requirements. *(See 14.0.1 and 14.0.2)*

## ***ACCIDENT REPORTING AND INVESTIGATION***

### ***OSHA INSPECTION PROCEDURES***

---

#### **PURPOSE**

Provide guidelines to field personnel on what to do during an OSHA inspection.

#### **SCOPE**

Applies to all companies, areas, projects, and employees within ORC.

#### **RESPONSIBILITIES**

The Project Superintendent and Safety Supervisor will be responsible for implementing this policy.

#### **PROCEDURES**

Occupational Safety and Health inspections may occur at your job at any time either by the State or Federal Government. Their reason for a visit might be a regular inspection or because of an employee complaint or serious injury. Remember, violations can result in civil and criminal penalties (up to \$70,000 and \$500,000 respectively) depending on the seriousness of the situation. Every OSHA visit should be taken seriously and in accordance with the following:

1. **Before inspections**
  - a. Our policy is to cooperate fully and be courteous.
  - b. Foremen shall refer the OSHA officer to their Superintendent.
  - c. The OSHA officer should be able to identify himself with an ID card.
  - d. The Superintendent should always know who the officer was and get his business card.
  - e. Contact the Safety Department if you feel it is necessary.
2. **During Inspections**
  - a. The Superintendent should accompany the OSHA officer on his "walk around."
  - b. Immediately correct any conditions that conflict with OSHA regulations.
  - c. If concerns were expressed regarding any excavations, contact the Safety Department as soon as possible by phone.
  - d. If an OSHA officer takes photos, get the same shots yourself. We suggest you take three (3) photos for everyone (1) OSHA takes.
  - e. Keep a record of the employees and witnesses the officer talks with.
  - f. Before the officer leaves, our Superintendent should know exactly for what issue(s) the officer might be citing.
3. **After Inspections**
  - a. Contact the Safety Department as soon as possible.
  - b. The Superintendent shall send in a company OSHA WAS HERE form (14.0.2) to the Safety Department with a copy to the team leader.
  - c. The Safety Department will immediately forward copies of all citation reports to the appropriate team leader and Project Superintendent and/or Manager.
  - d. Any citation is to be posted in the area where we were cited or within close vicinity where all employees can view it. The citation must remain posted until all alleged violations are corrected or for fifteen days, whichever period is longer.
  - e. The R Manager is to provide written corrective action notice to OSHA and pay the fine if we are not going to contest the violations. A copy of this notice shall be sent to the Safety Department.
  - f. Make certain that a repetition of the violations(s) does not take place.

4. Administration Documentation
  - a. Name of official compliance agency, address, and telephone number.
  - b. Opening conference notes and list of attendee names
    1. List contractors by company name
  - c. Inspection and investigation activities
    1. Narrative of activities
    2. Photographs
  - d. Closing conference notes
    1. Attendee names and employer
8. Contractors must notify the Project Safety Manager upon receipt of any Notices of Citation and provide a copy of each citation.
9. OSHA Inspection Record
  - a. Contractor name
  - b. Date of inspection
  - c. Type of inspection
  - d. Citation and number
  - e. Alleged violation
  - f. Classification of violation
    - i. Non-serious
    - ii. Serious
    - iii. Willful
10. Status of citation
11. Comments



**ACCIDENT REPORTING AND INVESTIGATIONS**  
**OSHA WAS HERE**

---

- 1. Project No. \_\_\_\_\_ Excavations
- 2. Project Name \_\_\_\_\_ Utilities
- 3. Inspection Date \_\_\_\_\_ Industrial
- 4. Division: \_\_\_\_\_ Structures
- 5. Name of Compliance Officer \_\_\_\_\_ Other
- 6. Who accompanied OSHA Officer? \_\_\_\_\_
- 7. Reason for OSHA visit:     \_\_\_\_\_ routine     \_\_\_\_\_ investigate accident  
                                   \_\_\_\_\_ complaint    \_\_\_\_\_ follow-up visit     \_\_\_\_\_ other
- 8. Approximately how long were they on our site? \_\_\_\_\_
- 9. OSHA monitored: \_\_\_\_\_ noise     \_\_\_\_\_ dust     \_\_\_\_\_ other
- 10. SCI subcontractor(s) or Owner inspected? \_\_\_\_\_ Yes \_\_\_\_\_ No  
   *If yes, please give details on the back.*
- 11. What unsafe conditions did they discuss or bring out during the closing conference?  
       \_\_\_\_\_
- 12. Have any of the above not been corrected? \_\_\_\_\_ Yes \_\_\_\_\_ No *if so, note status:*  
       \_\_\_\_\_
- 13. Did any of our employees accompany OSHA and/or discuss certain conditions?  
       \_\_\_\_\_
- 14. Did OSHA inspect any excavations; measure banks or cuts; obtain soil samples, etc.?  
       \_\_\_\_\_ Yes \_\_\_\_\_ No     *If yes, explain in detail on backside.*
- 15. Did OSHA take pictures? \_\_\_\_\_ Yes \_\_\_\_\_ No    If yes, did we take our own photos? \_\_\_\_\_

\*\*\*\*\*

Suggestions: Obviously, we want to continue with our full cooperation policy in dealing with OSHA personnel on our sites. If there are any doubts in your mind about what they will be citing us on, you are encouraged to get company witnesses and take photos of the conditions in question.

Remember to immediately contact the Safety Department by phone if you suspect any citations will be issued against ORC.

- 16. Prepared by: \_\_\_\_\_ Date: \_\_\_\_\_  
       Print Name : \_\_\_\_\_

## ***ACCIDENT REPORTING AND INVESTIGATIONS***

### ***SERIOUS, MULTIPLE and FATAL ACCIDENTS***

---

#### **PURPOSE**

The purpose of this procedure is to ensure the proper project, and regulatory personnel are notified of the occurrence of an accident involving a project employee, contractor, owner/client, third party, or other employers that results in death, serious injury, or multiple injuries, i.e., (1) Project officials, (2) state and local agencies, (3) insurance agents, and (4) designated Owner representatives.

For the purposes of this section, a serious accident is defined as:

- Injured and not expected to live
- Death
- A catastrophe such as fire, flood or explosion
- An inordinate amount of adverse publicity is expected
- Resulting in a serious business interruption
- Other similar events

#### **PROCEDURES**

1. The SCI designated representative located at the Project, typically the project superintendent, is to immediately notify the following Project officials by telephone in the event of an accident resulting in (1) serious injury, (2) multiple injuries, or (3) a fatality:
  - a. Project Manager
  - b. Site Safety Supervisor
2. If these officials cannot be contacted, one of the following must be notified:
  - a. SCI Safety Director
  - b. SCI Directors

In the event of an accident involving an amputation, loss of an eye, inpatient hospitalization, fatality or multiple injuries, the contractor is responsible for notification of the appropriate agencies. Before contacting the agencies, the contractor shall notify the Construction Manager who will contact the designated Project Owner Representative.

TREATMENT AUTHORIZATION FORM

PROJECT: \_\_\_\_\_ EMPLOYEE: \_\_\_\_\_

DATE: \_\_\_\_\_ TIME: \_\_\_\_\_

This certifies that SCI employs the above-named individual. Workers' Compensation coverage will be provided when necessary. Please provide appropriate evaluation and treatment. The employee shall return this form to the SCI Safety Office by the fastest means possible.

Site Approval Signature: \_\_\_\_\_

Print Name: \_\_\_\_\_

\*\* Post Accident Drug / Alcohol Test: Yes \_\_\_\_\_ No \_\_\_\_\_

*THIS SECTION TO BE COMPLETED BY ATTENDING PHYSICIAN*

<p>DIAGNOSIS: _____</p> <p>Recommendations:</p> <p>accommodations: _____ <b>Return to Work</b> with the following modifications /</p> <p>_____ <b>Off Work</b></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>Will employee require follow-up treatment? Yes _____ No _____</p> <p>If Yes was selected, when is the next scheduled appointment? _____</p> <p>Date: ____ / ____ / _____ Time: _____</p> <p>Estimated number of follow-up treatments: _____</p> <p>Physicians Signature: _____</p> <p>Print Name: _____</p> <p>Employee is referred to the following treatment facility: _____</p>
--

Questions should be referred to: Specific Company Representative

**Please identify employer and employee on all bills.**  
GOOD FOR DAY OF ISSUE ONLY

## ***ACCIDENT REPORTING AND INVESTIGATION***

### ***EMPLOYEE REPORTS***

---

#### **PURPOSE**

Project employees are required to immediately report to their Supervisor any accident involving personal injury or illness, equipment damage, property damage, near-miss accidents, or any other such incident. The failure of an employee to comply with this regulation may result in termination and expulsion from the Project premises.

#### **SCOPE**

Applies to all SCI Team Members and its subcontractors associated with and performing work on the Project.

