

DE-CAL, INC.

SAFETY MANUAL

TABLE OF CONTENTS

1. ORGANIZATION AND RESPONSIBILITIES
2. INCIDENT INVESTIGATION AND RECORD KEEPING
3. SAFETY COMMITTEE
4. EMPLOYEE TRAINING
5. JOBSITE SAFETY BRIEFINGS
6. MEDICAL SERVICES
7. JOBSITE INSPECTION
8. GENERAL SAFETY STANDARDS
9. FORMS AND DOCUMENTS
10. HAZARDOUS ENERGY CONTROL (LOTO)
11. PERSONAL PROTECTIVE EQUIPMENT (PPE)
12. CONFINED SPACE
13. FALL PROTECTION
14. RESPIRATORY PROTECTION
15. DRUG TESTING
16. WORKPLACE VIOLENCE
17. HARASSMENT / SEXUAL HARRASSMENT
18. LADDER SAFETY
19. ELECTRICAL SAFETY
20. HAZARD COMMUNICATION
21. HYDROGEN SULFIDE
22. HEXAVALENT CHROMIUM
23. NATURALLY OCCURRING RADIATION
24. LEAD IN CONSTRUCTION
25. SANDBLASTING AND SILICA
26. CADMIUM EXPOSURE AND COMPLIANCE
27. BENZENE IN CONSTRUCTION
28. BLOODBORNE PATHOGENS
29. FIRE PROTECTION
30. SCAFFOLD POLICY
31. OBSERVATION POLICY
32. WASTE MANAGEMENT
33. MANAGEMENT OF CHANGE
34. PROCESS SAFETY MANAGEMENT
35. MAINTENANCE PROGRAM
36. STEP BACK PROGRAM
37. AERIAL LIFT PLATFORMS
38. FIRST AID PROCEDURES
39. POWERED INDUSTRIAL FORK TRUCK
40. ASBESTOS IN CONSTRUCTION
41. OVERHEAD GANTRY CRANES / RIGGING
42. WORKING ALONE PROGRAM
43. HAND AND POWER TOOLS
44. TRENCHING – SHORING – EXCAVATION
45. NFPA 70-E
46. ARSENIC PROGRAM

47. COLD/HOT WORKING CONDITIONS
48. HEARING CONSERVATION PROGRAM
49. SHORT SERVICE EMPLOYEE PROGRAM
50. CRANE AND RIGGING PROGRAM
51. DISCIPLINARY PROGRAM
52. EMERGENCY ACTION PLAN
53. IONIZING RADIATION PROGRAM
54. RECORD RETENTION PROGRAM
55. SCAFFOLD PROGRAM
56. SUBCONTRACTOR MANAGEMENT PROGRAM

Section 1 – ORGANIZATION AND RESPONSIBILITIES

It is the desire of DE-CAL, INC. to protect employees from work-related injuries and illnesses. De-Cal is committed to providing a safe and healthy worksite and expect our employees to support and fully comply with the established safety policies and procedures. These policies and procedures have been implemented to ensure everyone's safety and well-being.

All of us have a responsibility to work safely. These responsibilities, as outlined below, must be understood and supported by all De-Cal employees to assure an effective safety program and safe circumstances.

THE GENERAL SUPERINTENDENT WILL:

1. Enforce this policy and discharge any employee willfully disregarding it.
2. Conduct safety inspections and file reports.
3. Establish procedures for treatment of injuries.
4. Establish a policy to have safe and healthful work and working conditions which are in compliance with all applicable Federal or State standards.
5. Provide the leadership and resources to carry out the stated company safety and health policy.
6. Set objectives and support safety personnel in their request for necessary information, training, experts, facilities, tools and equipment.
7. Assign effective jobsite supervision to undertake a leadership role in establishing an effective balance of safety and productivity.
8. Assign clear responsibilities, holding field supervision reasonably accountable for the actions of their workforce. Field supervision will be held responsible for completing a "Task Hazard Analysis", and to assure that it is followed during the course of the work-day.
9. Hold those with assigned responsibilities accountable by checking to make sure they are meeting those responsibilities, providing correction to those who do not and rewarding those who do.
10. Assure that the safety and health activities of employees, is consistent with De-Cal Company Policies and with project specific rules.
11. Set a good example by following safety and health rules and safe work practices.
12. Require all vendors, customers, subcontractors and visitors to comply with all De-Cal and project specific health and safety policies.

13. Have a thorough understanding of the hazards by creating a "Project Hazard Analysis" before any work begins. Use the information gathered in the analysis to identify and mitigate potential hazards.
14. Provide a reliable system for employees to report unsafe conditions to De-Cal management. Assure that concerns are being addressed appropriately, and in a timely manner.
15. Establish a system of documented inspections of all equipment on site.
16. Review accident reports to keep informed of accident causes and trends.
17. Provide a medical program, emergency response and first aid facilities which are adequate for the size and hazards of the worksite.
18. Establish training programs to improve the competency of all employees in recognizing and understanding hazards and how to protect themselves and others.
19. Review and distribute Safety Regulation updates to all sites. Incorporate and distribute all updates and revisions to this program to all sites.

SUPERVISOR WILL:

1. Be familiar with and enforce established safety procedures applicable to company operations on the jobsite.
2. Make available all necessary personal protective equipment, job safety materials and first aid equipment as necessary.
3. Instruct the workers in safe work practices as discussed in the Task Hazard Analysis.
4. Require all subcontractors to submit a Job Hazard Analysis, and to adhere to all safety regulations.
5. Make periodic job inspections, and document the inspections on the De-Cal site inspection safety form.
6. Develop a cooperative attitude toward safety by setting a good example.
7. Maintain an effective, positive line of communication regarding safety matters to the work force.

8. Ensure that all injured persons, regardless of how minor the injury, receive prompt and appropriate medical treatment. Assure that all injuries are documented and reported to the De-Cal Safety Department.
9. Ensure that prompt corrective action is taken whenever and wherever hazards are recognized or unsafe acts are observed.
10. Assure that employees are stopping work and asking questions whenever they are unsure of safety or compliance issues..
11. Assure that workers revisit the Task Hazard Analysis whenever the work or conditions change.
12. Filter all owner or owner representative driven rules or safety mandates so that workers can remain compliant.
13. **Actively discourage “short cuts”** and consistently and enforce safe work procedures and required mandates.

SAFETY DEPARTMENT WILL:

1. Review projects for hazards, and create a comprehensive Project Hazard Analysis, Lift Plans, Process Safety Analysis, or any other safety deliverables as necessary.
2. Provide direction as to safe work practices and / or proper PPE necessity and use.
3. Assure that all federally and state required postings are available when requested.
4. Research, review and interpret federal and state health and safety standards necessary for full compliance on request.
5. Investigate all accidents using root cause analysis. Create and provide reports to owners and or owners representatives as necessary.
6. Provide orientation, training and safety and health direction as necessary.

ALL CONSTRUCTION AND TRADE PERSONNEL WILL:

1. Report any unsafe condition, act or equipment to immediate supervisor.
2. Report all accident and injuries to the supervisor immediately.
3. Work according to the company and project safety rules to avoid endangering themselves, fellow workers or the public.

4. Use the required safety devices and proper personal protective safety equipment as required.
5. Thoroughly understand the work to be done and the safety precautions stated in the Job Hazard Analysis. Review and ask questions if you do not fully understand what is expected of you. Stop work if you are not completely sure of a safe outcome of your actions.
6. Assist in making the job as safe as possible. Watch out for others.
7. Learn and understand the rules, follow them and avoid “short cuts”.
8. Be certain that you completely understand instructions before starting work. Look for potential hazards as listed in the task hazard analysis.
9. Offer safety and health suggestions when such suggestions would reduce risk to workers.
10. Know the evacuation procedures as stated in the project orientation. Never leave the job site without telling your supervisor.
11. Follow all lock-out tag-out procedures as directed by your supervisor.

SUBCONTRACTORS WILL:

1. Follow all provisions of the safety program as it relates to the project.
2. Report any unsafe conditions or action.
3. Have available Material Safety Data Sheets (MSDS) for all material/ chemicals used on the jobsite that require a MSDS.
4. Submit a written Safety Program and Project Hazard Analysis to your controlling contractor before work begins. Update the hazard analysis as work tasks change and as the scope of work changes.

Authority to Stop Unsafe Work

Our jobs are typically multi-employer worksites. The procedure we use to cooperate with other contractors and inform all employees of potential hazards shall be coordination amongst employers. Caution will be taken so that one trade is not endangering the other. When multiple employers are tasked with working in the same space at the same time, coordination meetings will take place and the procedures will be thoroughly reviewed for the safest procedures.

As an employer we want to keep our employees fully informed of all Hazards. Our Job Site Supervisor/Competent Person will make frequent and regular inspections of the job site, materials, other workers and equipment, and ensure a Task Hazard Analysis is available at the worksite.

All Employees have the authority to stop work that they believe is unsafe to continue. If safety precautions and hazard mitigations are not in place, or not clearly understood, stop work immediately.

Supervision must be notified immediately if work is stopped.

Work will not resume until safety concerns have been properly addressed. (Stop, Notify, Correct, Resume)

All unsafe conditions and Stop Work interventions shall be documented.

A review will be conducted at the Monthly Safety Meeting for all Stop Work interventions so all interventions can be thoroughly followed up.

All employees are encouraged to bring up valid safety concerns and will not be reprimanded for stopping work due to an unsafe condition.

Section 2 – Accident / Incident Investigation and Record Keeping

Purpose

The purpose of the De-Cal, Inc. Accident Investigation Program is to investigate all accidents and near misses, to identify the root cause(s) and develop corrective actions that can be taken to prevent future occurrences. Assigning blame to employees is **not** the purpose of this program.

Scope

De-Cal, Inc. strives to provide all employees and on-site contractors with a safe and healthy workplace. This program is integrated into our company's written safety and health program and is a collaborative effort that includes all employees. The Program Administrator is responsible for the program's implementation, management and recordkeeping requirements.

A list of definitions is located in **Appendix A**.

Program Responsibilities

Management. The management of De-Cal, Inc. is committed to the accident investigation process. Management supports the efforts of the Program Administrator Steve Koralewski, Safety Director – De-Cal, Inc. by pledging financial and leadership support for the investigation of accidents and near miss events. Management supports an effective accident reporting system and responds promptly to all reports. Management regularly communicates with employees about the program.

Program Administrator. The Accident Investigation Program Administrator reports directly to upper management and is responsible for this policy and program. All evaluations, investigations, training and recommended solutions are coordinated under the direction of the Program Administrator in collaboration with management. The Program Administrator monitors the results of the program and determines additional areas of focus that are needed. The Program Administrator also:

- Ensures supervisors and employees are properly trained to conduct accident investigations
- Ensures a system is in place for employees to report accidents and near misses
- Ensures accurate records are maintained and provides documentation upon request
- Follows up on all corrective actions suggested during the accident investigation process
- Ensures approved corrective actions are implemented in a timely manner
- Conducts an annual review of the program

Managers and Supervisors. Managers and supervisors of De-Cal, Inc. are:

- Accountable for the health and safety of all employees within their departments through their active support of the accident investigation program
- Required to attend accident investigation training to familiarize themselves with the elements of the program
- Responsible for ensuring that employees under their supervision have received the appropriate training on accident and near miss reporting
- Responsible for initiating the accident investigation process within 24 hours of an incident
- Responsible for implementing approved corrective actions and ensuring they are completed appropriately through active follow-up

Employees. Every De-Cal, Inc employee is responsible for conducting himself/herself in accordance with this policy and program. All employees will:

- Attend accident and near miss reporting training
- Report all accidents and near misses as soon as possible to their supervisor, but no longer than two hours after the time of the incident

Check Your Understanding. Immediate accident reporting to a supervisor should be required of all employees. Shift Supervisors should contact the De-Cal, Inc. General Superintendent (Derek Eskew), and the De-Cal, Inc. Safety Director (Steve Koralewski) within the same shift. The accident investigation should be started as soon as possible after the incident occurs, once appropriate first aid and / or medical treatment has been rendered. At a minimum, the employee's supervisor, the Program Administrator and the affected employee should all be involved in the accident investigation. Others may become involved in the gathering and processing of information on contributing factors and determining corrective actions.

Reporting

All employees are required to report any accident or near miss to their immediate supervisor within two hours of the incident. The Accident Investigation Report Form (see **Appendix D**) is to be used by the supervisor to document the details of an accident or near miss and any proposed corrective action(s) for future prevention. Supervisors/Managers are to begin the accident investigation process within 24 hours of the initial incident. A copy of the initial report is to be forwarded to the Program Administrator within 48 hours of an accident or near miss. All employers are required to notify OSHA when an employee is killed on the job or suffers a work-related hospitalization, amputation, or loss of an eye. A fatality must be reported within 8 hours. An in-patient hospitalization, amputation, or eye loss must be reported within 24 hours. If local jurisdictional requirements differ from Federal OSHA requirements, then adhere to the more strict of the requirements.

Event Reconstruction

Check Your Understanding. In order to discover the root cause(s) of an accident or near-miss, you must reconstruct the chain of events and decisions that occurred prior to the incident. Hindsight is 20/20, so be open-minded because it's easy to jump to conclusions. Be sure to focus on the events that **did** happen instead of those that were supposed to happen.

Interviews. Within 24 hours, the manager or supervisor of the employee who was involved in the accident or near miss will begin interviewing employees who were involved or in close proximity to the incident, or who are familiar with the related process or work practices. All individuals will be interviewed separately. A minimum of two people must be interviewed for any accident or near miss reported if possible.

Event Timeline. An event timeline will be developed for each reported accident or near miss. This timeline will start with the accident or near miss and be developed **in reverse** using information obtained from the interviews. Each task, event and employee decision that took place are to be added to the timeline. Also, the timeline will include all physical and emotional conditions known at the time of each action, event or decision along with the employee's knowledge, motivation, goals and focus at the time of any action, event or decision.

Check Your Understanding. Of all operation failures, approximately 10 percent are equipment failures and 90 percent are due to human error. Of those human errors, 30 percent are a result of mental lapses that cannot be remedied and 70 percent are due to a problem or conflict within the system/process. Therefore, unless an incident can be solely attributed to equipment failure, the investigation should focus on the **process** and what changes could be made to limit the impact of human error.

Identifying Root Cause(s). After the timeline has been established, the investigator(s) will identify the root cause(s) that contributed to the accident or near miss.

Check Your Understanding. It is extremely rare for just one contributing factor or root cause to be solely responsible for an accident or near miss. Accidents are caused by a series of many actions, decisions and conditions that existed in a particular arrangement. Develop your reconstruction of events based on statements taken during employee interviews. More than one employee will likely need to be interviewed to get the entire story. It should be understood that individual perspectives will vary, so each employee's "facts" may be slightly different as well. To determine the contributing factors of the accident or near miss, you need as complete a story as possible.

Check Your Understanding. Many tools are available for identifying the root causes of workplace incidents. For all practical purposes, the “5 whys” is the method that De-Cal, Inc. will use to identify the reasons for Near Miss or Incident investigation. In this question-asking technique, the investigator asks the same question repeatedly – usually “What caused or allowed this condition/practice to occur?” or simply “Why?” – until the root cause(s) are found. The example below illustrates how the 5 whys might be applied to an incident.

Incident: While repairing a press, Bob suffered an injury to his finger when it started unexpectedly.

1. **Why was Bob’s finger injured?** The ram on the press he was repairing unexpectedly came down.
2. **Why did the ram on the press come down?** Another employee started up the machine without realizing Bob was in the danger zone. Bob had shut down the machine, but not performed an energy lockout so there was still power to the ram.
3. **Why didn’t Bob perform an energy lockout?** The machine wasn’t locked out because there is no company lockout/tag-out program. Bob has never been trained on hazardous energy control because management thought it was too expensive.

Root causes: Lack of lockout/tag-out program, lack of employee training on hazardous energy control and poor safety leadership as demonstrated by unwillingness to spend money on employee safety training.

Recommending Specific Solution(s). After the root causes are identified, corrective actions will be identified to reduce or eliminate those hazardous conditions. The manager/supervisor and employees will develop and propose specific improvements that are operationally feasible. Those possible improvements will be submitted to Steve Koralewski for validation, final approval, and guidance for an implementation strategy.

When selecting and recommending these corrective actions, possible solutions will be prioritized using the following hierarchy. In this hierarchy of hazard control, the most desirable solutions come from the first level, with the following levels offering increasingly less desirable options.

1. Elimination – eliminating the hazard from the workplace
2. Substitution – replacing a hazardous substance or activity with a less hazardous one
3. Engineering controls – providing guards, ventilation or other equipment to control the hazard
4. Administrative controls – developing policies and procedures for safe work practices
5. Personal protective equipment – using respirators, earplugs, safety glasses, etc.

Recommended corrective actions will come from the highest possible level of the hierarchy of hazard control.

Monitoring Changes. Once implemented, corrective actions will be monitored by the manager/supervisor for effectiveness, to verify that net risk is not increased and to determine that the root cause of the incident has been eliminated or reduced. The manager/supervisor will conduct follow-up interviews with employees who were part of the accident investigation to determine if the implemented corrective actions require any adjustments to provide maximum safety to the employees.

Employee and Supervisor Training

New and previously untrained employees will receive training about this program and how it will be applied when investigating near misses and accidents. Employees and supervisors will receive refresher training at least every five years. Upon hire or promotion into their position, managers and supervisors will be trained on The De-Cal, Inc. investigation philosophy and the methods that should be used to conduct an accident investigation according to this program.

The minimum training for all employees will include the following elements:

- An explanation of the Accident Investigation Program and their role in it
- An emphasis on the importance and method of prompt reporting of accidents and near misses
- Review of the accident investigation form, with emphasis on determining contributing factors and corrective actions

Periodic Program Review

At least annually, the Program Administrator will conduct a program review to assess the progress and success of the program. The review will consider the following:

- Evaluation of all training programs and records
- The need for retraining managers, supervisors and employees
- The length of time between accidents, investigations and implementation of corrective actions
- The program's success based upon comparison to previous years, using the following criteria:
 - Frequency of accidents and near misses
 - Frequency of workers' compensation claims
 - Insurance carrier's loss analysis
 - Employee feedback through direct interviews, walk-through observations, written surveys and questionnaires and reevaluations

The annual review report will be submitted to senior management using the form in **Appendix B**.

Record Retention

De-Cal, Inc. will maintain the information from accident investigations and training records for 30 years. All accident investigation records will be kept by the Program Administrator.

Check Your Understanding. There are currently no requirements for accident investigation report retention. Your company must determine the time period for record retention for your program.

For comparison, other types of records (such as medical records and workers' compensation information) are typically retained in the employee's personnel file. This information is kept for 30 years past the employee separation date.

Revision History

2/2015
10/2015
10/2016

Appendix A – Definitions

Accident – An undesired event that results in personal injury or property damage.

Administrative (or Work Practice) Controls – Procedures that are used to reduce the duration, frequency or severity of exposure to a hazard. These may include work methods training, job rotation and gradual introduction to work.

Engineering Controls – A method of eliminating or reducing the quantity or severity of job risk factors by redesigning equipment, processes, tools and workstations.

Near Miss – An incident where no property was damaged and no personal injury sustained, but where damage and/or injury easily could have occurred given a slight shift in time or position.

Personal Protective Equipment (PPE) – Gloves, kneepads and other equipment worn by employees that may help reduce hazards until other controls can be implemented, or to supplement existing controls.

Root Cause – A condition that contributes to an incident or near miss. They are not always obvious, and may include items like lack of training, poor safety leadership, lack of rule enforcement or poor safety procedures.

Appendix B – Annual Evaluation Report

Date of Evaluation:	Evaluated By (list all present):
Written Program Reviewed: Yes No	
Do completed accident investigation records indicate a need for additional manager, supervisor or employee training on the accident investigation program? Yes No	
Is there any record of excessive time between: 1. An accident and completion of the accident investigation? Yes No 2. Determining corrective actions and implementation of those controls? Yes No 3. The beginning and completion of implementation of controls? Yes No If yes, what corrective action is needed?	
The following content was added/modified/removed from the written program:	
Comments:	

Appendix D – Accident Investigation Report

Accident/Incident Information	
Name(s) of Injured Employee(s):	Date of Accident/Injury/Illness:
Work Area of Injured Employee(s):	Date Investigation Began:
Describe Nature of Accident, Injury or Illness:	
Part(s) of Body Affected:	
Describe Medical Treatment Administered:	
Witness Information	
Witness #1 Name:	Phone:
Witness's Description of Accident/Incident:	
Witness's Signature:	
Witness #2 Name:	Phone:
Witness's Description of Accident/Incident:	
Witness's Signature:	

Investigation Results

List contributing factors/root causes:

Section 3 – Safety Committee

THE SAFETY COMMITTEE

De-Cal, Inc. has an active Safety Committee. The members of this committee will be:

- President
- Vice President of Operations
- General Superintendent
- Head of Industrial Division
- Corporate Safety Director
- Safety Officers

- Alternating trade Representative (1)

- Outside Safety Consultant(s) as needed

The Safety Committee will meet the first Tuesday of each month. It will be the purpose of the committee to determine ways to effectively conduct the safety program and determine methods to reduce accidents.

Section 4 - Employee Training

A key part of the DE-CAL, INC. Safety Program will be to educate employees about the hazards associated with their jobs and how to work safely.

Each new employee will be given a basic briefing by his/her supervisor prior to starting work. It will be the responsibility of the supervisor to insure all employees receive this briefing at the jobsite. The safety briefing must include (but not limited to) the following items:

1. The Safety Policy of the Company.
2. The requirement for wearing personal protective equipment.
3. What to do when an injury occurs.
4. Recognition and avoidance of unsafe conditions on the jobsite.
5. The requirement for only using standard tools and work procedures. (“Jerry-rigged” tools, equipment, ladders and scaffolding will not be permitted.)
6. A copy of the general safety standards to be given to each employee. (See Section VIII of this program)
7. A “New Hire” Orientation reviewing OSHA Construction Safety requirements.
8. Instruction on location and use of Safety Data Sheets required under Hazard Communication – Right-to-Know regulations.

Section 5 – Jobsite Safety Briefings

Each jobsite supervisor will be responsible for conducting a short (5 to 10 minute) safety briefing daily

The safety briefing will be made to all employees who are available. The briefing should cover standard safe work practices related to the type of work being done at the jobsite. Maximum use of “ACCA or MCAA Toolbox Safety Talks” and ACCA or MCAA safety videos which run 5 minutes in length should be made. Any new or revised Material Safety Data Sheets should be reviewed.

A record of safety briefings should be kept at the jobsite office and with the supervisor to document safety training provided to employees.

Section 6 – Medical Services

Each jobsite will have available adequate first aid equipment to meet the need of the number of workers normally present at the jobsite. It will be the responsibility of the supervisor to inspect and maintain the first aid supplies weekly to ensure that the supplies and equipment meet the minimum standards.

When a jobsite is established and prior to start of work, the Supervisor will make arrangements with the nearest suitable medical facility to accept and treat personnel who are injured or need medical attention beyond the requirements of the first aid kit. The telephone number of this facility will be listed on the emergency telephone list to be posted near the telephone in the jobsite office or in the job trailer.

It is the policy of the Company that jobsite supervisor be qualified in first aid treatment and CPR and have a current first aid/ CPR card in their possession.

Section 7 – Jobsite Inspection

Each supervisor will conduct a thorough safety inspection of the entire jobsite at least weekly. The checklist to be used for this inspection is found in Section IX of this Safety Program. (Job Inspection Form)

Copies of each checklist with notes on the conditions found will be kept on file in the safety folder at each jobsite with a copy sent to the office.

Management may request an outside Safety Engineer to conduct safety surveys of jobsites. During these surveys, a simulated MIOSHA inspection will be given to the Supervisor. Reports of these safety surveys will be kept in the safety folders and/ or in project file in the office.

OSHA/ MIOSHA INSPECTION

When an OSHA / MIOSHA inspector comes onto the jobsite, these procedures should be followed:

1. The Supervisor should notify the Corporate Safety Director.
2. If available, someone from management should go to the jobsite/ customer's facility to meet and accompany the OSHA / MIOSHA representative during the inspection. Otherwise, the supervisor acts as the company's designated representative.
3. The designated company representative should meet with the OSHA / MIOSHA Compliance Safety and Health Officer (CSHO) during the opening inspection conference to
 - Verify the officer's credentials and
 - Find out the purpose of the inspection
4. The designated company representative should accompany the CSHO during the inspection of our portion of the project.
5. The designated company representative should attend the closing conference.
6. All inspection results should be reported immediately to the Corporate Safety Director, and all other appropriate company authority.
7. The designated company representative should take all steps to correct all deficiencies cited in the inspection report as soon as possible.
8. When all deficiencies are corrected, the designated company representative should notify OSHA / MIOSHA and the company's insurance carrier.

INSPECTION/TEST REPORT

Documentation of the quality of work is an important function of the field supervisor. Good quality workmanship is always the objective in De-Cal, Inc. Every effort is made to complete projects in a timely and cost-effective manner. Proper documentation of this effort is a vital part of the process.

To properly document results of our inspections and test, De-Cal, Inc. has developed a standard test form. Note: Often contract documents dictate the use of customer provided forms to report these results. It is the responsibility of the Project Manager to review the specifications of the customer to determine if a customer form is required.

The Project Foreman, in cooperation with the Project Manager, needs to log and complete the desired test reports. The Project Manager will then transmit the results to the customer for their records, and a copy will be retained in the De-Cal file.

All test procedures shall be in accordance with the requirements of the Contract Specifications. And a complete set of records shall be maintained of the testing of each system.

The Inspection Test Report can be used as a Customer Acceptance form when final inspection of that system takes place. The Inspection/Test Report can also be used by the Quality Assurance Inspector to check progress and to monitor quality during the installation of an individual system.

Section 8 – General Safety Standards

GENERAL SAFETY STANDARDS FOR CONSTRUCTION WORKERS

THE GENERAL SAFETY STANDARDS AND PROCEDURES LISTED BELOW ARE FOR YOUR PROTECTION AND ARE PROVIDED SO THAT YOU CAN WORK WITHOUT INJURY BECAUSE YOU KNOW HOW TO WORK SAFELY.

THE SUPERVISOR ON THIS JOB WILL ENFORCE THESE STANDARDS.

Before work commences, a Job Hazard Analysis will be completed to address all safety hazards and precautions taken.

Task Hazard Analysis

1. All projects will be reviewed for hazards before work begins. A “Task hazard Analysis” will identify all tasks and the potential hazards associated with them. If the work method or procedure changes, the work will stop and a revision to the “Task Hazard Analysis” will be completed and reviewed by all personnel involved in the procedure.

Multi Gas Meters

1. Properly calibrated “Multi Gas Meters” will be bumped before use. “Multi Gas Meters” will be used to test the atmosphere within Confined Spaces before entry, and throughout the entry process. Meters will also be used to test atmospheric conditions within pipes and tubing before they are subjected to cutting and / or welding.
Calibration logs will be kept to document all calibration testing.

Illumination

1. The illumination standards contained within OSHA 1926.56 will be maintained on all De-Cal, Inc. construction projects, either through the use of natural lighting, or through the use of artificial lighting. Task specific lighting will be made available if lighting parameters cannot be met in any other way.

Masonry in Construction

1. De-Cal Personnel will follow the safe work practices as described in Part 2 of the Masonry Wall Bracing Standard 408.40206. “Restricted Zone Requirements”.

Emergency Action plan

1. A site specific “Emergency Action Plan” is created for every De-Cal, Inc. project, and contains site specific protocol specific for each project.

Heat and Cold Stress.

1. Employees are monitored by supervision who are trained to recognize the early stages of stress due to extremes in temperature. Water and electrolytes are provided as required. Cooling and warming stations are also provided as required.

Excavating

1. Agencies such as "MISSDIG are called before any excavation begins. Underground Utilities are located and marked, hand digging is required when excavating near known excavations.

Safety Equipment and Clothing

1. ANSI Z87.1 approved hard hats shall be worn at all times while on the job. (The supervisor may designate areas where hats are not required.) All hardhats shall display the employee's name and decal indicating whom the employee works for.
2. All DE-CAL employees are required to wear safety glasses that comply with ANSI Z87.1. Dark lenses are not to be worn inside of buildings, in enclosed areas, and at night.
3. All workmen shall wear clothing appropriate to the duties performed. Large pockets, exposed watch and key chains, cuffed trousers, and torn clothing are dangerous and should not be worn around machinery or when climbing ladders or working on structures.
4. Only substantial, heavily soled shoes or boots shall be worn on the job. Some jobsites specifically require metatarsal boots to be worn. Do not wear low-cut shoes, unless they are the type designed for construction work. Safety-toe boots are recommended for all construction workers.
5. Leather or leather-palmed gloves shall be worn when handling rough or sharp-edge material or lumber with splinter and projecting nails. Gauntlet gloves are not recommended except for welders, and other specific operations where workmen are subject to possible wrist burns by hot metal, acids, chemicals, cement or lime.
6. Oxyacetylene welding, soldering or cuttings without proper cup-type goggles with impact-resistant filter lenses and clear cover glass is prohibited. The filter lenses must have a shade number appropriate for the work being performed.
7. Electric arc welding or cutting without a helmet equipped with appropriate filter lens and clear glass is prohibited.
8. Fire resistant gauntlet gloves shall be worn when chipping or grinding concrete or at any time supervisor designates.
9. Where workers are performing work over their heads, or work that could potentially cause materials to become flying or falling objects such as, but not limited to chipping, welding, grinding, cutting, and chiseling, they shall utilize a face shield in addition to safety glasses. A face shield shall be worn using powder-actuated tools. Enclosed goggles shall be worn in place of glasses if employees are exposed to dust that could blow into their eyes. If dust is accompanied by projectile particles, a face shield shall

be worn over the goggles. All forms of eye and face protection shall be maintained dry, clean, and free of scratches and defects that could impair vision.

FIRE PREVENTION

1. Do not leave fuel cans near combustible material or adjacent to areas where welding, soldering and cutting are performed. If you see any, move them.
2. All firefighting equipment must be clearly visible. Never place obstructions in front of hose boxes or extinguishers.
3. Fire-fighting equipment is to be used for that purpose only.
4. Travel distance to a fire extinguisher must not be more than 100 feet.
5. Portable fire extinguishers must be inspected monthly. The documentation must be a weather resistant tag attached to the extinguisher.
6. A 20lb ABC dry chemical fire extinguisher or equivalent must be provided for each 3,000 square feet of protected building area.
7. Combustible materials, such as cardboard, wooden pallets, etc., must be removed from the work area immediately.

FLAMMABLE AND COMBUSTIBLE LIQUIDS

1. Flammable and combustible liquids must be stored in approved safety cans. A safety approved can is a closed container, not more than 5 gallons, with a flash-arresting screen and a spring closing lid.
2. Indoor storage of flammable or combustible liquids in excess of 25 gallons must be stored in an approved cabinet
3. Outdoor storage areas must not exceed 1,110 gallons and must be graded in a manner to divert any spills away from a building.
4. Portable storage tanks shall not be closer than 20 feet from any building. Two or more tanks, grouped together having a combined capacity in excess of 2,200 gallons shall be separated by a 5 foot clear area.
5. Within 200 feet of each tank, there shall be a 12-foot wide access way to permit approach of fire control apparatus.
6. An outdoor storage area for flammable or combustible liquid shall be kept free of weeds, papers, debris, and other combustibles not necessary to the storage.

7. At least one 20lb. ABC dry chemical fire extinguisher (or equivalent) must be located within 25' to 75' of an outdoor storage area.
8. LPG or compressed gas cylinders must never be stored inside buildings with an approved plan be DE-CAL, INC.