#### **RESPONSIBILITY**

1. **Supervisors** are responsible for ensuring that their employees report any unusual event, near miss, occupational injury, or another such incident.
2. **Employees** may be required to report occupational injuries or illnesses to a Workers' Compensation insurance board or other insurance company providing this type of coverage.

## ***ACCIDENT REPORTING AND INVESTIGATION*** ***SUPERVISOR'S INVESTIGATION OF ACCIDENT or NEAR MISS***

---

### **PURPOSE**

Reporting of accidents is a key method to defining root causes of accidents. The Supervisor's Investigation of Accident or Near Miss report is used for reporting accidents resulting in an injury or illness.

### **SCOPE**

Applies to all SCI Team Members and its subcontractors associated with and performing work on the Project.

### **RESPONSIBILITIES**

The contractor's first-line Supervisor is responsible for completing the Supervisor's Investigation of Accident or Near Miss report.

### **PROCEDURES**

1. All injuries and illnesses that require treatment for which there was a charge must be reported on the Supervisor's Investigation of Accident or Near Miss Form. *(14.3.1)*
2. The original completed form shall be forwarded to the Project Safety Manager within 24 hours of the occurrence of the incident.
3. The responsible contractor and Supervisors will review and implement approved suggestions to prevent reoccurrence.
4. The Project Safety Manager shall submit one copy to a designated Project Owner Representative.

**SUPERVISOR'S INVESTIGATION OF ACCIDENT OR NEAR MISS**

(For Internal / Counsel Use Only)

Instructions:

- 1. **THIS FORM IS TO BE COMPLETED WITHIN 24 HOURS FOLLOWING EACH ACCIDENT.**
- 2. **THE COMPLETED INVESTIGATION FORM IS TO BE ROUTED AS FOLLOWS:**  
 Supervisor's, Superintendent, Job Safety Officer, Project Safety Coordinator, Construction Manager, Supervisor of Personnel and Safety.

Name of Employee: \_\_\_\_\_ Job Title: \_\_\_\_\_  
 Date of Employment: \_\_\_\_\_ Employee No.: \_\_\_\_\_  
 Date of Accident: \_\_\_\_\_ Time of Accident: \_\_\_\_\_  
 Date Accident Reported: \_\_\_\_\_ Time Accident Reported: \_\_\_\_\_  
 Project No. and Location of Accident: \_\_\_\_\_  
 Names of Witnesses: \_\_\_\_\_  
 Did Accident Result in an Injury:  Yes  No  
 Nature of Injuries: \_\_\_\_\_

Was Employee Examined / Treated by a Physician:  Yes  No  
 Name of Physician: \_\_\_\_\_ Date Examined: \_\_\_\_\_  
 Was Employee Examined / Treated by Site Nurse / EMT:  Yes  No Date: \_\_\_\_\_  
 Was Employee taken to the Hospital:  Yes  No  
 Did Injury result in restricted work duty:  Yes  No Days of Restriction: \_\_\_\_\_  
 How did the accident occur: \_\_\_\_\_

Employee's Description of Accident: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Supervisor's Signature

Date

Employee's Signature

Date

Did the accident result in Property Damage?  Yes  No If Yes, Explain

Was the accident the result of an unsafe act?  Yes  No If Yes, Explain

Was the accident the result of an unsafe condition?  Yes  No If Yes, Explain

Was the established safe work procedure followed (Be Specific)? \_\_\_\_\_

Was personal protective equipment required for the job correctly worn (Be Specific)? \_\_\_\_\_

Did personal factors contribute to the accident (Be Specific)? \_\_\_\_\_

What corrective action have you taken to prevent a recurrence? \_\_\_\_\_

Did Employee receive instructions in the proper method to perform the job?  Yes  No

By Whom? \_\_\_\_\_ When? \_\_\_\_\_

Has the Employee been re-instructed?  Yes  No

By Whom? \_\_\_\_\_ When? \_\_\_\_\_

**Supervisor's Superintendent, Job Safety Officer, Project Safety Coordinator, and Construction Manager's Appraisal / Recommendation:**

Recommended Corrective Action(s) Which Should be Implemented (Be Specific:)

- 1. \_\_\_\_\_ Date: \_\_\_\_\_
- 2. \_\_\_\_\_ Date: \_\_\_\_\_
- 3. \_\_\_\_\_ Date: \_\_\_\_\_

Are there other methods to minimize a recurrence (Be Specific)? \_\_\_\_\_

Additional Training that Should be Implemented to Minimize a Recurrence (Be Specific):

- 1. \_\_\_\_\_ Date: \_\_\_\_\_
- 2. \_\_\_\_\_ Date: \_\_\_\_\_
- 3. \_\_\_\_\_ Date: \_\_\_\_\_

Project Safety Coordinator

Date

Construction Manager

Date

## ***ACCIDENT REPORTING and INVESTIGATION***

### ***LOST WORKDAY CASES***

---

#### **PURPOSE**

This procedure has been developed to report the occurrence of accidents resulting in an injury or illness where a contractor/subcontractor employee is unable to return to work.

#### **SCOPE**

Applies to all SCI Team Members and its subcontractors associated with and performing work on the Project.

#### **RESPONSIBILITIES**

Each contractor is responsible for adherence to the provisions of the Lost Workday Case reporting.

#### **PROCEDURES**

1. It is the intent of the Project to be aware of all accidents resulting in lost workday injuries or illnesses. The contractor/subcontractor is responsible for ensuring that the Project Site Manager and the Project Site Safety Supervisor are notified immediately upon the determination that a contractor's employee will miss days of work as the result of a work-related injury or illness.
2. When a contractor's employee is unable to continue his or her regular duties because of an injury or illness sustained on the job, a Supervisor's Investigation of Accident Report must be completed by the contractor within 8 hours and sent to the Project Site Safety Supervisor (14.3.1)

The intent of the Supervisor's Investigation of Accident Report is to provide an initial notification of the incident. The completed report must contain only factual information without any opinions or conclusions on the part of employees, supervisors, or other personnel.



**SECTION 15****TREATMENT OF INJURED: General**

---

**PURPOSE**

To assure that any employee injured on the job site gets prompt medical attention.

**SCOPE**

Applies to all SCI Team Members and its subcontractors performing work on the project.

**RESPONSIBILITY**

The Project Superintendent and Safety Supervisor will train all employees as to the location of first aid stations and procedures to acquire medical attention.

**PROCEDURE**

1. Always notify your Supervisor immediately of any injury, no matter how insignificant it may appear.
2. All employees requiring medical attention will be taken to nearby medical facilities.
3. Maps to local medical clinics and hospitals along with emergency phone numbers will be posted in all field office trailers and lunch shacks. All employees will be advised as to the location of the hospitals and clinics and the treatment of injured procedures. *(Insert map with directions)*
4. Post-accident drug tests will be completed for qualifying injuries and for individuals associated with a particular accident.
5. First aid kits will be available in company pickups, select equipment, office trailers and warming shacks.
6. SCI will arrange for first aid training and CPR training for our employees.
7. Ensure that first aid and CPR services are readily available.
8. If an employee has been involved in a fall, is unconscious or is otherwise incapacitated, no attempt will be made to transport that employee to the hospital or clinic, and an ambulance will be summoned.
9. In the event of a snakebite, the poisonous snakebite procedures shall be followed. *(See 15.0.3)*

**TREATMENT OF INJURED**  
EMERGENCY TELEPHONE NUMBERS

---

**ALL CRITICAL OR LIFE THREATING INJURIES CALL 911**  
**THE NEAREST VOLUNTEER RESCUE UNIT WILL RESPOND**

**EMERGENCY TREATMENT**

**NON-EMERGENCY TREATMENT**

**FIRE**

Call 911

**POLICE**

Emergencies call 911

**LIFE FLIGHT**

EMS personnel will be responsible for notifying Life Flight and activating their emergency mission.

**INFORMATION TO GIVE IN THE EVENT OF AN EMERGENCY**

YOUR NAME

YOUR LOCATION

YOUR PHONE NUMBER

NUMBER OF INJURED

TYPES OF INJURIES

ANY KNOWN HAZARDS

**(WATER RESCUE REQUIRED) (DIVERS REQUIRED)**

CONSCIOUS OR UNCONSCIOUS

HOW IT OCCURRED

EXTENT OF DAMAGE

PROJECT SPECIFIC EMERGENCY MAP

---

## ***TREATMENT OF INJURED***

### **SNAKE BITE PROCEDURE**

---

There are many types of poisonous and non-poisonous snakes throughout the country. For this reason, any snakebite shall receive prompt medical attention.

#### **SIGNS and SYMPTOMS**

A noticeable bite on the skin. This may appear as nothing more than a discoloration.

Pain and swelling in the area of the bite. This may be slow to develop, from 30 minutes to several hours.

Rapid pulse and labored breathing

Progressive general weakness

Vision problems (dim or blurred)

Nausea and vomiting

Seizures

Drowsiness or unconsciousness

#### **EMERGENCY CARE STEPS**

Call for assistance (Call for medical direction).