TEMPORARY HEATING DEVICES

1. Heaters used in the vicinity of tarpaulins, canvas or similar coverings must be located at least 10 feet from the covering, and must be secured as to prevent ignition due to wind.
2. Open fires are not allowed
3. Solid fuel salamanders are not allowed in buildings or on scaffolds

Tools & Equipment

1. Hammers or striking tools with chipped cutting edges, mushroom heads, or split handles shall not be used.
2. Avoid flash burns from arc welders. Do not watch welding flash or be De-Calnually exposed to direct flash without proper safety equipment.
3. Only designated persons who have been instructed and trained in their safe use shall use power-activated tools.
4. Safe operating instructions issued by the individual manufacturer shall be complied with.
5. Only trained and authorized persons shall be allowed to operate or ride on trucks or other equipment to include Forklift, Aerial platforms and Cranes. Authorized persons shall be knowledgeable on brand specific equipment.
6. Compressed air shall not be used to blow dirt from clothing, played with, or blown at another person.
7. All safety devices such as chain guards on machinery shall be kept in place at all times except when making repairs.
8. Machinery shall not be repaired or maintained while in operation.

9. Do not use defective ladders such as split rails, rungs missing. All ladders must be tied off and the base nailed or blocked.
10. Do not use any defective tool or equipment. If you are in doubt, check with your supervisor.
11. Provide approved ground fault circuit interrupters on all temporary power.
12. Compressed gas cylinders shall be maintained in a secured upright position.
13. Machinery or equipment requiring an operator shall not be permitted to run unattended. Where practical, equipment left unattended shall be locked to prevent starting by unauthorized persons.
14. Machinery or equipment shall not be operated in a manner that will endanger people or property nor shall the safe operating speeds or loads be exceeded.
15. Machinery and equipment shall not be operated in a position where any part of the machine, suspended loads or lines can be brought closer than ten (10) feet from exposed high voltage, (440 volts or higher) lines unless the current has been shut off and positive means taken to prevent the lines from being energized.
16. All machinery and equipment shall be shut down and positive means taken to prevent its operation while repairs, adjustments or manual lubrications are being made.
17. All repairs on machinery or equipment shall be made at a location which will provide a safe place for repairmen.
18. Contractor's vehicles – every person regularly or occasionally operating a contractor's motor vehicle shall have in his possession at all times while operating such a vehicle an applicable valid State motor vehicle operator's license.
19. Getting off or on any equipment while it is in motion is prohibited.
20. When using another company's equipment, i.e. ladders, scissor lifts, it should be inspected or checked by supervision.
21. Job sites, materials and equipment shall be inspected frequently by a competent person(s).

Work Procedures

1. Horseplay or practical jokes are forbidden on the job.
2. RIDING MATERIAL HOIST PLATFORM IS PROHIBITED AND PERSONS DOING SO ARE SUBJECT TO DISMISSAL FROM THE JOBSITE.

3. Do not step from one elevation to another with heavy loads.
4. The practice of throwing tools from one location to another, from one employee to another or dropping them to lower levels shall not be permitted. When necessary to pass tools or materials under the above conditions, suitable container or ropes shall be used.
5. Sharp edges or pointed tools shall not be carried in workmen's pockets.
6. No open fires will be permitted too close to buildings containing combustible materials.
7. There is no job that requires running. **WALK - DO NOT RUN!**
8. Do not go up or down a ladder without the free use of both hands. If material or tools have to be handled, use a rope to lift or lower them. Always face the ladder when climbing or descending.
9. Any employee found intoxicated, under the influence of drugs, or with alcoholic beverages or drugs in his possession while on duty will be subject to discipline.
10. All safety devices, guard rails, floor hole covers, and machine guards are not to be removed except with the knowledge and approval of the supervisor.
11. All nails remaining in used lumber will be removed or bent over.
12. Keep your work area clean. Remove trash as you work.
13. Help your own safety and the safety of others – when you see a safety hazard, correct it immediately or call it to the attention of your supervisor.

Golf Carts or Personnel carriers

- Golf cart operators shall yield the right of way to all other vehicular and pedestrian traffic.
- All golf carts shall be operated in a safe and courteous manner.
- All individuals operating a golf cart shall adhere to the Plant or Project speed limits.
- No more than (2) people are permitted to ride in a golf cart unless an additional seat has been provided.
- Golf carts are intended for people and small tools.

Housekeeping

- Everyone must do their part in assuring that good housekeeping practices and principles are maintained.

- All walking, working surfaces and stairwells shall be maintained clear of debris and trash accumulation.
- Discard all trash and scrap materials in the proper locations.
- Keep tools, equipment, and materials clear of all walkways and work areas to avoid tripping hazards.
- Clean up work area and put all tools away at the end of each shift.
- Storage areas vaults and trailers are also to be well maintained.
- Nails must be removed from lumber or bent down flush with the surface
- Contractors must maintain aisle ways for egress and fire lane.

Ladders

- Ladders are provided in three classifications. They are light duty, medium duty, and heavy duty. Each classification is gauged by a weight restriction. Check the classification before using any ladder.
- Ladders must be properly constructed, kept in good repair, and inspected before each use.
- Extension ladders must extend 36" above the landing and be secured at the top and at the bottom.
- Stepladders must be tall enough to eliminate the need to stand on the two- (2) top steps.
- All ladders shall be equipped with non-skid safety feet.
- Only approved fiberglass or wooden ladders are permitted on the project.
- The use of aluminum ladders is strictly prohibited.
- Ladders that are defective will be tagged and removed from the project site.
- Stepladders are not to be used as an extension ladder.
- Employee shall not sit on a stepladder or straddle the stepladder.
- Work performed on a ladder within 6 feet of a leading edge requires 100% tie-off.
- Work performed on a ladder over 6' feet requires 100% tie-off or use an alternate method

First Aid

1. Injuries sustained while on duty shall be reported to the job supervisor immediately or as soon as possible after injury.
2. First aid must be obtained immediately after injury is sustained.
3. All employees shall report to a doctor when instructed to do so by the jobsite supervisor following an injury.

Aerial Lift Operations OSHA 1926.453

- Only trained and certified employees may operate an aerial lift.
- All employees in an aerial lift must wear a full body harness with a shock-absorbing lanyard tied off to a manufacturers approved tie-off point.
- Aerial Lifts must pass a daily inspection before use. Use appropriate form from section IX.
- Manufacturer's restrictions shall be strictly followed.

Pre Task Assessments:

All jobs are required to have a pre task assessment or job hazard analysis which identifies all health and safety hazards and the methods utilized to mitigate these hazards. Hazards may include, but are not limited to; fall hazards, respiratory hazards, chemical exposure, pinch points, manual lifting, excessive noise, energy exposure, fire, working above, etc.

Incident Evaluations:

Any injury, near miss, or property damage incident will be investigated to determine a root cause. Measures will be put in place to prevent similar incidents in the future.

Confined Space Entry OSHA 1926.21

There are two types of confined space.

- A Permit Required Confined Space – i.e. a vessel, pit, duct, manhole or other closed or semi-closed space not intended for De-Calnuous human occupancy.
- Non-Permit Required Space –Large excavations and trenches that have De-Calnuous air exchange without restrictions.
- Only trained personnel shall enter a permit-required Confined Space.
- Consult your supervisor before performing any work in a confined space.

Electrical OSHA 1926.404

- Only qualified electricians shall be permitted to perform electrical work and repair.
- Ground-Fault Circuit Interrupters (GFCIs) shall be in place and functioning at all times. 50' foot rule shall apply. (GFCIs) are required every 50' or at the end of longer extension cords.
- Electrical cords and tools shall be inspected for defects before each use.
- Damaged and Defective cords shall be removed from service immediately.
- Temporary electrical boxes shall be installed at least 36 inches from the floor.
- Temporary lighting shall be provided in all working and walking areas to comply with OSHA regulations.

Environmental Protection - OSHA 1926.59

- All Employees and Contractors on site shall become familiar and comply with the project specific methods for controlling environmental issues.

Fall Protection OSHA 1926.500

- Employees working at elevations six (6) feet or above and not protected by a guardrail system are required to use 100% fall protection. 100% Personal Fall Protection is a full body harness with shock absorbing lanyard.
- Work performed at leading edges above six (6) feet required 100% fall protection.
- All floor openings and holes shall be securely covered with material designed to support the anticipated load. Floor covers shall be marked with orange paint "Floor Hole – Keep Off."
- Pits, trenches, and floor openings shall be barricaded or covered.
- Fall Protection will be required for fall exposures less than six (6)-feet, where employees are exposed to moving equipment, working over equipment, vats or other objects posing a safety hazard.
- The 100% fall protection requirement also applies to steel erection activities.

Hazard Communication OSHA 1926.52 (Haz-Com)

- Material Safety Data Sheets (MSDS) are required and must be readily available for all hazardous materials.
- De-Cal will train its employees before the material or chemical is used on-site.
- Project Management will maintain a current inventory of all materials. The MSDSs will be maintained at (the site trailer).
- Subcontractors shall maintain a MSDS file for all hazardous materials they bring on site. Copies will be sent to Host employer or contractor.
- All hazardous materials should be in a properly labeled, appropriate container.
- Employees will be trained on the safe use of hazardous materials in their work area.
- Subcontractors must train all employees on hazard communications and document that training was provided.
- PPE must conform to requirements of the MSDS.

General Waste Management

- Project wastes, trash, and/or scrap material disposal needs to be considered before job commences.
- Every attempt should be made to minimize impact on environment when handling and disposing of waste. This includes segregating wastes such as scrap and cardboard for recycling when feasible.
- Employees will be made aware of the proper methods for disposing of waste according to State, Federal, Local, and Host Facility requirements.

Lock-Out/Tag-Out OSHA 1926.400

All Projects shall develop a Project specific LO/TO incorporating the Clients program the De-Cal program and/or as directed, subcontractors program.

LO/TO includes electrical, pneumatic, steam, fluid, hydraulic, particulates and stored energy.

The basic Lockout Procedure below will be followed to protect workers from sustaining injuries because of the inadvertent release of energy

1. Identify Power Source(s)
2. Lock-Out and Tag out and Block Power Source(s)
3. Process to install Lock and Tag
 - Locks and Tags should be used when working on equipment to be cleaned, repaired, inspected, and/or physically altered.
 - Locks and Tags must be identifiable with Employee name, Company Name, and Contact Number.
 - Contractors will train their employees in the complete Lockout procedure prior to commencing work.
 - Test the system to ensure it has been de-energized)
4. Remove Lock and Tag.

Lifting

- Objects over 50 pounds may be too heavy to lift alone. Always ask for help or use a handcart or other manual lifting equipment.
- Objects less than 50 pounds may be too awkward to lift depending upon size and shape; always ask for help or get a handcart.
- If you are currently under any lifting restrictions, notify your immediate supervisor.
- Always lift with your legs, keep your back straight and avoid twisting while lifting.
- Any injuries caused by improper lifting techniques shall be investigated to determine better methods of lifting and improve work procedures.

Material Handling - OSHA 1926.25

- All bagged materials, block, brick, bolts etc. shall all be stored on skids, pallets or cribbing. When hoisting this material contain it within an approved enclosed container.
- At no time are these materials to be stored leaning against a wall, within 6 feet of an interior opening or 10 feet within an exterior opening.

Material Storage - OSHA 1926.250 & 1926.351

- Compressed gas cylinder storage shall be outside the building at a minimum distance of (50) fifty feet from the building.

- Non-compatible compressed gasses (i.e. oxygen and acetylene) shall be segregated in storage by a one hour rated firewall or at a minimum distance of (20) twenty feet apart.
- Mark empty cylinders – EMPTY.
- Cylinders must be upright, secured at all times, and capped when not in use.
- The storage of all materials shall be coordinated with Project Supervision.

Operating Equipment and Vehicles - OSHA 1926.600

- All equipment operators shall read the equipment operations manual and demonstrate a level of competency before operating the equipment.
- Prior to using any equipment (aerial lifts, lift trucks, cranes, etc. on the project, daily equipment inspections shall be conducted to ensure the equipment meets the manufacturer's and OSHA standards.
- Seat belts must be in place and used by the equipment operator at all times.
- Backup alarms must be in working condition and louder than the surrounding environment.
- Fire extinguishers must be in place on the equipment, charged and suitable for use.
- Employees must be qualified and certified before operating equipment.
- High lift industrial trucks (fork lift trucks) shall be in good working order, equipped with an overhead guard and all necessary safety devices in operating order.
- Operators shall sound their horn at all doorways and intersections.
- Your company must supply written training verification for all fork truck operators and aerial lifts.
- Employees shall not be lifted off the floor by the forks of a fork truck.
- Swing radius barricades will be maintained around equipment at all times.

Overhead Work

- All overhead work is to be coordinated in advance.
- All overhead work areas must be flagged off or a ground person will be stationed in the area of the overhead work.
- No overhead work is permissible with employees working underneath (i.e. Hoisting).

Power Tools OSHA 1926.300

- All electric tools, cords and GFCI's must be inspected before each use and assured to be in good working order
- All electric power tools must be kept in good mechanical condition, including electrical cords.
 - All protective guards must be in place.
 - Double eye protection is required for all grinding operations.
 - Damaged tools must be taken out of service and tagged immediately so co-workers will know a tool is defective.
 - Tools and cords must be used with a Ground Fault Circuit Interrupter (GFCI).
 - Cords must be routed over or around walkways and work areas or be secured to prevent a tripping hazard and be protected from being run over by equipment.

- Avoid routing cords through doors and across sharp edges.
- A Daily cord roll-up for inspection is a requirement on all project sites.
- Nitrogen must not be used to power pneumatic tools or blowers.

Rigging

- A competent person shall inspect the rigging prior to each shift, and periodically during its use.
- No loads shall be moved above employees. The operator must sound a horn to notify employees in the path of the load.
- At no time will the operator leave the controls while the load is suspended.
- Hoists, cranes, cables, slings and other lifting equipment and rigging must be inspected regularly and documented.
- Materials shall be rigged to prevent unintentional displacement.

Safety Recognition Program

De-Cal will provide a safety recognition program on this Project for field personnel. Lunches and other safety awards can be achieved if the Project meets its goals for safety.

Scaffolds - OSHA 1926.450

- Scaffold construction, use, and dismantlement shall be supervised by a competent person.
- Scaffold users must be trained in scaffold safety and the training must be documented.
- A competent person must inspect and sign scaffolding tag daily before use.
- Anytime an unsafe condition is found, the scaffold shall be tagged as unsafe and shall not be used by any personnel until repairs have been made and retagged as safe by the competent person.
- Scaffold erection and dismantling over 6-feet requires 100% fall protection.

Signs and Barricades - OSHA 1926.200

- Each crew is responsible for erecting signs and barricades sufficient to warn others of the hazards associated with the construction work after a job hazard analysis has been conducted.
- Yellow Caution tape may be crossed once you check to ensure the area is safe to enter.
- Red Danger tapes must never be crossed or removed, unless you are part of the work crew in the area.
- In the case of a hazardous atmosphere as established by air monitoring, a safe zone area of at least 3ft in diameter or greater shall be established and marked with danger tape or other barricading.
- Remove the barricades and tape once the hazard has been removed.
- Wooden barricades are to be signed with a Danger sign.

Trenching and Excavating - OSHA 1926.650

- All excavations shall be classified by OSHA standards.
- No personnel will be allowed entry into an excavation until a competent person has reviewed it. The competent person (usually the site supervisor) shall monitor the condition at all times personnel are in the excavation. Soil testing shall be completed to determine classifications and protection required.
- All excavations shall be safely shored, sloped, benched and barricaded at depths greater than 4'. Water shall not be allowed to accumulate.
- Trench boxes designed to withstand external forces shall be used in loose or sandy soils where loose sliding materials may be present to protect workers.
- Safe access and egress shall be located within 25 feet of all locations where personnel are working. These may be by ladder, ramp, stairs or other approved method. Jumping across trenches is prohibited. If necessary walkway's shall be built across excavation areas with hand rails for fall protection.
- When exposed to vehicle traffic all personnel shall wear reflective vests.
- Working under or near excavation equipment is prohibited.
- Only trained personnel may enter excavations.
- Prior to beginning any excavation, digging, trenching or drilling operation, the Contractor shall ensure that all underground utilities have been located and verified by the responsible parties.

Process Safety Management. OSHA 1910.119

All personnel shall be familiar with the requirements of OSHA's Process Safety Management Standard as it applies to their work. Personnel required to work in areas that may result in uncontrolled release of fluids, chemical's, reactive, explosive or materials deemed toxic by the host employer shall follow the established guidelines of any Site Specific Safety Policy.

Occupational Noise Exposure OSHA 1910.95

- When occupational noise has been determined to expose employees to levels above 85 decibels on a time weighted 8 hour average, hearing protection shall be determined to provide protection to each affected individual. Posting of this standard shall be mandatory. Failure to comply with this policy may result in termination.
- De-Cal shall provide a selection of hearing protection for the employees to choose from.
- Proper protection against the effects of noise exposure shall be provided and used when the sound levels exceed 85 decibels on a time weighted average of 8 hours.
- When information indicates that any employee may be exposed equal to or greater than an 8 hour time weighted average at 85 decibels or greater, De-cal shall implement a monitoring program and mandatory hearing protection shall be used.
- De-Cal shall establish an audiometric testing program for all employees whose exposures equal or exceeds a time weighted average of 85 decibels over 8 hours within 6 months of exposure

- . ●Baseline audiogram shall be performed for employees whose exposure equal to or greater than this standard allows. De-cal shall notify any affected employees of the need to avoid high levels of noise for the 14 hour period immediately preceding the audiometric exam.
- Annual audiogram shall be compared to the baseline for each employee exposed above the threshold to determine if there has been a standard threshold shift.
- All medical records shall be maintained and kept in the affected employees file.

OBSERVANCE OF ALL THESE PRECAUTIONS IS PART OF YOUR JOB. FAILURE TO COOPERATE MAY RESULT IN TERMINATION.

“SAFETY IS A SKILL THAT MUST BE PRACTICED LIKE YOUR TRADE.”

Section 9 – Forms and Documents

FIELD REPORTS AND FORMS ALL INSPECTION FORMS SHALL BE KEPT ON FILE

Copies of forms listed below shall be kept on the jobsite. Additional copies can be obtained from the Safety Director

- 1). Supervisor's Incident / Injury / Illness Report – to be filled out by the Job Supervisor before the end of the shift.
- 2). Report of Property Damage – to be filled out by the supervisor.
- 3). Jobsite Safety Inspection Report – filled out weekly by the jobsite supervisor and sent to the office.
- 4). Weekly Safety Meeting Report – to be completed and sent to the office after each jobsite meeting.
- 5). Acknowledgement of Hazard Communication instruction and use of Material Safety Data Sheets.
- 6). Motor Vehicle Report
- 7). Previous Training Profile Confined space, Personal Protective Equipment, and Hot Work. 3 Separate Pages if required by site rules.
- 8). Daily Scissors Lift Inspection
- 9). Aerial Work Platform Daily Inspection Form
- 10). Aerial Boom lifts Weekly Inspection Form
- 11). Daily Crane Inspection Log and Crane Pre Task Checklist
- 12). MIOSHA/OSHA Form #300A – Log and Summary of Occupational Injuries and Illnesses
- 13). Medical and Emergency Numbers Posting

All annual inspections and maintenance records shall be kept on file by the De-Cal warehouse manager.

Section 10 – Hazardous Energy Control (LOTO)

I. Purpose and Scope

Effective hazardous energy control procedures will protect employees during machine and equipment servicing and maintenance where an unexpected energized state, start up or release of stored energy could occur and cause injury, as well as while working on or near exposed de-energized electrical conductors and parts of electrical equipment. Hazards being guarded against include being thrown from, or contacting live electrical circuits/ parts.

The procedure herein established (III – VII) will ensure that machine and equipment are properly isolated from hazardous energy sources during servicing and maintenance and properly protect against re-energized state as required by 29 CFR 1910.147

While any employee is exposed to contact with parts of fixed electrical equipment or circuits which have been de-energized, the circuits energizing the parts shall be locked out and tagged in accordance with the requirements of 29 CFR 1910.333 (b) (2).

Only when disconnecting means or other devices are incapable of being locked out, and until lockout capability is provided, will a tag-out procedure (without lockout), be utilized.

II. Enforcement

Any employee who fails to follow these procedures will face disciplinary action in accordance with those listed in the company policy.

III. Definitions

Authorized employee – a person who locks out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing service or maintenance which exposes him/her to potentially hazardous energy.

Affected employee – an employee whose job requires him/her to operate/use a machine or equipment or work in an area in which service or maintenance is being performed under lockout.

Energy isolating devices – A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following:

A manually operated electrical circuit breaker; a disconnect switch; a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors, and in addition, no pole can be operated independently; a line valve; a block; and any similar device used to block or isolate energy. Push buttons, selector switches, and other control circuit type devices are not energy isolating devices.

Other employee – an employee whose work operations are or may be in area where energy controls procedures may be utilized.

IV. Authorization / Responsibility

Only trained and authorized employees will be responsible for the planning and implementation of lock-out and / or tag-out procedures. All lock-out and / or tag-out procedures will be coordinated with the owner and / or owner's representative.

The Authorized Employee will instruct all employees involved in the lock-out and / or tag-out process as to the application and / or removal of locks and / or tags, and in the safety significance of the lockout procedures. See list of employee authorized to lockout. See lists of job titles for affected and other employees.

V. Guidelines

- A. Locks, chains, wedges, or other hardware which meets the requirements defined in 1910.147 (c) (5) (ii) shall be provided by the company.
- B. Lockout devices shall be singularly identified. They shall be the only devices used for controlling energy and shall not be used for other purposes.
- C. The lockout devices shall indicate the identity of the employee applying the devices.
- D. All machines and equipment shall be locked out to protect against accidental or inadvertent operation when such operation could cause injury to personnel. Lockout will also apply when working on or near exposed de-energized electrical circuit/ parts.
- E. No employee shall attempt to operate any switch, valve, or other energy isolating devices, which is locked out.
- F. Each lockout device shall only be removed by the employee who applied the device. (Exception: see VII. B.2.)

VI. Lockout Procedures and Techniques

- A. Preparation for Shutdown
 - 1. In preparation for lockout, an initial survey must be made to locate and identify all energy isolating devices to be certain which switch, valve, or other energy isolating devices apply to the machine/ equipment to be locked out. More than one energy source (electrical, hydraulic, pneumatic, chemical, thermal, or others) may be involved.
 - 2. Before an authorized or affected employee turns off a machine or piece of equipment, the authorized employee must have knowledge of the type and magnitude of the energy to be controlled, and the method or means to control the energy (See ENERGY SOURCE EVALUATION)
- B. Machine or Equipment Shutdown
 - 1. All affected employees shall be notified that a lockout system is going to be utilized and the reason for it, before the controls are applied.
 - 2. If the machine or equipment is operating, shut it down by normal stopping procedure. (Depress stop button, open toggle switch, etc.)
- C. Machine or Equipment Isolation

Physically locate and operate the switch, valve, or other energy isolating devices so that the equipment is isolated from its energy sources and apply adequate hardware.

Tag-Out Devices Only

There are owner requirements and / or circumstances that will limit the isolation process to a "Tag-Out" process only. In these circumstances, the tag-out device will be as effective as a lock-out device or no work will begin. All circumstances of the "Tag-Out" process will be communicated to all personnel and the owner / owner's representative. It will be determined that the "Tag-Out" method of isolation will be as effective as the lock-out method. It will be determined that the "Tag-Out" method is the only way to isolate the system safely.

D. Lockout Devices Application

1. Authorized employees shall lockout the energy isolating devices with assigned individual locks.
2. Lockout devices shall be applied so that they will hold the energy isolating devices in a "Neutral" or "Off" position.

E. Stored Energy

All stored or residual energy in rams, flywheels, spring, pneumatic, or hydraulic systems, etc. shall be blocked or dissipated. If there is a possibility of an inadvertent release of stored energy, verification of isolation must be discontinued until servicing or maintenance is completed.

F. Verification of Isolation

Prior to starting work on machine or equipment that have been locked and after ensuring that no personnel are exposed, the authorized employee shall operate the push button or normal operating controls to verify that the appropriate equipment or machine has been de-energized and make certain it will not operate.

CAUTION: Return Operating Controls to the "Neutral" or "Off" Position After the Test.

The machine/equipment is now locked out. Servicing or maintenance may now occur.

Removal of Lockout Devices

Before locks / tags are removed and the previously isolated systems are re-energized, all work areas will be inspected, and affected employees notified and removed from the area as necessary.

- A. After the servicing and / or maintenance is completed and before the lockout devices are removed and energy is restored, the sequence of activities in "Specific Energy Control Procedures for Each or Type of Machine or Equipment" shall be completed by the authorized employee(s)
- B. If the authorized employee who applied the lock is not available, the supervisor shall take the following steps:

1. Verify that the authorized employee who locked out the equipment is not at jobsite.
 2. Attempt to contact the authorized employee to inform him/her that his/her lock will be removed from the machine.
 3. Remove the lock.
 4. Make sure the employee is notified that his/her lock has been removed before he/she resumes work at the machine.
- C. In situations in which lockout device MUST be temporarily removed from the isolation device and the machine or equipment energized to test or position the machine, equipment, or component, the following sequence of actions will be followed:
1. Clear the machine or equipment of tools and materials.
 2. Remove employees from the machine or equipment.
 3. Remove the lockout device.
 4. Energize and proceed with testing or positioning.
 5. De-energize all systems and reapply energy control measures in accordance with procedures set forth under VI. Lockout Procedures and Techniques.

VII. Additional Requirements

A. **Group Lockout/Tagout Requirements**

Can servicing or maintenance be performed by a crew, department, or other group under this standard?

Yes. If they have been properly trained and the energy control program is followed.

What procedures must be followed that will offer group employees the same protection that the standard provides to individual employees?

- A group lockout/tagout must afford each employee a level of protection equivalent to that provided by the implementation of a personal lockout or tagout device.
- Primary responsibility for a set number of employees working under the protection of a group lockout or tagout device must be vested in a single authorized employee.
- The single authorized employee must determine the exposure status of individual group members.
- If there will be more than one crew, department, or group involved in the activity, a single authorized employee must be designated to coordinate affected workforces and to ensure continuity of protection.
- Each authorized employee must affix a personal lockout or tagout device to the machine or equipment when work begins and remove it when work is completed.

- B. Shift or Personnel changes – If a lockout procedure will extend into the following shift, the authorized employee who originally placed the lock will remove it and it will immediately be replaced with the lock of the authorized employee who is to continue the repair or maintenance on that equipment or machine for the following shift.
- C. Cord and Plug Connected Equipment – If servicing or maintenance is performed on cord and plug connected equipment the following procedures shall be performed to protect employees.
 - 1. Unplug equipment from its electrical socket
 - 2. Place a lockable cover over the plug and a lock on the plug cover
- D. Sub-Contractors – If sub-contractors perform servicing or maintenance that requires lockout, the following steps.
 - 1. Inform the sub-contractor of our company’s lockout procedures and supply them with a copy.
 - 2. Obtain and review a copy of the sub-contractor’s lockout procedures.
 - 3. Ensure that our employees understand and comply with the responsibilities and prohibitions of the sub-contractor’s lockout procedures.

VIII. TRAINING

- A. Authorized employees shall receive training covering:
 - 1. Recognition of hazardous energy sources.
 - 2. Types and magnitude of hazardous energy in the workplace.
 - 3. Methods, devices, and procedures used to lockout, verify lockout, and otherwise control hazardous energy on all pieces or types of equipment (including cord and plug connected equipment).
 - 4. Procedures for removing locks and returning a machine or piece of equipment to operation.
 - 5. Transfer of lockout responsibilities.
- B. Affected and all “other” employees shall receive training so that they are able to:
 - 1. Recognize when energy control procedures are being implemented, and.
 - 2. Understand the purpose of the procedures and the importance of not attempting to start up or use the machine/equipment that has been locked out.
- C. All training will be certified.

IX. Retraining

- A. Authorized and affected employees shall receive retraining in proper application of lockout procedures when there is a change in:

1. Job assignment(s) that exposes an authorized employee to new hazards or lockout procedures.
 2. Machines, equipment, or processes that present a new hazard or require modified lockout procedures.
 3. Energy control procedures for a piece or type of equipment.
 4. Or when it becomes known that an employee incorrectly performs lockout procedures.
- B. Retraining will re-establish employee proficiency in lockout, and ensure that employees are knowledgeable of new or revised procedures. All retraining will be certified.
- X. Periodic Inspections
- A. An inspection of the energy control procedures will be conducted annually and will be certified.
 - B. Energy control procedures for each machine or type of machine must be inspected.
 - C. The inspection shall include a review of lockout responsibilities with each individual authorized to lockout the machine/equipment.
 - D. The person who performs the inspection must be authorized to perform the lockout procedures being inspected. The inspector cannot, however, review his/her own use of lockout procedures.
 - E. Any deviations or inadequacies identified shall be immediately addressed.

Line Breaking Policy

What is Line Breaking?

The intentional interruption, rerouting, blocking or the valving off of materials passing through a section of a line or pipe. Isolation of that portion of pipe from the rest of the line. Opening the pipe for maintenance, repairs, valve replacement or other purpose. Proper management of materials flowing through piping is to avoid hazards that may exist such as but not limited to:

Acids

Hot or Cold Fluids

Steam

Corrosives

Flammable Liquids

Dangerous Vapors or Fluids

Under pressure any of these or other processes can spray or spill causing serious injury when precautions have not been met.

PPE Assessment - Preventing Chemical Hazards with the MSDS

Identify what is in the line, what the hazards are and determine how to protect all personnel that may be exposed before work begins. Request an MSDS sheet and ask for the location where all MSDS info is located. Do a hazard assessment and ensure all personnel that may be exposed have been informed. The Material Safety Data Sheet identifies chemicals, their hazards and procedures for proper personal protective equipment, safe handling and product disposal requirements if necessary. Purging also may be necessary. You must follow MSDS - PPE recommendations. Look around the area of work. Openings in the ceiling and floor may require barricading areas above and below to protect others as well. Follow all Lock Out Tag Out rules and regulations. Pre-plan with the Host Employer or Contractor! In the event that there may be any residual product or the assessment raises concerns of safety, all personnel working in the area shall wear appropriate PPE. This may include but not limited to respirators, face shields, gloves, protective clothing and other forms of PPE. . When conditions cannot be met safely, respirators shall be worn during the initial line break and all subsequent new line- breaks thereafter. Insure proper PPE and LOTO training has been performed before work commences.

Line and Equipment opening Procedures

Insure all precautions have been met. Insure all Lock Out Tag Out training has been completed and implemented. Line must be drained per MSDS requirements of fluids, product or contents, depressurized and or emptied. ensure all residual pressures have been relieved and monitor for any residual pressure until the possibility of accumulation no longer exists. Inspect all bolts and first replace one bolt at a time until all required bolts have been replaced that may be stripped or corroded. By doing this first you will have maintained the integrity of the joint until you actually break the line.

Line Breaking

Safely support both ends of the pipe being disconnected. Starting with the bolts that are the furthest away from you, remove every other bolt around the flange leaving at least one bolt in each quadrant. Larger size lines may require more than one bolt in each quadrant to maintain the integrity of the line. Have in place, per MSDS requirements, conditions to receive residual fluids remaining in the line to avoid spills. Begin the actual break by loosening the bolt that is the furthest away from your body first and be sure the area has been cleared of others as you complete the breaking of the line as you work toward the bottom of the line. Loosen the remaining bolts, one at a time until you determine the line has been drained or made safe to De-Calnue. By loosening all bolts first you will have the option to retighten them if draining of the line is not satisfactory. This will insure that any product left in the line will be directed away from you and into the storage receiver. After it has been determined the line is safe, complete the removal of all the remaining bolts.