Treat for shock and conserve body heat.

Keep the patient calm. Get the patient to lie down and remain quiet.

Locate the fang marks and clean the site with soap and water. There may be only one fang mark.

Remove any rings, bracelets, or other constricting items on the bitten extremity.

Keep any bitten extremities immobilized-the application of a splint will help. Try to keep the bite at heart level or, when this is not possible, below the level of the heart.

Transport the patient, carefully monitoring vital signs.

#### **Don't**

The tourniquet has no place in snakebite treatment when aggressive antivenin serum treatment is available. Cutting and sucking will retrieve only 2 to 9% of the venom if done immediately after being bitten. The victim seldom, if ever, arrives at the emergency room in time for this to be of any value.

Cold packs only add frostbite to the snakebite problem and make it difficult to follow the extent of edema and check for vasoconstriction in the bite area.

#### **Immediate First Aid: Treat for Shock**

To treat for shock, administer lots of T.L.C. (Tender Loving Care), much reassurance that the victim will be all right, that everything is under control. Keep the victim laying down. Keep him quiet. Maintain body temperature. When cold wrap in a blanket and when hot fan. Remember "WHEN FACE IS PALE, RAISE THE TAIL; WHEN FACE IS RED, RAISE THE HEAD."

#### **SNAKE IDENTIFICATION**

The identification of the snake is relative to the type of antivenin serum treatment that will be administered. Try to remember colors, head shape, red and black bands, and/or nose color.

## ***TREATMENT OF INJURED BLOODBORNE PATHOGENS***

---

### **PURPOSE**

This Bloodborne Pathogen Exposure Control Plan has been established to ensure a safe and healthful working environment and act as a performance standard for all employees. This program applies to all occupational exposure to blood or other potentially infectious materials. The content of this plan complies with OSHA Standard 29 CFR 1910.1030 (Occupational Exposure to Bloodborne Pathogens).

### **SCOPE**

All employees who have or may have the potential for exposure to blood or other potentially infectious materials in the workplace

### **RESPONSIBILITIES**

Site Safety Supervisor has overall responsibility for developing and implementing the Exposure Control Procedure for the project.

1. Project Supervisors
  - a. Site project manager and supervisors are responsible for exposure control in their respective areas.
2. Employees
  - a. Know what tasks they perform that have occupational exposure.
  - b. Plan and conduct all operations in accordance with our work practice controls.
  - c. Develop good personal hygiene habits.



### **PROCEDURE**

#### **A. Training**

Employees with reasonably anticipated occupational exposure to bloodborne pathogens shall participate in training before their initial assignment and within one year of any previous training. Training shall include:

- a. What bloodborne pathogens are; how to protect themselves from exposure
  - b. Methods of warnings (sign, labels, etc.)
  - c. The OSHA requirements of bloodborne pathogens
  - d. Availability of the Hepatitis B vaccine that has occupational exposure at no cost
1. Availability of Procedure to Employees  
The Bloodborne Exposure Control Plan is kept at all locations and shall be accessible to employees.
  2. Review and Update of the Procedure  
The procedure is reviewed annually and updated whenever we establish new functional positions within our facility that may involve exposure to biohazards.
  3. Exposure Determination
    - a. There are no job classifications in which some or all employees have occupational exposure to bloodborne pathogens that may result from the performance of their routine duties.
    - b. Designated employees are trained to render first aid and basic life support. Rendering first aid or basic life support will expose employees to bloodborne pathogens and will require them to adhere to this program.
    - c. In addition, no medical sharps or similar equipment is provided to or used by, employees rendering first aid or basic life support.

- d. This exposure determination has been made without regards to the Personal Protective Equipment that may be used by employees.
- e. A listing of all first aid and basic life support trained employees in this workgroup shall be maintained at each work site and at each first aid kit.

## **B. Methods of Compliance**

### **1. Universal Precaution**

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

### **2. Engineering Controls**

- a. Hand washing facilities (or antiseptic hand cleansers or antiseptic towelettes), which are readily accessible to all employees who have the potential for exposure. Containers for contaminated reusable sharps that our clients provide have the following characteristics: Puncture-resistant; Color-coded or labeled with a biohazard warning label; Leak-proof on the sides and bottom.
- b. Secondary containers which are: Leak-Proof; Color-coded or labeled with a biohazard warning label; Puncture resistant, if necessary.

## **C. Work Practice Controls**

1. Employees shall wash their hands immediately, or as soon as feasible, after removal of potentially contaminated gloves or other personal protective equipment.
2. Following any contact of body areas with blood or any other infectious materials, employees wash their hands and any other exposed skin with soap and water as soon as possible.
3. Hand washing facilities shall be available. If hand washing facilities are not feasible, SCI will provide either an appropriate antiseptic hand cleanser in conjunction with cloth/paper towels or antiseptic towelettes.
4. Contaminated needles and other contaminated sharps should not be handled if you are not AUTHORIZED or TRAINED to do so. Contaminated needles and other contaminated sharps are not bent or recapped.
5. Eating, drinking, smoking, applying cosmetics or lip balm and handling contact lenses is prohibited in work areas where there is potential for exposure to biohazardous materials.
6. Food and drink are not kept in refrigerators, freezers, on countertops or in other storage areas where potentially infectious materials are present.
7. All equipment or environmental surfaces shall be cleaned & decontaminated after contact with blood or other potentially infectious materials.
8. Specimens of blood or other potentially infectious materials must be put in leak-proof bags for handling, storage, and transport.
9. If outside contamination of a primary specimen container occurs, that container is placed within a second leak-proof container, appropriately labeled, - for handling and storage.
10. Bloodborne pathogens kits are located on top of first aid kits and are to be used in emergency situations by the caregiver. Once the seal is broken on the kit and any portion has been used it is not to be reused. Pathogen Kits shall be ordered and replaced promptly. Biohazard bags are identified by stickers and located in the first aid area. Contaminated supplies are to be disposed at once.

## **D. Personal Protective Equipment**

SCI provides at no cost to our employee's gloves, safety glasses, goggles, gowns, face shields/masks and other as needed PPE for bloodborne pathogens response. All PPE shall be of the proper size and readily accessible.

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

1. Any garments penetrated by blood or other infectious materials are removed immediately.
2. All potentially contaminated personal protective equipment is removed prior to leaving a work area.

3. Gloves are worn whenever employees anticipate hand contact with potentially infectious materials or when handling or touching contaminated items or surfaces.
4. Disposable gloves are replaced as soon as practical after contamination or if they are torn, punctured or otherwise lose their ability to function as an "exposure barrier."
5. Masks and eye protection (such as goggles, face shields, etc.) are used whenever splashes or sprays may generate droplets of infectious materials.
6. Any PPE exposed to bloodborne pathogens shall be disposed of properly.
7. PPE shall be used unless employees temporarily declined to use PPE under rare circumstances.
8. PPE shall be cleaned, laundered & properly disposed of if contaminated.
9. SCI will repair and replace PPE as needed to maintain its effectiveness.

#### **E. Housekeeping**

Our staff employs the following practices:

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

#### **F. Post-Exposure and Follow Up**

If there is an incident where exposure to bloodborne pathogens occurred, we immediately focus our efforts on investigating the circumstances surrounding the exposure incident and making sure that our employees receive medical consultation and immediate treatment.

The SCI management investigates every reported exposure incident, and a written summary of the incident and its causes is prepared, and recommendations are made for avoiding similar incidents in the future. We provide an exposed employee with the following confidential information:

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

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

3. Information Provided to the Healthcare Professional. We forward the following:

- a. A copy of the Biohazards Standard.
- b. A description of the exposure incident.
- c. Other pertinent information.

4. Healthcare Professional's Written Opinion

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

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

## **G. Record Keeping**

All records shall be made available upon request of employees, OSHA's Assistant Secretary and the Director of OSHA for examination and copying. Medical records must have written consent of employee before released. SCI shall meet the requirements involving the transfer of records set forth in 29 CFR 1910.1020(h).

The respective Human Resources representative shall maintain Bloodborne Pathogen exposure records. Employee medical records shall be kept confidential and are not to be disclosed without the employee's written consent, except as required by 29 CFR 1910.1030 or other law.

Medical records shall be maintained for the duration of employment plus 30 years and shall include at least the following:

1. Employee's name, Social Security number and SCI employee number.
2. Employee's Hepatitis B vaccination status, including vaccination dates.
3. All results from examinations, medical testing and follow-up procedures, including all healthcare professional's written opinions.
4. Information provided to the healthcare professional.
5. Any Hepatitis B Vaccine Declinations.

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

6. Outline of training program contents.
7. Name of person conducting the training.
8. Names and job titles of all persons attending the training.
9. Date of Training.

## **H. Labels and Signs**

Biohazard warning labeling shall be used on containers of regulated waste; Sharps disposal containers; contaminated laundry bags and containers; contaminated equipment.

## **I. Information provided to our employees includes:**

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



## ***TREATMENT OF INJURED: RETURN TO WORK PROGRAM***

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### **PURPOSE**

SCI strives to assist employees to return to work at the earliest possible time following an injury or illness. It is SCI our goal to maintain a safe and healthy workplace for our Team Members. Provide guidelines to help injured workers to return to work, continuing to be productive, in the event an accident or injury occurs; it must be reported to the supervisor and to the Site Safety Supervisor.

### **SCOPE**

SCI defines transitional work as temporary, modified work assignments within the worker's physical abilities as assessed by a medical doctor. The policy only applies to regular full-time employees that were injured on-the-job. When possible, transitional positions will be made available to injured workers to minimize or eliminate time lost from work.

### **RESPONSIBILITIES**

Project Supervision and the Site Safety Supervisor shall have the overall responsibility for policy and procedure compliance.

### **PROCEDURES**

As soon as possible after an injury\* occurs the worker shall report the injury to their immediate Supervisor and/or Site Safety Supervisor and/or the Project Manager who in turn will report it to Safety Department. This should be accomplished as soon as possible. Any necessary paperwork will be provided and, if necessary, assistance is given for completing it. All appropriate information will be submitted to the appropriate insurance company, including all return-to-work information.

The worker will be provided with a copy of “Worker Responsibilities When Injured on the Job” when an injury is reported.

While off work with an injury contact with your Superintendent should be maintained as follows:  
The worker is to report his/her return-to-work status after each doctor’s appointment. Unless otherwise arranged between the worker and ORC, this shall be done in person by providing a copy of a work release, a physical capacity form or a job analysis signed by the attending physician.

The worker should contact their Supervisor or the HR Manager by telephone or in person. This contact is intended to keep the worker informed of pertinent company information and the company informed of the worker’s current condition/needs for return-to-work.

If your Superintendent is unavailable, the alternate contact would be the Site Safety Supervisor.  
If the worker leaves work to see a physician, he/she is to relay information to the physician regarding the availability of transitional work. The communication of this information may be done in writing or verbally.

When the attending physician is known, information regarding available transitional work, either in the form of a specific job analysis/task list or a request for physical capacity information, will be provided. Job analysis for the worker's regular job also will be provided if one is available. This may be done by ORC, our insurance companies or both.

The worker will be assigned to a job or task(s) according to the restrictions/approval of the attending physician and the business needs of SCI at the time of the release. This assignment may be in a different department or on a different shift than worked at the time of injury. It may be a portion of the regular job if the restrictions require a reduction in hours or the elimination /reassignment of a work activity/activities essential to the performance of the job.

Transitional jobs are temporary in nature and are intended to ease the employee back to regular duty. The transitional work will be monitored by SCI on an on-going basis. Should the attending physician change the worker's restrictions, the transitional assignment may be adjusted accordingly. In any case, workers will not be expected to exceed the restrictions given.

If the transitional assignment lasts for more than (14 days), it will be reviewed at that time and at (14-day) intervals thereafter. It may be extended or ended at the discretion of ORC.

Any problems with the transitional assignment will be discussed with the worker and any changes needed shall be defined.

When the attending physician gives a release to transitional work, a job offer letter may be given in person or mailed CERTIFIED mail, with a response requested. It shall include a description of the job duties, the start date and hours, the duration of the job (if known), where and to whom to report, the wage to be paid and a copy of the work release and/or signed job analysis.

The transitional job will end when whichever of the following occurs first:

1. the worker is released for full duty regular employment;
2. the worker returns to a job that is not part of the Return-to-Work Program;
3. the transitional job is no longer available or has not been extended under the terms of this program
4. the workers' compensation claim is closed.

Should the worker be given permanent restrictions by his/her attending physician, each case will be reviewed individually outside this Return-to-Work Program and in accordance with all state and federal guidelines.

\* For the purpose of this Return-to-Work Program, an "injury" also includes an occupational disease as defined by the governing state workers' compensation statutes.

## ***SECTION 16***

### ***MATERIAL HANDLING – RIGGING PROGRAM***

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#### **PURPOSE**

This section applies to slings used in conjunction with other material handling equipment for the movement of material by hoisting, in employment covered by this part. The types of slings covered are those made from alloy steel chain, wire rope, metal mesh, natural or synthetic fiber rope (conventional three strand construction), and synthetic web (nylon, polyester, and polypropylene).

#### **POLICY**

SCI will comply with the requirements of CFR 1926.251/Subpart H and the manufacturer's instructions in its use of rigging for materials handling operations. Refer to Subpart H, Tables H-1 through H-20, and the manufacturer's data for more detailed information on recommended safe working loads for specific rigging equipment.

#### **GENERAL REQUIREMENTS**

Each day before being used, the sling and all fastenings and attachments shall be inspected for damage or defects by a competent person designated by the employer. Additional inspections shall be performed during sling use, where service conditions warrant. Damaged or defective slings shall be immediately removed from service.

Rigging equipment, when not in use, shall be removed from the immediate work area so as not to present a hazard to employees.

Special custom design grabs, hooks, clamps, or other lifting accessories, for such units as modular panels, prefabricated structures, and similar materials, shall be marked to indicate the safe working loads and shall be proof-tested prior to use to 125 percent of their rated load.

#### **A. Alloy Steel Chains**

Welded alloy steel chain slings shall have permanently affixed durable identification stating size, grade, rated capacity, and sling manufacturer. Hooks, rings, oblong links, pear-shaped links, welded or mechanical coupling links, or other attachments, when used with alloy steel chains, shall have a rated capacity at least equal to that of the chain. Job or shop hooks and links, or makeshift fasteners, formed from bolts, rods, etc., or other such attachments, shall not be used.

In addition to daily inspections, periodic thorough inspection of alloy steel chain slings in use shall be made on a regular basis, to be determined on the basis of:

1. the frequency of sling use
2. the severity of service conditions
3. nature of lifts being made
4. experience gained on the service life of slings used in similar circumstances.

Such inspections shall in no event be at intervals greater than once every 12 months. SCI will make and maintain a record of the most recent month in which each alloy steel chain sling was thoroughly inspected and make this record available for examination.

#### **B. Wire Rope**

Protruding ends of strands of splices on slings and bridles shall be covered or blunted. Wire rope shall not be secured by knots, except on haul back lines on scrapers. The following limitations shall apply to the use of wire rope:

1. An eye splice made in any wire rope shall have not less than three full tucks.

2. Except for eye splices in the ends of wires and for endless rope slings, each wire rope used in hoisting or lowering, or in pulling loads, shall consist of one continuous piece without knot or splice.
3. Eyes in wire rope bridles, slings, or bull wires shall not be formed by wire rope clips or knots.
4. Wire rope shall not be used if in any length of eight diameters, the total number of visible broken wires exceeds 10 percent of the total number of wires, or if the rope shows other signs of excessive wear, corrosion, or defect.

**U-bolts.** Refer to CFR 1926.251, Table H-20, to determine the number and spacing of clips when U-bolt wire rope clips are used to form eyes. When used for eye splices, the U-bolt shall be applied so that the "U" section is in contact with the dead end of the rope.

**Slings.** Shock loading is prohibited. Slings must not be kinked. They must not be shortened with knots or bolts or other makeshift devices. When used in a basket hitch, their loads must be balanced to prevent slippage. Slings must also be padded or protected to guard against any sharp edges of their loads. Hands or fingers shall not be placed between the sling and its load while the sling is being tightened around the load. A sling shall not be pulled from under a load when the load is resting on the sling.

1. Minimum sling lengths:

- a. Cable laid and 6 X 19 and 6 X 37 slings shall have a minimum clear length of wire rope 10 times the component rope diameter between splices, sleeves or end fittings.
- b. Braided slings shall have a minimum clear length of wire rope 40 times the component rope diameter between the loops or end fittings.
- c. Cable laid grommets, strand laid grommets, and endless slings shall have a minimum circumferential length of 96 times their body diameter.

2. Safe operating temperatures. Fiber core wire rope slings of all grades shall be permanently removed from service if they are exposed to temperatures in excess of 200 deg. F (93.33 deg. C). When non-fiber core wire rope slings of any grade are used at temperatures above 400 deg. F (204.44 deg. C) or below minus 60 deg. F (15.55 deg. C), recommendations of the sling manufacturer regarding use at that temperature shall be followed.

3. End attachments

- a. Welding of end attachments, except covers to thimbles, shall be performed prior to the assembly of the sling.
- b. All welded end attachments shall not be used unless proof tested by the manufacturer or equivalent entity at twice their rated capacity prior to initial use. The employer shall retain a certificate of proof test and make it available for examination.