Lockout/Tagout Procedure Checklist Energy Source Determination

Date: _____ Company Name: _____

Instructions: In order to determine all energy sources for each piece of equipment, all questions must be answered. If the question does not apply, write N/A.

Location: _____ Work Center: _____

Equipment Name: _____ Equipment #: _____

Serial: _____ Lockout/Tagout Procedure #: _____

1. Does this equipment have:

- a. **Electric power** (including battery)? Yes No N/A

If yes, Motor Control Center (MCC) or power panel & breaker number: _____

Does it have a lockout device? Yes No N/A

Battery location: _____

Battery disconnect location: _____

- b. **Mechanical power?** Yes No N/A

Mark each type of energy source that applies:

1. Engine driven Yes No N/A

If yes, switch or key location: _____

Is lockout device installed? Yes No N/A

If no, method of preventing operation: _____

2. Spring loaded? Yes No N/A

If yes, is there a method of preventing spring activation? Yes No

If no, how can spring tension be safely released or secured? _____

3. Counter weight(s)? Yes No N/A

If yes, is there a method of preventing movement? Yes No

If yes, can it be locked? Yes No

If no, how can it be safely secured? _____

4. Flywheel? Yes No N/A

If yes, is there a method of preventing movement? Yes No

If yes, can it be locked? Yes No

If no, how can it be safely secured? _____

Lockout/Tagout Annual Inspection/Evaluation Report

Date of Evaluation: _____

Evaluation was made by: _____

Policy has been reviewed: Yes No

Comments on policy: _____

The following procedures have been reviewed: _____

The following procedures were modified: _____

The following procedures were added: _____

A review of the OSHA log 200, associated accident reports, and OSHA Form IOI were conducted? : Yes No

The following iniuries resulted from lockout/tagout:

Injury	Procedure Nwnber for Aoolicable Eouiment	Process or Machinery
--------	--	----------------------

Comments:

Signature

Date

Section 11 – Personal Protective Equipment (PPE)

TRAINING:

Training in the use and care of PPE will be reviewed in the initial orientation process. As PPE requirements evolve because of changing conditions, additional PPE training will be reviewed with regard to additional PPE requirements. Initial PPE non-compliance issues will require a re-training and clear communication as to the PPE compliance requirements. All PPE training will be documented; all training documents will be maintained at the project site. Employee owned PPE is not allowed. De-Cal Inc. will provide all PPE necessary to perform the job safely, if PPE is discovered to be defective or damaged, new replacement PPE will be issued.

RE-TRAINING:

Re-training will result when an employee displays a lack of knowledge or does not have a thorough understanding of the PPE Requirement. Re-training is required when the task requires changes in PPE, when previous training is obsolete, when the employee displays a lack of understanding. Re-training will be conducted when the workplace changes, making earlier training obsolete, when the type of PPE changes, when the employee demonstrates lack of use, improper use, or insufficient skill or understanding. All PPE will be supplied to the employee at no cost. Employees will understand that the use of personally owned PPE is not allowed at De-Cal Inc.

TASK HAZARD ANALYSIS

The daily Task Hazard Analysis review(s) will contain the PPE requirements for each task, As tasks change, the changes will be documented within the revised Task Hazard Analysis. The revised THA will reflect the additional PPE requirements for that task. If specialized PPE requires fitting (E.g. respirators) fitting / fit-testing will be performed. Defective and / or damaged PPE will not be used.

1. ANSI Z87.1 approved hard hats shall be worn at all times while on the job. (The supervisor may designate areas where hats are not required.) All hardhats shall display the employee's name and De-Cal indicating whom the employee works for.
2. All DE-CAL employees are required to wear safety glasses that comply with ANSI Z87.1. Dark lenses are not to be worn inside of buildings, in enclosed areas, and at night.
3. All workmen shall wear clothing appropriate to the duties performed. Large pockets, exposed watch and key chains, cuffed trousers, and torn clothing are dangerous and should not be worn around machinery or when climbing ladders or working on structures.
4. Only substantial, heavily soled shoes or boots shall be worn on the job. Some jobsites specifically require metatarsal boots to be worn. Do not wear low-cut shoes, unless they are the type designed for construction work. Safety-toe boots are recommended for all construction workers.

5. Leather or leather-palmed gloves shall be worn when handling rough or sharp-edge material or lumber with splinter and projecting nails. Gauntlet gloves are not recommended except for welders and other specific operations where workmen are subject to possible wrist burns by hot metal, acids, chemicals, cement or lime.
6. Oxyacetylene welding, soldering or cuttings without proper cup-type goggles with impact-resistant filter lenses and clear cover glass is prohibited. The filter lenses must have a shade number appropriate for the work being performed.
7. Electric arc welding or cutting without a helmet equipped with appropriate filter lens and clear glass is prohibited.
8. Fire resistant gauntlet gloves shall be worn when chipping or grinding concrete or at any time supervisor designates.
9. Where workers are performing work over their heads, or work that could potentially cause materials to become flying or falling objects such as, but not limited to chipping, welding, grinding, cutting, and chiseling, they shall utilize a face shield in addition to safety glasses. A face shield shall be worn using powder-actuated tools. Enclosed goggles shall be worn in place of glasses if employees are exposed to dust that could blow into their eyes. If dust is accompanied by projectile particles, a face shield shall be worn over the goggles. All forms of eye and face protection shall be maintained dry, clean, and free of scratches and defects that could impair vision.

Section 12 – Confined Space

CONFINED SPACE ENTRY PROGRAM

Mechanical Construction often requires De-Cal Personnel to work in confined spaces that are governed by MIOSHA 1926 Subpart AA. This program was created to help codify and organize the multitude of confined space regulations into one easily usable and understandable set of guidelines.

Please note that this program simply list minimum standards that De-Cal personnel must follow regarding confined spaces. Specific projects and owners may require a stricter set of standards for use on their projects. All De-Cal employees when entering, or working in a confined space must meet the following minimum standards set forth in this program. Failure to comply with these minimum guidelines will result in disciplinary action up to and including termination.

It shall be the policy of De-Cal Inc. to implement the various requirements of the confined space Construction Standards as required in 29CFR 1926 Subpart AA of the U.S. Department of Labor, Occupational Safety and Health Administration.

Confined Space Entry System

Before confined space entry is authorized, De-Cal Inc. will document the completion of measures required by preparing an entry permit. The entry supervisor identified on the permit shall sign the entry permit to authorize entry. The completed permit will be made available to all authorized entrants by posting it at the entry portal so that entrants can confirm that pre-entry preparations have been completed. The duration of the permit shall not exceed the time required to complete the assigned task or the job identified on the permit. The entry supervisor will terminate entry and cancel the entry permit when the job is completed, or when a condition arises that is not covered by the permit. If any problems are encountered during an entry operation, these problems will be noted on the permit, revisions will be made as necessary.

Confined space entry permits will identify the space to be entered, purpose of entry, date and authorized duration of entry, authorized entrants, attendants, supervisor, hazards, measures taken to isolate, acceptable conditions, results of all testing, rescue and emergency services, communication procedures, PPE, alarm systems, and other necessary equipment that may be necessary.

The Confined Space Work Group

The confined space work group shall include a supervisor, an entrant, and an attendant. The attendant or entrant may also fill the role of the supervisor. The supervisor has the total responsibility for the operation, providing and endorsing the entry permit and ensuring that the crew has performed any required tests and the right equipment is being used. The supervisor confirms that a rescue team is available, clears the site of unauthorized personnel, and verifies that conditions are safe and cancels the permit when the operation is complete.

Supervisors must maintain contact with the site.

Training Requirements

The confined space work group must be trained to:

- a) Use the right entry equipment,
- b) Understand the protocol of communicating with the attendant,
- c) Exit the space when necessary.

Training Will be Provided to Each Affected Employee:

Before the employee is first assigned duties, whenever there is a change in assigned duties, a deviation in the process, and when a new hazard has been created, in the permit space operations. The training will measure proficiency, and will be documented to certify that training took place.

All members of the confined space work group must know what hazards they may find as well as the signs and symptoms of exposure. All members of the work group will be cross-trained to be able to assume any aspect of confined space work. If special circumstances are encountered, training procedures require that all work is to stop, and that the process is to be re-assessed before a new plan can be put into place. All training comprehension will be assessed through written tests, and all training will be documented within the employee training file. All employees will have the opportunity to observe and review monitoring and isolation data before spaces are entered. All employees will be identified as to their roles of confined space entry. All employees involved in confined space procedures will be trained. Employees will be trained on rescue procedures and communications procedures concerning outside rescue services. De-Cal Inc. Supervision / Safety will prepare, issue maintain, and cancel all entry permits as required.

Equipment

All confined space entry equipment will be provided to employees, employees are not allowed to use their own equipment. All equipment will be properly maintained, and all employees will be trained as to the use of the equipment. All testing, monitoring, PPE, lighting, barriers, shields, ladders, rescue and emergency equipment will be properly maintained. Employees will be protected from all external hazards identified in the pre-task analysis. Pedestrian and vehicle hazards will be circumvented through the use of barricades and spotter personnel. All open spaces will be barricaded or closed when leaving for any reason.

Definitions

Acceptable Entry Conditions: Conditions must exist in a confined space that will allow for entry and that will insure that employees can safely work within the confined space. Barricading will be utilized to keep vehicles and non-essential personnel out of the area.

Attendant: An individual stationed outside of a confined space that monitors the authorized entrants, ensures air quality is acceptable, passes along information to the entrant supervisor. This person must be trained on the use of rescue / retrieval equipment annually, and assigned a radio or cellular phone for use in an emergency. Also, this person is responsible for the initiation of any confined space rescue (non-entry rescue and/or activating/briefing confined space rescue team).

The attendant may not perform any tasks that may interfere with their duties as a confined space attendant, and may be responsible to monitor one confined space entry at a time. The attendant will never enter the confined space to attempt a rescue. An attendant will always be monitoring the conditions of entrants throughout all confined space procedures. The attendant will know the hazards that may be faced, signs, symptoms, and consequences of exposure, know the proper use of equipment, and also be capable of communicating with the entrant. De-Cal Inc. does not allow the Attendant to monitor more than one space at a time. In cases of emergency, all Entrants will evacuate the confined space. Attendants or their representatives will be given the opportunity to participate in the review of date concerning the calibration of air monitors and monitoring data before the confined space is entered.

Authorized Entrant: An individual authorized to enter a confined space. The entrant will know the hazards that may be faced, signs, symptoms, and consequences of exposure, proper use of equipment, and be capable to communicate with the attendant.

Confined Space: A space large enough to enter and work, but is not designed for continuous human occupancy. This space may have limited entry/openings, unfavorable natural ventilation. noxious/poisonous gases, flammable gases/vapors, a deficiency of oxygen, or containing loose/uncontrollable materials that could engulf an individual.

A short list of typical confined spaces includes but not limited to, underground utility vaults, channels, ditches, meter pits, fan enclosures, tanks, etc.

Authorized Supervisor

The Authorized Supervisor will be trained to know the hazards, verifies by checking that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted, and that all procedures and equipment specified by the permit are in place before and allowing the entry to begin. He / She will also be trained and be responsible to verify rescue services, remove unauthorized individuals, terminate the entry and cancel the permit.

Multiple Employers Working Within the Same Space:

When multiple employers are tasked with working in the same space at the same time, coordination meetings will take place and the procedures will thoroughly reviewed for the safest procedures.

Emergency: Any occurrence, internal or external to the confined space, which could endanger entrants within the confined space.

Engulfment: An occurrence or situation where a person could be affectively captured by a liquid or finely divided (flowable) substance. This situation may cause respiratory distress or death by filling or plugging the respiratory system or may exert enough force to crush, constrict or strangle a body.

Entry: The action which a person enters a confined space. Entry includes the ensuing work activities taking place within the confined space.

Entry Permit: The written or printed document provided by De-Cal (or appropriate agency) that allows for controlled entry to the space and indicates, current, regularly monitored conditions, within the confined space.

Permits are valid for (1) 12-hour shift only, and will be “Canceled” when the entry process is concluded. No one will enter the confined space after the entry permit is canceled.

Entry Supervisor: The person (in most instances De-Cal’s foreman) responsible for determining if conditions are acceptable for entry into the confined space. This person is responsible for entry operations and termination of operations.

Please note. This person may serve as the attendant, or as an authorized entrant, as long as that person is qualified to perform that set of tasks. Duties may be passed from one individual to another as long as the attendant and entrants are informed of this change in supervisor.

Hazardous Atmosphere: An atmosphere that may expose employee’s to the risk of death, incapacitation, impair ability to self-rescue, or acute illness. This atmosphere may be caused by, flammable gas, combustible dust which restricts visibility to less than 5 feet, poisonous dust/gas, reduced oxygen concentration or any other atmosphere that is hazardous in the view of the entry supervisor.

Immediately Dangerous to Life or Health (IDLH): Any condition that poses immediate or delayed threat to life or would cause irreversible adverse health effects or that would interfere with an individual’s ability to escape unaided from a permit confined space.

Inerting: The displacement of the atmosphere in a permit confined space by a noncombustible gas (such as nitrogen) to such an extent that the resulting atmosphere is noncombustible.

Isolation: The process by which a permit space is removed from service and completely protected against the release of energy and or material into the space by such means as; bulk heading, blanking/blinding, removal of line sections, double block and bleed, Lockout/Tag-out, or blocking/disconnecting mechanical linkages.

Non-Permit Confined Space: A confined space that does not contain atmospheric hazards and does not contain conditions likely to cause harm to the entrant.

Oxygen Atmospheres: Less than 19.5% oxygen by volume= Oxygen Deficient Atmosphere.
More than 23.5% oxygen by volume= Oxygen Enriched Atmosphere.

Permit Confined Space: A confined space that contains hazards, atmospheric or others, likely to cause harm to entrants unless precautions have taken place to minimize any potential risks. This confined space is designated a “permit confined space” by the owner, engineer, or the De-Cal Safety Officer, due to the levels of hazards found within this space. De-Cal Supervision / Safety will evaluate to determine if any confined spaces are permit required confined spaces. If the job site contains permit required confined spaces, De-Cal Inc. will inform the exposed employees by posting danger signs, and / or verbally. The employees will be notified of the existence, location, and the danger posed by each permit required space.

De-Cal Supervision / Safety will determine if the employees will or will not enter a confined space. Employees will be notified that entering a confined space without permission is strictly forbidden. If De-Cal Inc. determines that a confined space is to be entered, a written confined space entry program for that particular space will be created, implemented, and reviewed before a permit required space is allowed to be entered. Pre-entry and periodic testing will take place before and during entry procedures.

Information will be gathered from owners and / or general contractors concerning confined space classification and entry procedures, this information will be shared to all employees. If no such information exists, entry procedures will be determined and dictated by De-Cal Inc. All Confined Space Permits will be stored on file for one year after the permit is canceled.

Multiple Employer's

Coordination will be implemented between all trade supervision should other trades be involved in the same entry. Caution will be taken so that one trade is not endangering the other.

Prohibited Condition: A condition that exists within a permit confined space that prohibits entry.

Confined Space Rescue Team: Persons designated to rescue entrants in a permit confined space.

Retrieval System: Equipment used for retrieval of persons within a confined space. This may include hoists, tripods, harnesses, lifelines, etc.

Testing: The process by which hazards are identified and evaluated. This includes the tests that are specified in the permit confined space.

Procedures:

1. At project start, Project Manager, Safety Director, and Superintendent will complete a Site Specific Confined Space Evaluation Form for every confined space applicable to De-Cal's scope of work. These forms may need to be filled out by management again if the site conditions appreciably change over time.
2. Prior to Entry into a confined space, the entry supervisor will determine if the space is a "permit" or "non-permit" confined space.
If the space is permit required, Follow Group A procedures, if "non-permit" Follow Group B procedures.