**C. Natural Rope and Synthetic Fiber**

1. Safe operating temperatures. Natural and synthetic fiber rope slings, except for wet, frozen slings, may be used in a temperature range from minus 20 deg. F (-28.88 deg. C) to plus 180 deg. F (82.2 deg. C) without decreasing the working load limit. For operations outside this temperature range and for wet, frozen slings, the sling manufacturer's recommendations shall be followed.
2. Splicing. Spliced fiber rope slings shall not be used unless they have been spliced in accordance with the following minimum requirements and in accordance with any additional recommendations of the manufacturer:
  - a. In manila rope, eye splices shall consist of at least three full tucks, and short splices shall consist of at least six full tucks, three on each side of the splice center line.

- b. In synthetic fiber rope, eye splices shall consist of at least four full tucks, and short splices shall consist of at least eight full tucks, four on each side of the center line. Strand end tails shall not be trimmed flush with the surface of the rope immediately adjacent to the full tucks. This applies to all types of fiber rope and both eye and short splices. For fiber rope under 1 inch (2.54 cm) in diameter, the tail shall project at least six rope diameters beyond the last full tuck. For fiber rope 1 inch (2.54 cm) in diameter and larger, the tail shall project at least 6 inches (15.24 cm) beyond the last full tuck. Where a projecting tail interferes with the use of the sling, the tail shall be tapered and spliced into the body of the rope using at least two additional tucks (which will require a tail length of approximately six rope diameters beyond the last full tuck).
  - c. Fiber rope slings shall have a minimum clear length of rope between eye splices equal to 10 times the rope diameter.
  - d. Knots shall not be used in lieu of splices.
  - e. Clamps not designed specifically for fiber ropes shall not be used for splicing.
  - f. For all eye splices, the eye shall be of such size to provide an included angle of not greater than 60 degrees at the splice when the eye is placed over the load or support.
3. End attachments. Fiber rope slings shall not be used if end attachments in contact with the rope have sharp edges or projections.
  4. Removal from service. Natural and synthetic fiber rope slings shall be immediately removed from service if any of the following conditions are present:
    - a. Abnormal wear.
    - b. Powdered fiber between strands.
    - c. Broken or cut fibers.
    - d. Variations in the size or roundness of strands.
    - e. Discoloration or rotting.
    - f. Distortion of hardware in the sling.

**F. Synthetic Webbing (nylon, polyester, and polypropylene)**

Each synthetic web sling must be marked or coded to show the name or trademark of the manufacturer, the rated capacities for the type of hitch, and the type of material. The rated capacity shall not be exceeded.

1. Webbing. Synthetic webbing shall be of uniform thickness and width, and selvage edges shall not be split from the webbing's width.
2. Fittings. Fittings shall be of a minimum breaking strength equal to that of the sling and free of all sharp edges that could result in any way damage the webbing.
3. Attachment of end fittings to webbing and formation of eyes. Stitching shall be the only method used to attach end fittings to webbing and to form eyes. The thread shall be in an even pattern and contain a sufficient number of stitches to develop the full breaking strength of the sling.
4. Environmental conditions. When synthetic web slings are used, the following precautions shall be taken:
  - a. Nylon web slings shall not be used where fumes, vapors, sprays, mists or liquids of acids or phenolics are present.

- b. Polyester and polypropylene web slings shall not be used where fumes, vapors, sprays, mists or liquids of caustics are present.
  - c. Web slings with aluminum fittings shall not be used where fumes, vapors, sprays, mists or liquids of caustics are present.
5. Safe operating temperatures. Synthetic web slings of polyester and nylon shall not be used at temperatures in excess of 180 deg. F (82.2 deg. C). Polypropylene web slings shall not be used at temperatures in excess of 200 deg. F (93.33 deg. C).
6. Removal from service. Synthetic web slings shall be immediately removed from service if any of the following conditions are present:
- a. Acid or caustic burns.
  - b. Melting or charring of any part of the sling surface.
  - c. Snags, punctures, tears or cuts.
  - d. Broken or worn stitches.
  - e. Distortion of fittings.

#### **H. Shackles and Hooks**

Refer to CFR 1926.251/Subpart H, Table H-19, for the safe working loads of various sizes of shackles. Higher safe working loads are permissible when recommended by the manufacturer for specific, identifiable products, provided that a safety factor of not less than 5 is maintained.

Refer to the manufacturer's recommendations in determining the safe working loads of the various sizes and types of specific and identifiable hooks. All hooks for which no applicable manufacturer's recommendations are available shall be tested to twice the intended safe working load before they are initially put into use. A record of the dates and results of such tests must be maintained.

#### **I. Housekeeping**

When materials are dropped more than 20 feet to any point outside a structure, an enclosed chute will be used to control the direction of the debris.

If debris is dropped through a hole in the floor or roof of a structure, the hole or opening will be completely enclosed with barricades not less than 42" high and not less than 6' back from the projected edge of the opening. All waste and materials will be removed as work progresses.

## ***SECTION 17***

### ***RESPRIABLE SILICA CONTROL***

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#### **PURPOSE**

To provide information about the provisions of the Silica in Construction Standards and guidelines in order to prevent employee exposure to respirable crystalline silica. Especially exposure over 50 micrograms per cubic meter of air ( $\mu\text{g}/\text{m}^3$ ) on an eight hour time weighted average which is the OSHA 29 CFR 1926.1153 personal exposure limit.

#### **SCOPE**

Applies to all SCI projects and employees who have with potential exposure to respirable crystalline silica, including but not limited to; saw cutting, drilling, grinding, jack-hammering, tunneling, rock crushing, batching concrete, dry sweeping or pneumatically cleaning concrete, or other silica containing materials.

#### **POLICY**

SCI will comply with the requirements of OSHA's standard 29 CFR 1926.1153. A combination of control measures will be required to achieve this objective.

#### **DEFINITIONS**

**Action level-** means a concentration of airborne respirable crystalline silica of 25  $\mu\text{g}/\text{m}^3$ , calculated as an 8-hour TWA.

**Assistant Secretary-** means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

**Director-** means the Director of the National Institute for Occupational Safety and Health (NIOSH), U.S. Department of Health and Human Services, or designee.

**Competent person-** means 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. The competent person must have the knowledge and ability necessary to fulfill the responsibilities set forth in paragraph (g) of this section.

**Employee exposure-** means the exposure to airborne respirable crystalline silica that would occur if the employee were not using a respirator.

**High-efficiency particulate air [HEPA] filter-** means a filter that is at least 99.97 percent efficient in removing mono-dispersed particles of 0.3 micrometers in diameter.

**Objective data-** means information, such as air monitoring data from industry-wide surveys or calculations based on the composition of a substance, demonstrating employee exposure to respirable crystalline silica associated with a particular product or material or a specific process, task, or activity. The data must reflect workplace conditions closely resembling or with a higher exposure potential than the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

**Physician or other licensed health care professional [PLHCP]-** means an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all of the particular health care services required by paragraph (h) of this section.

**Respirable crystalline silica-** means quartz, cristobalite, and/or tridymite contained in airborne particles that are determined to be respirable by a sampling device designed to meet the characteristics for respirable-particle-size-selective samplers specified in the International Organization for Standardization (ISO) 7708:1995: Air Quality—Particle Size Fraction Definitions for Health-Related Sampling.

**Specialist-** means an American Board-Certified Specialist in Pulmonary Disease or an American Board Certified Specialist in Occupational Medicine.

## **METHODS OF EXPOSURE**

Silica is a primary component of many common construction materials, and silica-containing dust can be generated during many construction activities, including:

- Abrasive blasting (e.g., of concrete structures)
- Jackhammering, chipping, or drilling rock or concrete
- Cutting brick or tiles
- Sawing or grinding concrete
- Tuck point grinding
- Road construction
- Loading, hauling, and dumping gravel
- Demolition of structures containing concrete
- Sweeping concrete dust

Unprotected workers performing these activities, or working in the vicinity, can be exposed to harmful level of airborne silica.

## **HEALTH HAZARDS**

Crystalline silica dust can cause a disabling, sometimes fatal disease called silicosis. The fine particles are deposited in the lungs, causing thickening and scarring of the lung tissue. The scar tissue restricts the lungs' ability to extract oxygen from the air. This damage is permanent, but symptoms of the disease may not appear for many years.

There are three types of silicosis, depending on the concentrations of silica dust and the duration of exposure:

- Chronic Silicosis – develops after 10 or more years of exposure to crystalline silica at relatively low concentrations
- Accelerated Silicosis – develops 5 to 10 years after initial exposure to crystalline silica at high concentrations
- Acute Silicosis – develops within a few weeks, or 4 to 5 years, after exposure to very high concentrations of crystalline silica

Individuals with silicosis may have no symptoms at the beginning but as the disease progresses will start to show signs. Some of the symptoms of silicosis are:

- Shortness of breath
- Severe cough
- Weakness

These symptoms can worsen over time and lead to death. Exposure to silica has also be linked to other diseases, including bronchitis, tuberculosis, and lung cancer.



## **RESPONSIBILITY**

### **Project Management**

- Ensure that materials (e.g., tools, equipment, personal protective equipment) and other resources (i.e., employee training materials) required to fully implement and maintain the SCI Exposure Control Plan (ECP) are readily available where and when they are required.
- Job Hazard Analysis (JHA) and ECP for each project which outlines in detail the work methods and practices that will be performed. Considerations will include:
  - Scope and nature of work to be conducted
  - Control methods to be used
  - Level of respiratory protection required
  - Coordination plan
- Conducting a periodic review of the effectiveness of the ECP. This would include a review of the available dust-control technologies to ensure these are selected and used when practical.
- Initiating sampling of worker exposure to concrete dust when there are non-standard work practices for which the control methods to be used have not been proven to be adequately protective.
- Ensuring that all required tools, equipment, and personal protective equipment are readily available and used as required by the ECP and OSHA's standard 29 CFR 1926.1153.
- Ensuring supervisors and workers are educated and trained to an acceptable level of competency.
- Maintaining records of training, fit-test results, crew talks, and inspections (equipment, PPE, work methods/practices).

### **Superintendent and Foreman**

- Obtaining a copy of the ECP from Project Management, providing ECP to the job site.
- Selecting, implementing, and documenting the appropriate site-specific control measures.
- Perform / schedule air monitoring.
- Provide adequate instruction to workers on the hazard of working with silica containing materials (e.g., concrete) and on the precautions specified in the job-specific plan covering hazards at the location of work.
- Ensure that employees are using the proper respirators and have been fit-tested and results have been recorded.
- Direct the work in a manner that ensures the risk to employees is minimized and adequately controlled.
- Communicating with owner, contractor, and sub-contractor to ensure a safe work environment.

### **Employee**

- Knowing the hazards of silica dust exposure.
- Using the assigned PPE in an effective and safe manner.
- Setting up the operation in accordance with the site-specific plan.
- Following established work procedures as directed by the superintendent/foreman.
- Reporting any unsafe conditions or acts to the superintendent/foreman.
- Know how and when to report exposure incidents.

## **RISK IDENTIFICATION, ASSESSMENT, and CONTROL**

### **Employee Exposure Measurements**

SCI shall ensure that no employee is exposed to an airborne concentration of crystalline silica more than 50 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ), calculated as an 8-hour TWA (action level). Employees perform

tasks such as drilling, chipping, grinding, cutting, and sawing of concrete and concrete products without using effective dust controls are exposed to airborne silica in concentrations far above the PEL.

#### Risk Identification and Assessment

SCI Project Management shall identify work activities that would put workers at risk of exposure to silica dust. Some examples of work activities that are a risk of producing silica dust are:

- Excavation of rock
- Opening concrete bags
- Loading/hauling fill on site
- Cutting, sawing, grinding of concrete and concrete products
- Sweeping of roadways

#### Air Monitoring

If dust control methods are used which worker exposure data is not available SCI management may need to conduct air sampling to ensure that the control methods are adequate:

- If initial monitoring indicates exposures below the action level employers may discontinue monitoring unless circumstances change.
- Where most recent exposure monitoring indicates exposure levels at or below the PEL, SCI management shall repeat monitoring within six months of the most recent monitoring.
- Where the most recent exposure monitoring indicates exposure level is above the PEL, SCI management shall repeat monitoring within three months of the most recent monitoring.
- Where the most recent (non-initial) monitoring indicates exposures below the action level, SCI management shall repeat within six months of the most recent monitoring until two consecutive measurements taken seven or more days apart are below the action level. Now SCI management may discontinue monitoring until circumstances change.

Reassessment of exposure must be done whenever there is a change in production, process, control equipment, personnel, or work practices may be reasonably expected to result in new or additional exposures at or above the action level. Also, at any time SCI management has any reason to believe that a new additional exposure at or above the action level have occurred. SCI management will provide samples to a laboratory and provide, in writing, the results to the employees within five (5) working days.

#### **SPECIFIED EXPOSURE CONTROL METHODS**

SCI commits to developing knowledge and expertise about controls, and to establish policies/procedures to protect workers from harmful exposure and to minimize reliance on respirators. Effective engineering controls such as HEPA vacuum attachments and wetting methods, which control silica dust at its source are controls that have proven to reduce airborne dust levels significantly when selected and operated in accordance with best practices. SCI knows that engineering controls alone do not reduce airborne silica to safe levels; most cases other control measures, including respiratory protection, will be necessary.

SCI management will try to reduce or eliminate worker exposure to silica dust by selecting a combination of the following controls listed in order of preference:

1. Elimination and substitution
2. Engineering
3. Administrative
4. Personal protective equipment

### Elimination and Substitution

During the project planning phase, SCI will advocate for the use of methods that reduce the need for cutting, grinding, or drilling of concrete surfaces (e.g., formwork planning).

Whenever possible, SCI will schedule work when concrete is still wet to minimize the release of silica dust.

### Engineering Control of Dust

SCI dust control systems may employ three well established techniques:

- Local exhaust ventilation (LEV)
  - Vacuum attachment systems to capture and control the dust at its source.
  - Dust control systems used regularly and well maintained.
  - Grinding wheels operated at the manufacturer's recommended rpm (operating in excess can generate higher airborne dust levels).
  - High efficiency particulate air (HEPA) filter that is at least 99.97 percent efficient in removing mono-dispersed particles of 0.3 micrometers in diameter.
  - HEPA or good quality, multi-stage vacuum units approved for use with silica dust.
  - Work planning, so that concrete grinding can be completed when wet.
  - Good housekeeping.
  - Employees trained to properly use and maintain the equipment.
- Wet dust suppression (WDS)
  - Pneumatic grinders will be used instead of electric powered grinders if water is the method of control.
  - Pressure and flow of water will be controlled in accordance with tool manufacturers' specifications (for cutting saws, a minimum of 0.5 liters of water per minute should be used).
  - When sawing concrete or masonry only saws that provide water to the blade.
  - Wet slurry will be cleaned from work surfaces when the work is completed, using a wet vacuum or wet sweeping.
- Restricting or isolating the work activity with barriers or full enclosures (this may be the only option where LEV or WDS is not practical or effective).
  - Project supervision will determine the type and design of barrier or enclosure (based on the work activity and the work area) and ensure it is constructed in accordance with the work plan. Barriers may be simple hazard-flagging ribbon or more restrictive boarding.
  - Commercially available negative air units when constructing a full enclosure.

### Administrative Controls

Follow these safe work practices:

- Read exposure control plan and JHA prior to the start of work.
- Establish procedures for housekeeping, restricting work areas, personal hygiene, worker training, and supervision.
- During project planning assess when silica dust may be generated and plan to eliminate or control the dust at the source. Recognize that awareness and planning are key factors in the prevention of silicosis.
- Warning signs will be posted to warn workers about the hazards of silica and to specify any protective equipment required.
- Work schedules will be posted at the boundaries of work areas contaminated with silica dust.

## **SITE-SPECIFIC EXPOSURE CONTROL PLAN**

Project management on each SCI project will develop and maintain a site-specific exposure control plan in conjunction with a JHA to cover project specific issues (e.g., scope of work, project location, and site-specific hazards) and will be available at the worksite.

## **PERSONAL PROTECTIVE EQUIPMENT**

- Respiratory protection will be selected based upon the site-specific risk assessment.
- Only NIOSH-approved respirators will be used.
- Employees who wear respirators will be clean shaven. Filtering face piece respirators give little or no protection to users with beards, and even a minor growth of stubble can severely reduce the effectiveness of respiratory protection.
- All employees who wear respirators will be fit tested.
- Employees will be trained in the use of respirators, inspection, and maintenance.
- Employees will wear protective clothing as specified in project specified task-specific safe work procedures to prevent contamination of worker clothing. Employees will not use compressed air to clean themselves, their clothing, or their equipment.

## **EDUCATION AND TRAINING**

SCI employees who have the potential to be exposed to airborne silica dust will be trained in the following:

- Hazards associated with exposure to silica dust.
- The risks of exposure to silica.
- Signs and symptoms of silica disease.
- Safe work procedures to be followed (e.g., setup of enclosures, disposal of silica waste, personal decontamination).
- Use of respirators and other PPE (e.g., donning and doffing of PPE, cleaning and maintenance of respirators).
- Use of control systems (e.g., LEV and wet methods).
- When/how to seek first aid (location of eyewash stations).
- How to report an exposure to silica dust.

Records of training will be kept in compliance with OSHA regulations.

## **SAFE WORK PROCEDURES**

Safe work procedures and hygiene practices are on-the-job activities that reduce the exposure potential from contaminated surfaces and work areas. Silica can accumulate on the hands, clothing, and hair, from there it can be disturbed, re-suspended in air, and inhaled. Employees should therefore be able to wash and shower at the end of each shift. There should be no smoking, eating, or drinking in contaminated areas, and lunches should be stored in an uncontaminated area. It is important to follow safe work and hygiene practices whenever silica is present.