Group A-Permit Confined Space Procedures:

3. Testing of the space will take place as prescribed on the confined space permit (see attached sample De-Cal confined space permit). After testing, the supervisor will determine what hazards are in the confined space and what precautions will be taken to minimize these hazards. The entry supervisor will also determine if entry into this specific space requires the standby of a confined space rescue team.

These observations and determinations will be used to fill out the confined space permit. The permit will be filled out and discussed with the attendant prior to entry.

Example: Installation of a sluice gate in a suction well.

The entry supervisor determines that the space is oxygen deficient and that there is a possibility that the space could be engulfed by water behind the sluice gate.

To minimize the hazards the entry supervisor has fans blow air into the confined space making sure not to "short circuit" the air flow. The supervisor also ensures that the stop logs are properly installed and thus prevent fluid from entering the work area. These hazards, coupled with the difficult access to the work area, force the entry supervisor to have a confined space rescue team on standby.

4. After hazards are identified and mitigated, the entry supervisor informs the attendant and the entrants the potential hazards within the confined space. The attendant and the entrant are informed of actions being taken to minimize these hazards. The entry supervisor then informs the attendant and entrants of their work responsibilities during this confined space entry (this includes monitoring duties). Upon instruction of their responsibilities, the entry supervisor, entrants, and attendants will review communication procedures (this includes activation of confined space rescue personnel or emergency services). Before entry into the confined space, the supervisor informs the entrants as to what PPE is required for the entry and verifies that each entrant PPE meets the minimum requirements for the day's entry.

5. Entry takes place and work commences within the confined space. Attendants and entrants monitor the space as prescribed by the entry supervisor (this monitoring must be documented). The attendant only allows confined space trained personnel, authorized by the entry supervisor, to enter the confined space. The attendant tracks all entries and exists for the specified confined space.

During and Prior to Entry please note the following:

-Entry is not allowed if any permit prohibited conditions exist in the confined space.

-If any hazard condition change during entry of the confined space, all personnel within the confined space must be notified. If possible the hazard must be minimized. If appropriate materials/equipment /actions cannot minimize the new or changed hazard, the space must be evacuated.

-If any prohibited condition or other appropriately large hazard is identified while in the confined space, all entrants must be immediately evacuated.

-If a condition arises, requiring activation of the confined space rescue team, the attendant will notify the entry supervisor, activate and brief the confined space rescue team, evacuate all non-critical entrants from the space and call emergency services.

6. Upon final exit from the confined space the attendant verifies that all entrants left the confined space. The entry supervisor makes sure all appropriate equipment is accounted for , cleaned and charged for use during the next confined space entry.

Group B-Non-Permit Confined Space Entry Procedures Alternate Entry Space

4. Entry supervisor tests area to ensure that no entry hazards exist. If no hazards are identified during this testing the space is deemed “non-permit”. Alternate entry confined spaces will be determined as such by De-Cal Inc. supervision / Safety only. If conditions demonstrate that the only hazard posed by the permit space is an actual or potential atmospheric only, and if it is demonstrated that forced air ventilation alone corrects the hazard; the space will be considered for entry. Before entry is permitted, De-Cal Inc. will develop and provide monitoring and inspection data supporting an alternate entry conclusion. All monitoring and inspection data will be made available to any employee that may be entering the space.

If a confined space is evaluated and determined to be a non-permit requires space, De-Cal Inc. will certify and document the basis of the determination. If conditions change, dictating a re-classification to permit required space, all employees will exit the space. The space will be re-evaluated and a redetermination made by Supervision / Safety of De-Cal Inc.

Changes in the Use or Configuration of Non-Permit Required Spaces

If there are changes in the use or configuration of a non-permit required space that might increase the hazard to the entrant/s, De-Cal Supervision / Safety will reevaluate

the space and reclassify the space as necessary.

Duties and Responsibilities Regarding Confined Spaces

Entrant: A Person assigned work inside a confined space. This work is assigned to the entrant by the Project Foreman (entry supervisor)

The entrant is responsible for the following:

- understanding the direction of the Project Foreman (Entry Supervisor)
- understanding emergency procedures
- understanding potential hazards within the confined space
- maintenance of their personal PPE (hard hat, harness, safety glasses)

Attendant: A person assigned to monitor the ingress/egress of personnel within a confined space. This work, including monitoring duties is assigned to the attendant by the Project Foreman (entry supervisor).

The attendant is responsible for the following:

- understanding the directions of the Project Foreman
- understanding emergency procedures
- controlling ingress/egress for the confined space
- monitoring inside and outside the confined space for potential hazards
- communicating possible hazards regarding the confined space the Project Foreman (entry supervisor)

This person may not perform any tasks that interfere with their duties as confined space attendant and they may not leave the entrance of the confined space until appropriately relieved.

Project Manager: At project start, the Project Manager (along with Superintendent, Safety director, and if available, Project Foreman) reviews potential work in confined spaces for that specific project. If confined space work is minimal or non-existent on the project, no documentation is required. However, if a large amount of confined space work is a part of the project, a Site Specific Confined Space Evaluation Form will be filled out and kept on record identifying potential confined spaces and appropriate general actions for each confined space. Upon completion a copies of this form will be given to the Superintendent, Site foreman, and Safety director. The Project Manager and Safety director are responsible for keeping a record copy of this form (Please see attached sample copy)

The Project Manager is responsible for the following:

- periodic reviews of confined space work on site
- updating Safety Director and Superintendent to possible problems with site confined space procedures

Project Foreman (Entry Supervisor): The project foreman is responsible for day-to-day confined space operations. The project foreman must be confined space trained.

The project foreman is responsible for the following:

- daily surveys of confined space work on site
- filling out confined space entry permits
- ensuring that all confined space equipment is operational and meets minimum daily standards
- ensuring that all confined space attendants and entrants are wearing the appropriate PPE
- day-to-day cleaning and maintenance of confined space gear
- ensuring that all confined space attendants and entrants are informed of their responsibilities and emergency communication procedures

Superintendent: Superintendent is responsible for supplying the site with appropriately trained and qualified personnel. The superintendent is responsible for ensuring that assigned personnel are performing their duties appropriately.

The project superintendent is responsible for the following:

- periodic surveys of confined space work on site
- ensuring that the Project Foreman are executing assigned confined space duties appropriately
- ensuring that the Safety Director is executing assigned confined space duties appropriately

Safety Director: Safety Director is responsible for confined space compliance, maintenance of confined space equipment, confined space training, confined space rescue training/refresher training, and general jobsite safety.

The safety director is responsible for the following:

- weekly jobsite surveys of confined space intensive jobs
- maintenance and inventory of confined space equipment
- training (entry, rescue, attendant, refresher)
- ensuring that Project Foreman are executing assigned confined space duties appropriately
- issuing Entry Permit Control Numbers to Foreman
- tracking Site Specific Confined Space Evaluation Forms
- Maintaining a database that catalogs all pertinent training information for De-Cal personnel (i.e. when refreshers are required, who is trained, etc.)

Minimum Standards

1. Entrants must all possess a current confined space card.
2. Attendants must all possess a current confined space card.
3. Entry Supervisors must all possess a current confined space card.
4. Rescue Personnel must possess a current confined space card.
5. Rescue Personnel must possess a current CPR/First Aid Card and will have performed a mock rescue at least annually.

6. All Entry Supervisors, Entrants, Attendants, and Rescue Personnel must have a working knowledge of gas detection equipment, hoist operations, emergency communications, basic confined space equipment maintenance.
7. The confined space box (or trailer) must be staged near the confined space entry point prior to entry.
8. All rescue personnel must be notified if there is an activation of the confined space rescue team.
9. All confined space equipment will be visually inspected for damage and function prior to and after every use.
10. At least 1 rescue team member must be out of the confined space at all times (except during a rescue).
11. Confined space rescue team will meet every 4 months for ½ day of refresher training and practice.
12. All Entry Supervisors, Project Managers, Rescue Team Members, and Attendants will have radios or cellular phones for use in an emergency
13. The evaluations of all confined spaces must be posted in a conspicuous location on the jobsite.
14. All participants of the Confined space Entry Operation will review Calibration procedures and documentation before the operation begins.
15. Air monitoring will take place before the confined space is entered and throughout the entry process. Air moving equipment will be made operational before, and remain in use throughout the confined space entry operation.
16. Confined Spaces will be re-evaluated if any conditions change, if an entry must resume after breaks, or if any employee feels the need for a re-evaluation..

Confined Space Rescue Team

Rescue Service Evaluation

De-Cal Inc. will evaluate the prospective rescue agency's ability to respond in a timely manner, and evaluate the rescuers ability. Only professional, municipal, and / or licensed and bonded services will be used. Rescue services will be informed as to the potential hazards that may exist.

All in-house trained rescue personnel will have the necessary PPE and rescue equipment available as required to affect a rescue for that particular space. All rescue personnel will be trained at least annually by means of simulated rescue operations. The attendant and all rescue personnel will be First-Aid and CPR Trained. All Attendants will be trained in procedures for summoning the rescue and emergency services that have been established in advance. The Attendant will prevent unauthorized personnel from attempting a self-rescue.

If deemed necessary by the Project Foreman (Entry Supervisor), Project Manager, or Safety Director: a confined space rescue team will be made available during permit confined space operations.

The Confined Space Rescue Team (De-Cal or subcontracted service) is responsible for ensuring that all appropriate rescue gear is onsite, in good repair, and that the Rescue Team

is trained and familiar with its use. Rescue equipment and / or trained rescue services will be utilized anytime there is the potential for an IDLH condition. Outside rescue services will receive advanced opportunity to review the space, train, and decline to provide services well before entry operations are scheduled to begin.

Rescue Equipment

Rescue equipment will include rescue tripod and winch, Davit Arm, rescue rope, personal body harness. The retrieval line will be secured at the center of the entrants back near the shoulders and the other end will be attached to a mechanical retrieval device, or fixed point outside of the space.

SDS Sheets

SDS Sheets will be available for any identified potential atmospheric or other contaminants that may be encountered during confined space entry. SDS Sheets will be made available to medical personnel for treatment.

CONCLUDING THE CONFINED SPACE ENTRY

At the conclusion of a confined space entry, all entrants will evacuate the space and be accounted for. The Attendant, Entrant, and Supervisor will sign, date and time the permit as canceled. The space will not be re-entered for any reason after the permit has been canceled. All personnel on stand-by notice will be notified that the permit has been canceled and that the space is clear.

Conditions Requiring a Confined Space Rescue:

1. Permit Confined Space has a hazardous atmosphere that cannot be cleared by the use of fans or blowers.
2. Non-entry rescue is impossible or impractical
3. All entrants are working with forced air respirators or SCBA's
4. Permit Confined Space has a high potential for engulfment
5. Permit Confined Space has a high potential for workplace injury
6. Permit Confined Space has a high potential for entrapment
7. All hazards cannot be mitigated effectively prior to entry in the Permit Confined Space
8. Welding or Cutting Operations are taking place in a Permit Confined Space with poor ventilation or oxygen deficient atmosphere.

The following procedures will take place in regard to the Confined Space Rescue Team:

1. All confined spaces onsite will be immediately evacuated during an activation of the Confined Space Rescue Team
2. At least (1) member of the Confined Space Rescue Team must be present, outside the confined space, to be considered on standby

3. To be “on standby” the Confined Space Rescue Team just be able to mobilize and begin entry into the confined space within 5 minutes of initial call
4. The attendant must call emergency services (911) upon any activation of the confined space rescue team
5. Confined Space Rescue Team personnel must be provided with cell phone or radio during any situation where the team is on standby.

Learning from “Entry Reviews”

Reviews of Post Entry Documentation is a useful tool for identifying possibilities for improvement. Core field employees are encouraged and given the opportunity to participate in these reviews. Conditions such as inadequate protection, unauthorized entry, a hazard not covered by the permit, injury, near miss, and / or employee complaints can help to prevent reoccurrences when reviewed properly.

Post Entry Reviews are utilized to precipitate changes to enhance the effectiveness of our program. All Canceled permits are retained for one year after the Confined Space Entry Procedure.

Section 13 – Fall Protection

PURPOSE

1.1 The purpose of this Standard Safety Procedure is to establish minimum safety requirements for DE-CAL employees working at elevated heights that are not protected with standard guardrails. This standard covers activities involving working on a platform or any other fall hazard six (6) feet or greater in elevation, which involves an unprotected fall hazard, such as, but not limited to work in or on:

1.1.1 Sloped or flat roofs, unguarded scaffolding, suspended scaffolds, tops of tanks or vessels, work areas and process structures without guarded work platforms, power activated boom/ aerial lifts, working over pits, ladders, excavations, floor openings, etc.

1.1.2 A fall protection plan must be written when hazards exceed the parameters of the mandates included in this plan, and when dangerous fall potential circumstances exist. The De-Cal Safety Department must be called to evaluate all extenuating fall potential circumstances.

2.0 RESPONSIBILITIES

2.1 The DE-CAL Safety Officer shall be responsible for:

2.1.1 The approval of all personal protective equipment.

2.1.2 Inspecting and keeping records of all initial fixed or temporary fall protection systems.

2.1.3 Maintaining the written fall protection program.

2.1.4 Final approval of necessary training programs.

2.1.5 Coordinate with the Field Supervising Employee as needed.

2.1.6 Developing and implementing training for employees.

2.2 The Field Supervising Employee shall be responsible for:

2.2.1 Ensuring all personnel under his/her responsibility are trained in the use of fall protection devices and/or personal fall arrest equipment prior to issuance or use.

2.2.2 Maintaining housekeeping standards in all areas where fall protection systems are used.

2.2.3 Providing fall protection equipment and PPE free of defects or deficiencies at all times and ensure the prompt availability of above mentioned equipment.

2.2.4 Ensuring that fall protection equipment is within the specified inspection dates.

2.2.5 Ensuring timely delivery and pick-up of fall protection equipment as well as training of employees on all fall protection requirements.

2.3 The Employee shall be responsible for:

- 2.3.1 Wearing or utilizing fall protection equipment at all times in compliance with the requirements of this standard.
- 2.3.2 Inspecting the fall protection equipment being utilized each time prior to its use.
- 2.3.3 Checking the inspection compliance dates for his/her personal fall protection equipment and not using equipment that is past the inspection date.
- 2.3.4 Reporting any problems or deficiencies found with any fall protection devices or personal fall protection equipment. If any deficiencies are found, the device or equipment shall be taken off of jobsite for repair or discarded.

3.0 TYPES OF FALL PROTECTION

- 3.1 Articulating or aerial man lifts provided with an anchor point to connect a full body harness and restraint device below the waist
- 3.2 Guardrails with standard top rail, mid rail and toe-boards.
- 3.3 Personal fall arrest systems.
- 3.4 Personal fall restraint systems (Travel Limiting)
- 3.5 Engineered lifelines (Horizontal and Vertical).
- 3.6 Warning Line System.
- 3.7 Safety nets.

The appropriate fall protection system will be determined by the fall hazards of the task to be performed.

All Personal Fall Arrest Systems will meet ANSI, ASTM, and OSHA requirements as stated in 1926.502.