Safe work procedures must include task specific instructions, such as:

- Safe operation of all equipment, including dust control attachments and related equipment
- Setting up enclosures
- Vacuum maintenance
- Cleanup procedures
- Employee decontamination procedures (hygiene facilities to permit proper handwashing are a basic expectation under all ECPs)

## **HEALTH MONITORING**

Employees who are exposed to silica dust on an ongoing basis should be enrolled in a medical monitoring program, including physical examinations, chest x-rays, and lung function testing.

## **RECORDKEEPING**

Records must be kept and include the following:

- Scheduled monitoring results
  - This record shall include at least the following information:
  - The date of measurement for each sample taken;
  - The task monitored;
  - Sampling and analytical methods used;
  - Number, duration, and results of samples taken;
  - Identity of the laboratory that performed the analysis;
  - Type of personal protective equipment, such as respirators, worn by the employees monitored; and
  - Name, social security number, and job classification of all employees represented by the monitoring, indicating which employees were actually monitored.
- All workers who are exposed to respirable silica dust while on the job
  - The crystalline silica-containing material in question;
  - The source of the objective data
- Employee education and training sessions
- Respirator fit testing
- Equipment maintenance and repair
- Project inspections

The exposure control plan must be reviewed at least annually and updated as necessary by project management and SCI safety department.

## **TABLE 1: SPECIFIED EXPOSURE CONTROL METHODS**

For each employee engaged in a task identified on Table 1, SCI shall fully and properly implement the engineering controls, work practices, and respiratory protection specified for the task on Table 1, unless SCI assesses and limits the exposure of the employee to respirable crystalline silica in accordance with OSHA respirable crystalline silica standard 29 CFR 1926.1153 (d).

Equipment/Task	Engineering and work practice control methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hr/shift	> 4 hr/shift
(i) Stationary masonry saws	Use saw equipped with integrated water delivery system that continuously feeds water to the blade.	None	None
	Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.		
(ii) Handheld power saws (any blade diameter)	Use saw equipped with integrated water delivery system that continuously feeds water to the blade.		
	Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.		
	- When used outdoors	None	APF 10
	- When used indoors or in an enclosed area.	APF 10	APF 10
(iii) Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less)	For tasks performed outdoors only:	None	None
	Use saw equipped with commercially available dust collection system.		
	Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.		
	Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency.		
(iv) Walk-behind saws	Use saw equipped with integrated water delivery system that continuously feeds water to the blade.		
	Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.		
	- When used outdoors	None	None
	- When used indoors or in an enclosed area.	APF 10	APF 10
(v) Drivable saws	For tasks performed outdoors only:	None	None
	Use saw equipped with integrated water delivery system that continuously feeds water to the blade.		
	Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.		

Equipment/Task	Engineering and work practice control methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hr/shift	> 4 hr/shift
(vi) Rig - mounted core saws or drills	<p>Use saw equipped with integrated water delivery system that continuously feeds water to the blade.</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</p>	None	None
(vii) Handheld and stand-mounted drills (including impact and rotary hammer drills)	Use drill equipped with commercially available shroud or cowling with dust collection system.	None	None
	Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.		
	Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.		
	Use a HEPA-filtered vacuum when cleaning holes.		
(viii) Dowel drilling rigs for concrete	For tasks performed outdoors only:	APF 10	APF 10
	Use shroud around drill bit with a dust collection system. Dust collector must have a filter with 99% or greater efficiency and a filter-cleaning mechanism.		
	Use a HEPA-filtered vacuum when cleaning holes.		
(ix) Vehicle-mounted drilling rigs for rock and concrete	Use dust collection system with close capture hood or shroud around drill bit with a low-flow water spray to wet the dust at the discharge point from the dust collector.	None	None
	<b>OR</b>		
	Operate from within an enclosed cab and use water for dust suppression on drill bit	None	None

**Continued next page.**

Equipment/Task	Engineering and work practice control methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hr/shift	> 4 hr/shift
(x) Jackhammers and handheld powered chipping tools	Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact.		
	- When used outdoors	None	APF 10
	- When used indoors or in an enclosed area.	APF 10	APF 10
	<b>OR</b>		
	Use tool equipped with commercially available shroud and dust collection system.		
	Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.		
	Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.		
	- When used outdoors	None	APF 10
- When used indoors or in an enclosed area.	APF 10	APF 10	
(xi) Handheld grinders for mortar removal (i.e., tuckpointing)	Use grinder equipped with commercially available shroud and dust collection system.		
	Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	APF 10	APF 25
	Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.		

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Equipment/Task	Engineering and work practice control methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hr/shift	> 4 hr/shift
(xii) Handheld grinders for uses other than mortar removal	For tasks performed outdoors only:		
	Use grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface.	None	None
	Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.		
	<b>OR</b>		
	Use grinder equipped with commercially available shroud and dust collection system.		
	Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.		
	Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.		
	- When used outdoors	None	None
- When used indoors or in an enclosed area.	None	APF 10	
(xiii) Walk-behind milling machines and floor grinders	Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface.	None	None
	Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.		
	<b>OR</b>		
	Use machine equipped with dust collection system recommended by the manufacturer		
	Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.		
	Dust collector must provide the air flow recommended by the manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.		
When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes.	None	None	

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Equipment/Task	Engineering and work practice control methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hr/shift	> 4 hr/shift
(xiv) Small drivable milling machines (less than half-lane)	Use a machine equipped with supplemental water sprays designed to suppress dust. Water must be combined with a surfactant.	None	None
	Operate and maintain machine to minimize dust emissions.		
(xv) Large drivable milling machines (half-lane and larger)	<b>For cuts of any depth on asphalt only:</b>		
	Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust.	None	None
	Operate and maintain machine to minimize dust emissions.		
	<b>For cuts of four inches in depth or less on any substrate:</b>		
	Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust.	None	None
	Operate and maintain machine to minimize dust emissions.		
	<b>OR</b>		
	Use a machine equipped with supplemental water spray designed to suppress dust. Water must be combined with a surfactant.	None	None
	Operate and maintain machine to minimize dust emissions.		
(xvi) Crushing machines	Use equipment designed to deliver water spray or mist for dust suppression at crusher and other points where dust is generated (e.g., hoppers, conveyers, sieves/sizing or vibrating components, and discharge points).	None	None
	Operate and maintain machine in accordance with manufacturer's instructions to minimize dust emissions.		
	Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote-control station.		

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Equipment/Task	Engineering and work practice control methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hr/shift	> 4 hr/shift
(xvii) Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials	Operate equipment from within an enclosed cab.	None	None
	When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions.	None	None
(xviii) Heavy equipment and utility vehicles for tasks such as grading and excavating but not including: demolishing, abrading, or fracturing silica-containing materials	Apply water and/or dust suppressants as necessary to minimize dust emissions.	None	None
	<b>OR</b>		
	When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.	None	None

## ***SECTION 18***

### ***SAFE OPERATING PRACTICES FOR HOT MIX***

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#### **PURPOSE**

The purpose of this section is to provide safety and health guidelines to protect ORC. employees and other persons from injury and illness due to work activities involving hot mix asphalt.

#### **SCOPE**

This section applies to those operations involving hot mix asphalt (bituminous) mixtures and materials for construction and resurfacing. Safe work practices are included for the protection of ORC. employees and the public.

#### **RESPONSIBILITIES**

Project Supervision and the Site Safety Supervisor shall have the overall responsibility for policy and procedure compliance.

#### **PROCEDURE**

##### **A. Traffic hazards and Public Safety**

1. Interference with pedestrian and vehicular traffic shall be avoided wherever possible and shall be kept to a minimum in time and scope in instances it cannot be avoided. When interference results, a specific written traffic control plan and paving pattern shall be formulated and implemented.
2. In paving operations where roads for all residences and places of business are temporarily closed along the construction route, such roads shall be temporarily closed, or alternate routes established. All road closures shall be coordinated with affected personnel and/or emergency response organizations.
3. Equipment, material, and vehicles shall not be stored or parked as to encroach upon an operational traffic lane. Appropriate flashing lights or reflectors or barricades equipped with appropriate lights or reflectors for warning the public during times of reduced visibility shall be placed adjacent to the outer limits of such material, vehicles, or equipment stored or parked immediately adjacent to an operating traffic lane.
4. Fire hydrants in the work zone shall be made accessible always while work is being performed.
5. When working within railroad limits arrangements shall be made with the railroad for the construction, protection, maintenance, and removal of any railroad grade crossing.
6. Whenever hot mix construction is performed on or immediately adjacent to railroad tracks or crossings, the railways shall be notified in advance of the work to be performed.
7. Flaggers shall be provided to control traffic when paving operations are being performed near the tracks.
8. Only persons who are fully qualified by training and experience as to the operations being directed shall be used as flaggers.