4.0 GENERAL REQUIREMENTS

- 4.1 Wearing Personal Fall Protection (PFP) equipment is required when exposure to a free fall hazard is not prevented by the use of permanent or temporary guarded scaffolds or platforms at a height of four (6) feet or greater as well as all other unguarded work location exposures exceeding (6) feet in height.
- 4.2 **Fall Protection is required at all times when working in Scissors-Lifts and Boom-Lifts. Retractable lanyards will be used for this application.**
- 4.3 All employees shall use a retractable lanyard when working at any elevation of Fifteen (18) feet or less.
- 4.4 When operating or performing work in a Vehicle-Mounted Elevating Work Platform (bucket truck) or Boom Supported Elevating Work Platform (articulating boom), a full body harness and lanyard (shock absorbing or straight) shall be connected to the approved manufacturer's anchorage. *A harness and lanyard do not need to be worn while operating a scissor lift unless specified by owner/host facility and/or general contractor.*

- 4.4.1 The lanyard shall be of a length (adjusted to the proper length if necessary) that will prevent an employee from getting outside of the basket of the man lift or aerial platform. The purpose is to keep the employee inside of the basket and not allow free fall.
- 4.4.2 Retractable lanyards shall not be used as a connecting device in aerial lifts. A retractable lanyard will allow the employee to gain access outside of the confines of the basket. Additionally, if thrown from the basket the retractable may not perform as intended if the lanyard is draped over the handrail of the basket.
- 4.4.3 If the manufacturer does not provide a designated approved anchorage point, contact supervision.
Rescue in the event of a restrained fall will be incorporated into every plan. Rescue procedures will be in-place and enacted immediately when rescue is required.
- 4.5 Warning Line Systems for fall protection shall be in strict accordance with OSHA standards.
- 4.6 Personal fall protection equipment used will depend upon the work performed but may include:
 - 4.6.1 Full Body harness
 - 4.6.2 Snap hooks
 - 4.6.3 Shock absorbing Lanyards or retractable devices
 - 4.6.4 Anchoring devices
- 4.7 Any DE-CAL employee operating any aerial lift or forklift equipment shall have been trained by the Safety Manager or qualified instructor and have a DE-CAL Operating Permit card on his/her person while doing so.

5.0 INSPECTION

- 5.1 Inspection of personal fall protection equipment applies to all employees and covers all personal fall protection equipment that is required to be inspected each time before use. This includes but is not limited to:
 - 5.1.1 Full body harnesses.
 - 5.1.2 Shock absorbing lanyards.
 - 5.1.3 Retractable lanyards.
 - 5.1.4 Approved personal fall protection attachments and equipment including temporary anchors.
- 5.2 The Safety Manager or other qualified party shall inspect Personal Fall Protection annually. Any frayed or damaged equipment must be removed from service and replaced. Records of inspection and re-certification must be kept and will be maintained by the Safety Manager.
- 5.3 DE-CAL equipment owned or rented must be inspected annually by a qualified inspector and have record of inspection attached to the equipment.

6.0 TRAINING

Training will include the recognition of fall Hazards, with the

Parameters set at six (6) feet of elevation minimum. Any condition that can lead to a fall six (6) feet or greater will be protected by a full barrier system as described in 1926.502(b), or through the use "Personal Fall protection" as described in 1926.502(c). Fall protection will include the recognition for the use "Engineering Controls" and "Personal Fall Protection. Alternative fall protection plans apart from those stated above will not be utilized by De-Cal Employees.

RE-TRAINING

Retraining will occur when there is an instance 1) of non-compliance Regarding MIOSHA, Company, Prime Contractor, and / or Owner's Safety Rules.

- 2) Deficiencies discovered in previous training.
- 2) Workplace changes.
- 3) Fall Protection systems or equipment changes that render the previous training obsolete.

IN THE EVENT OF A FALL, OR A NEAR-MISS INCIDENT

The circumstances of the event will be investigated by the De-Cal Safety Director to determine if fall protection plans need to be changed or modified. If the investigation indicates that changes to the Fall Protection Plan are necessary, the necessary changes will be made immediately. Alternative fall protection plans apart from those stated above will not be utilized by De-Cal Employees.

TRAINING ON USE, CARE, AND LIMITATIONS OF FALL PROTECTION

Training on the use, care, and limitations of personal fall protection equipment is required for all employees who have a need to use the equipment. The use of personal fall protection equipment by untrained employees is not permitted.

RESCUE REQUIREMENTS

- 6.1 Initial training, conducted by the DE-CAL Safety Manager and properly documented, is required and must include the following:
 - 6.1.1 Fall hazard identification
 - 6.1.2 Proper wearing of body harnesses
 - 6.1.3 Proper attachment and anchorage of lifelines
 - 6.1.4 Proper equipment operation
 - 6.1.5 Inspection of lanyards, harnesses, lifelines, and devices
 - 6.1.6 Proper care and storage of fall protection equipment

7.0 DEFINITIONS

- 7.1 Anchorage: A secure structure that safely withstands forces exerted by fall protection and rescue equipment. The structure can be in the form of a beam, girder, column, or floor. Anything attached directly to the anchorage is considered the anchorage connector. Anchorage points that are not engineered shall withstand at a minimum a load of 5,000 lbs. The Safety Manager and a Registered Professional Engineer must approve any deviation for the anchorage requirement.
- 7.2 Carabiners: The carabiner is a connector component generally composed of a trapezoidal or oval shaped body with normally closed gate or similar arrangement, which is opened to permit the body to receive an object and, when released, automatically closes to retain the object. Like the snap-hook, the carabiner is forged steel, self-locking and capable of withstanding 5,000 lbs.
- 7.3 Competent Person: One who is capable of identifying existing and predictable hazards in the surroundings or working conditions that are unsanitary, hazardous, or dangerous to employees, and who has the authority to take prompt corrective measures to eliminate such hazards.
- 7.4 Fall Arrester (Rope Grab): A device, which travels on a lifeline and will engage the lifeline and lock so as to arrest an accidental fall of a person.
- 7.5 Full Body Harness: A component with a design of straps which is fastened about the person in a manner so as to secure the torso and distribute the fall arrest force over at least the upper thighs, pelvis, chest and shoulders with means for attaching it to other components or subsystems.
- 7.6 Guardrail System: A barrier erected to prevent employees from falling to lower levels. This system includes a top rail with a vertical height of 42 inches above the walking/working surface, a mid-rail, and a 4-inch toe board not more than ¼ inches above the walking/working surface. The rail must be able to withstand a 200 pound horizontal force in any direction.
- 7.7 Horizontal Lifeline: A component of a horizontal lifeline subsystem, which consists of a flexible line with connectors or other coupling means at both ends for securing it horizontally between two anchorages or anchorage connectors. It serves as a means for connecting other components of a personal fall arrest system to the anchorage. This is an Engineered System
- 7.8 Ladder Climbing Device: Part of the ladder climbing system, the ladder-climbing device is a device or climbing sleeve connected to the frontal D-ring of the worker's body support. The ladder-climbing device slides vertically up and down a rigid rail or cable and is designed to lock off inertia or cam-action in the event of a fall.
- 7.9 Lanyard: A component consisting of a flexible line of rope, wire rope, or strap which generally has a connector at each end for connecting the body support to a fall arrester energy absorber, anchorage connector, or anchorage. Lanyards with an integral shock absorber are the only type approved for use.
- 7.10 Self-Retracting Devices: All self-retracting devices perform a tethering function, which allows unrestricted vertical movement to the device while arresting the user's fall. These devices have a housing normally attached to the anchorage of a fall arrest system containing a drum-wound lifeline. The retracting end of

the lifeline will unwind from the drum under slight tension during normal movement below the device. When tension is removed, the drums will automatically retract the lifeline. Quick movement, which is typically applied at the onset of a fall, will lock the drum and arrest the user's motion. The self-retracting device is designed to arrest a fall while minimizing fall distance and impact forces.

- 7.11 Snap Hooks: A connector comprised of a hook-shaped body with a normally closed gate or similar arrangement which may be opened to permit the hook to receive an object and, when released automatically closes to retain the object. Snap hooks are generally one of three types: self-locking, non-locking, or manual locking. The self-locking snap hook is the only type approved for use. All snap hooks, carabiners, D-rings, and O-rings must meet all OSHA and ANSI specifications.
- 7.12 Vertical Lifelines: A component, element, or constituent of a lifeline subsystem, which consists of, a vertically suspended flexible line with a connector at the upper end for fastening it to an overhead anchorage or anchorage connector and along which a fall arrester travels.
- 7.13 Warning Line System: A barrier erected on a roof to warn employees that they are approaching an unprotected roof side or edge, and which designates an area in which work can be conducted without the use of guardrails, personal fall arrest systems, or safety nets to protect employees in the area. This can be utilized on any roof greater than 50 feet wide, set at a minimum of 6 feet back and not more than 25 feet from the leading edge, and in conjunction with a safety monitor only where the other forms of fall protection have been deemed infeasible to use.
 - 7.13.1 Prior to use of a warning line system, an evaluation shall be done of the roof decking to ensure it will support the anticipated loads which will be put upon it.
- 7.14 Work Platform: Any elevated surface designed or used primarily as a walking or working surface.
- 7.15 Declaration Device: 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 a fall.

Section 14 – Respiratory Protection

1.0 PURPOSE

The purpose of this Standard Safety Procedure is to provide DE-CAL employees with guidance in the selection, fit testing, usage, cleaning, storage, inspection, and maintenance of respiratory equipment.

2.0 POLICY

In the control of those occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors, the primary objective shall be to prevent atmospheric contamination. This shall be accomplished as far as feasible by accepted engineering control measures (for example, enclosure or confinement of the operation, general and local ventilation, and substitution of less toxic materials). When effective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used in accordance with this respiratory protection program. Respirators shall be provided when such equipment is necessary to protect the health of the employee. DE-CAL will provide the respirators, which are applicable and suitable for the purpose intended.

3.0 DEFINITIONS

- Air-line supplied respirator: means an atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user but is provided via an umbilical air-line (hose) system from a fixed source.
- Air-purifying respirator: means a respirator with an air-purifying filter, cartridge, or canister that physically or chemically removes specific air contaminants by passing ambient air through the air-purifying element.
- Atmosphere-supplying respirator: means a respirator that supplies the respirator user with breathing grade air from a source independent of the ambient atmosphere, and includes air-line supplied-air respirators (ALSARs) and self-contained breathing apparatus (SCBA) units.
- Canister or cartridge: means a container with a filter, sorbent, or catalyst, or combination of these items, that removes specific contaminants from the ambient air prior to that air passing through the inhalation valve on negative pressure respirators or prior to being forced through the user's breathing zone in powered air purifying respirators (PAPRs).

- Demand respirator: means an atmosphere-supplying respirator that admits breathing air to the face-piece only when a negative pressure is created inside the face-piece by inhalation.
- Emergency situation: means any occurrence such as but not limited to failure of control equipment that may result in an uncontrolled significant release of an airborne contaminant.
- Employee exposure: means exposure to a concentration of an airborne contaminant that would occur if the employee were not using respiratory protection.
- End-of-service-life indicator: means a system that warns the respirator user of the approach of the end of adequate respiratory protection—for example, that the sorbent is approaching saturation or is no longer effective.
- Escape bottle: means a cylinder of breathing air worn by the user which may provide air to an ALS respirator user under emergency conditions should the air source or air-line be compromised or fail.
- Escape-only respirator: means a respirator intended to be used only for emergency exit.
- Filter or air-purifying element: means a cartridge or filter component used on a respirator to remove solid or liquid aerosols from the inspired air.
- Filtering face piece: means a negative pressure particulate respirator with a filter as an integral part of the face piece or with the entire face piece composed of the filtering medium.
- Fit check: means the positive and negative pressure check to ensure a good fit and proper working condition of the respirator by the user each time a respirator is donned and throughout the shift as the device is readjusted on the face.
- Fit factor: means a quantitative estimate of the fit of a particular respirator make and model to a specific individual, derived from the ratio of the concentration of a

substance in ambient air to its concentration inside the respirator during the quantitative fit test.

- **Helmet:** means a rigid respiratory inlet covering that also provides head protection against impact and penetration.
- **High efficiency particulate air (HEPA) filter:** means a filter that is at least 99.97% efficient in removing monodisperse particles of 0.3 micrometers in diameter. The equivalent NIOSH 42 CFR 84 particulate filters are the N100, R100, and P100 filter.
- **Hood:** means a respiratory inlet covering that completely covers the head and neck and may also cover portions of the shoulders and torso.
- **Loose-fitting face piece:** means a respiratory inlet covering that is designed to form a partial seal with the face.
- **Maximum use concentration:** is the highest ambient contaminant concentration against which a given respirator system can be used for protection of the user. It is determined by multiplying the Permissible Exposure Limit (PEL) by the assigned protection factor for the selected respirator.
- **Negative pressure respirator (tight fitting):** means a respirator in which the air pressure inside the face piece is negative during inhalation with respect to the ambient air pressure outside the respirator.
- **Oxygen deficient atmosphere:** means an atmosphere with oxygen content below 19.5% by volume.
- **Physician or other licensed health care professional:** 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 health care services.
- **Positive Pressure demand respirator:** means a positive pressure atmosphere-supplying respirator that admits breathing air to the face piece when the positive pressure is reduced inside the face piece by inhalation.

- Positive pressure respirator: means a respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.
- Powered air-purifying respirator: means an air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.
- Protection Factor: Ratio of the airborne concentrations inside the respirator piece to the airborne concentrations outside the respirator piece. Assigned PF is established by the testing agency and is the designated level of protection for a given respiratory type by ANSI Z88.2 or specific OSHA standard.
- Qualified Person: One who by knowledge, training, or experience is competent in administering the respiratory protection program (Safety Manager).
- Qualitative fit test: Determination of respirator leakage by use of a test agent outside of the respirator face piece such as isoamyl acetate (banana oil), sucrose, or irritant smoke (stannic chloride). If the test subject senses the test agent, leakage is indicated. A quantitative fit test does not result in assignment of a fit factor, but does provide for assignment of the given respirator's protection factor if the test is successful. The fit test shall administered by a certified testing agency.
- Quantitative fit test: means an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator. The test result provides a Fit Factor for the given respirator. The fit test shall administered by a certified testing agency.
- Respirator Program Administrator: The Safety Manager designated to develop, implement, and manage the respiratory protection program.
- Respirator Wearer: An employee who is medically qualified, instructed, and trained, in the need, use, maintenance, sanitary care, and limitations of such respiratory protective equipment.
- Respiratory inlet covering: means the portion of a respirator that forms the protective barrier between the user's respiratory tract and an air-purifying device or breathing air

source or both. It may be a face piece, helmet, hood, suit, or a mouthpiece respirator with hose clamp.

- Self-contained breathing apparatus: means an atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.
- Service life means the period of time that a respirator, filter, sorbent, or other respiratory equipment provides adequate protection to the wearer.
- Supplied-air respirator: or air-line respirator means an atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.
- Tight-fitting face piece means a respiratory inlet covering which forms a complete seal with the face.
- User seal check means an action conducted by the respirator user to determine if the respirator is properly seated to the face. This is accomplished by a positive and negative pressure check.

4.0 REQUIREMENTS

Responsibilities

Whenever respiratory protective equipment, including protective masks and emergency use self-rescuer devices, is required, DE-CAL will maintain a respiratory protection program as described in this standard safety procedure. Before use, a certified safety professional should determine the suitability of a respirator for any intended uses. The DE-CAL Safety Manager will be responsible for implementing and administering this procedure and will:

- Conduct a step-by-step evaluation (Job-hazard analysis) to insure that only respiratory protection appropriate for the conditions of exposure is utilized.
- Determine the process necessary to medically qualify employees.
- Coordinate fit testing of each employee for the respirator selected. The fit test shall administered by a certified testing agency.
- Ensure the issuance of proper clearance to qualified employees
- Identify approved respiratory protective equipment.
- Coordinate instruction and training in the use, basis of selection, inspection, maintenance, sanitary care, storage, cartridge or canister replacement protocol, and limitations of respiratory protective equipment being used.
- Coordinate the repair or replacement of respiratory protective equipment as may be required due to wear and deterioration.