##### **B. Traffic Hazards and Employee Safety**

1. Speed limit signs, warning signs, appropriate striping and barricades shall be used in accordance with practices prescribed in the *U.S. DOT Manual on Uniform Traffic Control Devices for Streets and Roadways* or applicable State Department of Transportation requirements to warn and control traffic. A competent person, designated by SCI Management, shall determine when

a employee shall be stationed in the general vicinity of the paving crew to assist traffic control and forewarn the crew of any approaching hazard. The employee shall be provided appropriate warning methods or devices considering the local environment.

### **C. Paving Crew**

1. All ORC. paving operations shall be covered by a written lockout/tagout plan, with proper instruction provided to employees.
2. ORC. employees exposed to vehicular traffic shall be provided with a high visibility garment. Class 2 high visibility garment or greater are the only authorized garments as defined by ANSI/ISEA 107-1999.
  - a. Class 2 garments: for daytime activities.
  - b. Class 3 garments: for nighttime activities.
    - i. If the high visibility personal protective equipment becomes faded, torn, dirty, worn, or defaced it shall be immediately removed from service and replaced (not visible at 1000 feet)
    - ii. Workers operating machinery or equipment in which lose clothing could become entangled during operation are exempt from this requirement. Such exempt workers will be required to wear other high visibility PPE (shirt or jacket).
3. Only qualified and trained personnel (in accordance with the manufacturer's programmed instructions and training materials, and who are authorized with direct responsibility for a piece of equipment) shall be permitted to operate the equipment.
4. All operating platform and walkways shall be kept clear of foreign objects.

### **D. Backing Vehicles**

1. A guide person shall be used to direct trucks that must back to the spreader or paver to discharge their loads. The guide person shall be positioned well within view of the driver of the truck.
2. The guide person shall not stand in the path of the traffic stream.
3. The guide person shall not ride on the running board of the truck.
4. The guide person shall keep all workers and other personnel clear of all backing vehicles.
5. The driver of the vehicle shall not discharge material until given an "all clear" signal by the guide person.
6. An audible warning device mounted on the vehicle shall be detectable by workers in the area and shall be sounded automatically while the vehicle is backing.
  - a. All vehicles shall be equipped with backup alarms and mirrors specified by the original equipment manufacturer's specifications.
7. All vehicles shall approach the paver slowly and with caution.

### **E. Vehicle Drivers**

1. ORC. and ORC. subcontractor drivers of all vehicles in and around the job site shall exercise due caution with respect to travel surface conditions or other vehicles and pedestrians.
2. Drivers shall operate vehicles at slow speed, not to exceed 10 miles per hour when in the immediate vicinity of the paving operations.
3. All ORC. drivers of vehicles shall have valid driver's license of the proper classification.

## F. Paving Site Illumination

1. The immediate work area (defined as truck to paver to last roller) lighting for night paving shall provide minimum illuminating intensity of five-foot candles unit at the road surface and place in a manner as to prevent/minimize glare.

## G. Equipment Hazards and Employee Safety

### 1. Machine Hazards

- a. ORC. Supervisors shall be responsible for training of employees in the various aspects of equipment and warning employees of potential hazards associated with the equipment.
  - i. Training shall include, but not limited to, hazards machine to ground contact pinch points, material feed augers and auger extensions, and high temperatures associated with asphalt paving materials.
  - ii. A copy of the equipment operating instructions shall be readily available to the equipment operator and kept with the equipment.
  - iii. ORC. shall maintain training records that all employees have been trained in accordance this section.
- b. Equipment shall be used and maintained properly to protect personnel from operating hazards. Appropriate warnings shall be exhibited for the life cycle of the equipment.
- c. Pavers shall be equipped with a loud acoustic signaling device.
- d. All guards and safety interlocks shall be properly installed and maintained in good condition. Guards and other safety devices shall not be removed except for maintenance or repair, and **NO** equipment shall be operated without guards in place.
- e. When maintenance work is performed, or guards removed the machine shall be shut down and the power locked out/tagged. All guards shall be replaced before any machine is returned to service.
- f. The asphalt paver shall be provided with warning signs (for the life of the machine) for hazards such as material feed augers, auger extensions, and hopper wings. Signs shall be in accordance with *ANSI/NEMA Z535.4, Product Safety Signs and Labels*.
- g. A means of communication shall be provided to permit the ground personnel to alert asphalt paver operator of an emergency operation.

### 2. Fire and Explosion Prevention

- a. Fire extinguishers shall be provided and in compliance with *NFPA 10, Standard for Portable Fire Extinguishers*, and *ANSI/AGA Z223.1, NFPA 54, National Fuel Gas Code*, where applicable:
  - i. Each asphalt paver and liquid asphalt distributor shall be equipped with a class ABC fire extinguisher.
  - ii. ORC. vehicles shall have fire extinguishers of proper type and size with them stored in a readily accessible location.
- b. Fuel storage tanks and containers shall be identified as to contents.
- c. Engines or burners shall not be refueled while in operation.
- d. ORC. operators shall be notified of the type of material last used in the tank and the type that is currently used. They shall be made aware of the flash point of types and grades of materials

handled and the hazards of transferring or dispensing of the material.

- e. ORC. liquid asphalt distributors shall have a temperature-indicating device permanently attached and capable of reading between 50 degrees F (10-degrees C) and 500 degrees F (260-degrees C).
    - i. The temperature-indicating device shall be maintained in good condition.
  - f. ORC. liquid asphalt distributors shall be equipped with temperature controlled thermostatic devices to prevent overheating.
  - g. When loading liquid asphalt distributor, allowance shall be made for expansion of material when heated.
  - h. ORC. asphalt pavers and liquid asphalt distributors shall be attended always when the burners are operating, or the engine is running.
  - i. If a ORC. employee's clothing has become contaminated with flammable or combustible liquids they shall not be allowed to work until they have changed into dry, clean work clothes.
3. Fall/Trip Hazards
- a. Means of access of mobile equipment shall be kept clean and clear.
  - b. ORC. employees shall use the equipment access systems provided to mount and dismount equipment. If possible three points of contact will be used when mounting/dismounting.
  - c. Hand tools such as rakes, shovels, etc., when not in use, shall be stored in designated areas and shall not be left in a position that may cause a tripping hazard.
  - d. Wooden floors in front of sprayers shall be covered with corrugated non-slip sheet metal.
4. Burn Hazards
- a. Equipment exhaust pipes that are readily accessible and exposed to contact shall be insulated or guarded.
  - b. All engines shall be enclosed or guarded to eliminate contact with the part that could cause burns.
  - c. All hoses and fittings shall be checked for wear and leakage in accordance with original equipment manufacturer instructions.
5. Dust, Gas, and Fumes Hazards
- a. Exhaust fumes and gases from internal combustion engines shall be discharged away from workers, working stations, and platforms.
  - b. Dust generated by hauling vehicles, public traffic, etc. shall be controlled by water sprays or other acceptable means when dust creates a hazard.
  - c. ORC. will use engineering controls (primary), administrative controls (secondary), or personal protective equipment (PPE) shall be used to maintain concentrations of asphalt type fumes below the recommended exposure limits.
    - i. If a respirator is required by this section it shall conform to Section 10.4-Respirator Program of this Safety, Health, and Environmental Plan.
6. Noise Hazards
- a. ORC. Supervisors will monitor equipment noise levels, if noise levels can produce injury

then the Supervisor shall provide hearing protection to the affected employees. Equipment shall not generate a time weighted average noise more than 90 dBA at the operator's station.

7. Personal Protective Equipment (PPE)
  - a. Refer to Section 10.12 – Personal Protective Equipment (PPE) for PPE requirements for all ORC. employees.
8. Sanitary Provisions
  - a. ORC. Supervisors shall ensure that the job site has adequate sanitary stations for the employees.
  - b. Drinking water shall be provided to ORC. employees.
9. Emergency Medical Response
  - a. The job site specific emergency action plan shall be readily available with the following information:
    - i. Chart with emergency phone numbers and location of first aid stations.
    - ii. Communication and transportation to effective care for the injured worker shall be provided and readily available.
    - iii. There shall be at a minimum two ORC. employees on the job site qualified to administer first aid, CPR, and AED.
    - iv. First aid kits shall be readily available in all ORC. Supervisor's vehicles and crew trucks.
10. Shutdown
  - a. All mobile equipment shall be properly shut down in accordance with the manufacture's instructional material and secured at the end of each day's operations.
  - b. Paving shall have such parts as the screen, hopper-wings, strike-off and edger plate placed in a safe location to prevent accidental movement.
  - c. All mobile equipment shall be parked in accordance with the manufacturer's instructions to prevent tampering.

## **H. Training**

1. All personnel involved in Hot Mix Asphalt Construction work shall be trained in the requirements of this program and regulatory requirements.
2. Training shall be performed before the employee is assigned duties.
3. Retraining will be performed whenever work site inspections conducted by the competent person or Health Safety Officer indicate that an employee does not have the necessary knowledge or skills to safely work in or around Hot Mix Asphalt construction.

Training records shall include the date(s) of the training program, the instructor(s) of the training program, a copy of the written material presented, and the name of the employee(s) to whom the training was given.