- Ensure that routinely used respiratory equipment is regularly cleaned, inspected, and sanitized.
- Ensure that the applicable employee supervisors are trained by the guidelines of this procedure and are monitoring to ensure that their employees are complying with user responsibilities.
- Establish a site specific respiratory protection program meeting the requirements of 29 CFR 1910.134.
- Establish the medical evaluation process required to approve employees for respirator use. The medical evaluation process for the site shall use the medical questionnaire. (Attachment 1)
- Ensure that employees designated to use respirators are fit tested. The fit test shall administered by a certified testing agency.
- Define the respirators to be used and coordinate the resources for issuance, maintenance, cleaning, and repair.
- Ensure that routinely used respiratory protective equipment is regularly inspected, cleaned, and sanitized

Employees must be trained and understand the safety and health requirements of this procedure that apply to the work they perform. The responsibility of the employee is as follows:

- Be clean-shaven and have hair that is cut to ensure a proper fit. Employees must be clean shaven, with no growth below the lower lip/corner of the mouth.
- Notify the DE-CAL Safety Manager if corrective lenses are needed while wearing a full-face respirator. This shall be determined at the time of the user's fit test.
- Use only approved respiratory equipment.
- Inspect respirators and perform a face piece field fit check each time the respirator is donned and periodically while in use.
- Use respirators per manufacturer's instructions.
- Do not pass respiratory equipment from one employee to another.
- Inspect, clean, maintain, and store the respirator as instructed.

Hazard Assessment

Each individual process shall be defined and each potentially hazardous work area shall be delineated. Potential air contaminants shall be identified and quantified through use of personal air sampling or if not feasible through area monitoring. Air contaminant levels found shall be compared to OSHA/MSHA/MIOSHA permissible exposure limits, short term exposure limits or ceiling limits. The workers involved in each area and air contaminant level to which each worker is potentially exposed shall be identified. Both normal working conditions and possible emergency situations shall be considered.

Whenever it is possible it is the policy of DE-CAL to institute feasible engineering controls. If engineering controls are not feasible, then respirators shall be used. While the respirators are in use, if there is a change in process and air contaminant levels might change, reevaluation is necessary. The results of the assessment will be stored as written records and shall be maintained.

General

The DE-CAL Safety Manager shall confer with the owner and/or operators of the facility to determine the appropriate respiratory protection to be used. Extensive research must be done to identify the potential hazards and types of respiratory dangers that may be encountered. Based on the information available (manufacturer's data, site air monitoring data, work methods, etc.), a cartridge change-out schedule for air purifying respirators shall be developed. Generally cartridges should be changed daily, when break through occurs or breathing becomes difficult.

No employee will be assigned work that requires the use of a respirator unless it has been determined (by the approval, signature and documentation of a health professional) that the employee is physically able to perform the work while using the designated equipment, with the exception of employees who voluntarily use filtering face pieces (dust masks). The employee must also be fit tested prior to being assigned work requiring a respirator. The fit test shall administered by a certified testing agency.

Records

Documentation of fit testing, waiver, verification of medical qualification and other documented standard safety procedure methods shall be kept confidentially in the Safety Manager's office.

Medical Evaluation

No employee can be assigned work that requires a respirator until it has been determined that they are physically able to perform the work required while wearing a respirator. All employees required to wear a respirator shall be given a pre-employment and an annual medical assessment by a physician or other licensed health care professional. The physician or other licensed health care professional shall make this determination after evaluating the following employee information:

- Respirator User Medical Questionnaire (Attachment 1)
 1. Complete a physical and fit test. The fit test shall administered by a certified testing agency.
 2. A complete physical examination, with emphasis on the respiratory and cardiovascular systems and digestive tract.
 3. Blood pressure, pulse rate, height, weight, etc., taken by someone certified as an EMT or licensed as a registered nurse.
 4. Additional physical testing and follow up examination as required by the physician or other licensed health care professional.

Medical evaluations and fit testing are required to be completed at least annually or as required by changes in the employee's physical condition (some respiratory protection usage may require semi-annual fit testing per OSHA requirement).

After the evaluation, the attending physician will forward to the Safety Manager the medical opinion. Medical evaluations/reviews will be conducted every year or upon changes in employees' physical condition.

The follow-up medical examination shall include any medical tests, consultations, or diagnostic procedures that the physician or other licensed health care professional deems necessary to make the final determination. The medical questionnaire and examination will be administered confidentially during the employee's normal working hours or at the time and place convenient to the employee. The employee will be given an opportunity to discuss the results of the medical questionnaire or examination with the physician or other licensed health care professional.

Training

The Safety Manager shall train or arrange for training for each respirator user in the proper respirator techniques, user fit check methods, use, limitations, inspection, maintenance, cleaning, storage, and care of the respirators to be used. This training is to be repeated annually. A training attendance roster must be completed and signed by the trainer and employees attending the training. Prior to use, the Respirator Program Administrator shall ensure the appropriate fit test on each individual expected to become a respirator user. Fit testing may not occur prior to the medical evaluation and approval for respirator use by the Physician or other licensed health care professional. Evaluation procedures used to determine the effectiveness of this procedure and a respirator user's part in the evaluation shall be included in training of employees.

Refresher training will be administered at least annually, or when one of the following conditions occurs:

- Changes in the workplace or the type of respirator render previous training obsolete or inadequate.
- A deficiency in an employee's demonstrated knowledge or use of the respirator indicates that the employee has not retained the requisite understanding or skill.
- Any other situation in which retraining appears necessary to ensure safe respirator use.

Fit Tests

- **General:** Each respirator shall be fit tested to the wearer to ensure minimum face piece leakage. The fit test must be conducted in a well-ventilated area. The fit test shall be conducted for both half- and full-face respirators, as needed. The fit test shall be performed on the respirator type, make, model, and size the employee will wear. Only clean-shaven persons who are medically certified to wear a respirator will wear a respirator. As a minimum, qualitative fit testing shall be performed before workers use any tight fitting face piece (negative pressure) respirators. The preferred method, however, is quantitative. Employees shall be allowed to pick the most comfortable respirator from a selection including respirators of various sizes and models. Safety glasses shall be worn while fit test is being conducted.
- **Frequency:** Fit testing will be completed annually, except when regulations require more frequent testing (i.e., when respirators are used for protection against asbestos, benzene, lead, vinyl chloride, etc.). The Respirator Program Administrator shall maintain records of fit testing and medical qualification. Fit testing is also required if there is a change in facial appearance (i.e., gain or loss of weight, extensive dental work, etc.), facial scarring, dental changes, cosmetic surgery, or when a type, make, model, or size change in respirator occurs.

- Documentation: Each respirator fit test shall be documented. This record shall be submitted for retention for a period of two years. All subsequent fit test records will also be forwarded to the Safety Manager.
- Fit Test Methods: Qualitative fit testing shall be performed and documented using a method prescribed by OSHA (see Attachment 9). Quantitative fit testing is mandatory with certain OSHA regulations and preferred in lieu of qualitative testing for all other applications. Positive pressure respirators must be fit tested in the negative pressure mode, regardless of the mode normally used.

Cleaning, Maintenance, Storage, and Inspection

This standard safety procedure shall establish a system to ensure that respirators are properly stored, maintained, inspected, and cleaned according to manufacturer's recommendations. Employees will be provided a respirator that is clean, sanitary, and in good working order. Cleaning of personal respirators is the responsibility of each employee. Respirator users who have respirators assigned for their personal use must inspect and clean their respirators at least daily when used, or more frequently, if necessary.

Respirators, including self-contained breathing apparatus (SCBA) used for emergency purposes and respirators used for escape will be inspected monthly or after each use, whichever is more frequent. These respirators will be protected from the elements. A tag shall be maintained affixed to the device or its protective case or housing. Each inspection shall be logged on the tag and include:

- Inspector's initials
- Inspection date
- Status and inspection findings with comment as necessary

Inspection information shall be forwarded to the Safety Manager monthly

Respirators shall always be placed on a flat surface; respirators are not to be hung by their straps and shall be stored in a cool, dry location with moderate temperatures. Respiratory protection equipment shall not be subjected to extreme temperatures, hot or cold, and shall be stored to protect against direct sunlight or heat, chemical contamination, or distortion of its pliable synthetic materials. Respirator parts from one respirator manufacturer shall not be interchanged with those of another. Respirators found to be defective during inspection shall be repaired, immediately or tagged "out of service", or discarded. Air-purifying chemical cartridges available for protection against specific chemical compounds are to be used for that hazard only. The service life and effectiveness of the cartridge will depend on the activity of the wearer (breathing rate etc.) volatility, and concentration of the chemical.

All air-purifying respirators cleaned onsite shall be inspected daily before use. When replacing worn or deteriorated parts, only those made specifically for the device shall be used. Respirator certification is voided if parts other than the specified part for a specific respirator are used. Air-purifying cartridges shall be replaced according to the replacement schedule specified for the job. They should also be replaced at the first trace of contaminant odor, other user-detected warning property, or any increased resistance to breathing while wearing the respirator.

Respirator Selection

Respiratory protective devices will be used whenever engineering controls are not feasible and when airborne contaminants exceed or are anticipated to exceed published regulatory standards or project specific action levels. These devices will be specified according to the concentration and type of the airborne contamination present or expected at each work site. Respirators shall be NIOSH certified. Consideration of other job site conditions such as heat stress, visibility and lighting, low temperatures, and other safety issues will be factored into the selection process. Before a respirator can be issued to protect the worker from a respiratory hazard, the work area must be evaluated for chemical or radiological hazards.

In the selection of respiratory protective equipment, the following factors will be considered:

- Nature and basis of the hazard (e.g., dust, mist, spray, fume, vapor, gas, or combination)
- Potential for an oxygen deficient atmosphere
- Potential for other IDLH atmospheric conditions
- Concentration of the contaminant(s)
- Characteristics and limitations of the available respirators
- Expected activity of the worker

Uses and Limitations

Respirators will only be used for the tasks that the Safety Manager approves. Air-purifying respirators will not be used when:

- atmospheric contaminants are unknown;
- IDLH
- oxygen deficient environments; when the contaminants have 'poor' warning properties
- when air monitoring data does not exist to document the ambient contaminant levels.
- chemical cartridge respirators are intended for limited use in a toxic atmosphere.

Regardless of the written change schedule, cartridges will be changed whenever the wearer detects the odor of the contaminant or has an increased resistance to breathing.

Precautions

Respirators usually provide a satisfactory pathway for speech transmission over short distances in relatively quiet areas. An alternate form of communication between workers is available where respirators are to be used in high noise areas or long distances such as crane signals. Ear microphones are available to be attached to hand held radios. Another possible hazard is moisture that collects on the inside of masks. To prevent face pieces from fogging up in low temperature, anti-fog compounds may be used to coat the inside of the full-face-piece lens. The respirator manufacturers also provides nose cups for their full-face piece respirators which channel the moisture-laden exhaled air directly out through the exhalation valves. The equipment will not create additional hazards. Hoses for air supply will be selected to resist chemicals to which they may be exposed. And all air fittings associated with airline supply and SCBA equipment shall be incompatible with other gas systems onsite.

Voluntary Use of Respirators

An employee may request to use a respirator in situations where respirator use is not required by regulation or by program procedure. In such a case, DE-CAL must determine that such respirator use will not in itself create a hazard. Factors such as heat stress and limited visibility are among the issues to be considered. When voluntary respirator use is permitted, the following items apply:

- DE-CAL may provide respirators at the request of employees. If voluntary respirator use is allowed, the Safety Manager will provide the respirator users with OSHA Appendix D form.
- All employees (except office personnel) are medically qualified to use air purifying respirators and filtering face pieces

Breathing Air Quality

When filling SCBA and escape cylinders comply with the conditions below.

Compressor Supplied Breathing Air - Compressed air that is used in supplied air respirators, such as SCBAs, shall be high purity. Breathing air shall meet all requirements of the American National Standards Institute (ANSI) for the minimum of Grade D breathing air. Pure oxygen shall never be substituted for compressed air. The specifications for Grade D breathing air, as listed in 29CFR OSHA 1910.134 (Reference Compressed Gas Association), are:

- Oxygen content of 19.5 - 23.5 %
- Hydrocarbon (condensed) of 5 mg per cubic meter of air or less
- CO content of 10 PPM or less
- CO₂ content of 1000 PPM or less
- Lack of noticeable odor
- Air supplied in cylinders shall not have a dew point greater than 50 degrees F (-45.6 degrees C).

Breathing air may be supplied to respirators from cylinders or compressor systems. Oxygen content shall not exceed 23.5 % except in systems specifically designed for oxygen distribution.

An oil-less compressor is preferred over an oil-lubricated compressor. All compressor systems shall be equipped and maintained in accordance with the manufacturer's specifications or better. Oil-lubricated compressors shall be equipped with a high-temperature shut off and/or an alarm system and alarm actuation system to safeguard against exposure to carbon monoxide, compressor failure, and monitor failure. If only a high temperature alarm is used, the air shall be tested daily for carbon monoxide unless specified otherwise by the Respiratory Protection Program Administrator. Test results shall be documented. (De-Calnuous CO monitors are highly recommended.) Filters shall be entrained for removal of water and oil from the breathing air. A receiver vessel of sufficient capacity to enable the respirator wearer to escape from a contaminated atmosphere shall be installed in the event of compressor failure. Additional requirements for compressor supplied breathing air are:

- System constructed to prevent entry of contaminated air into the breathing air system.

- Minimize moisture content so that the dew point at 1 atmosphere is 10 degrees F (5.56 degrees C) below ambient temperature.
- If equipped with in-line air-purifying sorbent beds and/or filters, these sorbent beds and filters are to be maintained and cleaned or changed, according to the manufacturer's recommendations. A tag affixed to the compressor shall indicate the most recent change date and the signature of the individual authorized to make the change.

Program Evaluation

The project respiratory protection program will be evaluated on an ongoing basis to determine the program effectiveness. There should be four main concepts that should be considered when reevaluating the respiratory protection program. These are the worker acceptance of the program, inspection results, appraisal of protection afforded, and the documentation involved with the program. Evaluation should, but is not limited to, include the following:

1. Review of current airborne contaminant monitoring data to insure sufficient protection is afforded all respirator users
2. Review of technical information
3. Compliance with regulation
4. Review of medical qualifications and medical requirements
5. Review of training qualifications, training documents and plans
6. Review of respirator fit-test documentation
7. Review of reports of respirator or cartridge failures
8. Review of inspection procedures
9. Record keeping requirements
10. Consultation with respirator wearers to determine their views on the effectiveness of the program



DRUG AND ALCOHOL SCREENING
PROGRAM

Table of Contents

		Page
Section 1	Statement of Purpose	3
Section 2	Prohibited Conduct	3
Section 3	Required Tests	6
Section 4	Consequences for Policy Violations	8
Section 5	Notifications of Test Results, Confidentiality, Testing Expense, and Compensation for Tests	9
Section 6	Testing Procedures	9
Section 7	Inspections	12
Tab A	Employee Policy Receipt	13
Tab B	Guidelines for Making “Reasonable Suspicion” Determinations	14
Tab C	“Reasonable Suspicion” Report	19
Tab D	“Reasonable Suspicion” Test Procedures Checklist	22

SUBSTANCE ABUSE POLICY FOR EMPLOYEES

1. STATEMENT OF PURPOSE

- 1.1. De-Cal, Inc. (referred to herein as “Company”) is firmly committed to ensuring a safe, healthy, productive, and efficient work environment for our employees, as well as our customers, and the public in general. The Company has a vital interest in ensuring a safe, healthy, and efficient working environment and in preventing accidents and injuries resulting from the misuse of alcohol or drugs. The unlawful or improper presence or use of drugs or alcohol in the workplace presents a danger to everyone. For these reasons, the Company has established the following substance abuse policy. As provided below, drug and alcohol testing is an integral part of our substance abuse policy. Compliance with the policy is required as a condition of continued employment with the Company.
- 1.2. This policy applies to all Company employees, including employees in managerial or supervisory positions. This policy does not apply to employees in driver positions that are subject to the drug and alcohol testing requirements of the U.S. Department of Transportation, Federal Motor Carrier Safety Administration. Those employees are subject to a separate drug and alcohol testing policy.
- 1.3. The Company maintains a policy of non-discrimination and will work with local unions to assist recovering addicts or alcoholics and those having a medical history reflecting treatment for substance abuse conditions. We encourage employees to seek assistance before their drug and alcohol use renders them unable to perform their essential job functions or jeopardizes the health and safety of themselves or others.
- 1.4. Questions regarding the meaning or application of this policy should be directed to the Company’s Human Resources Department.
- 1.5. This policy is not a contract of employment. All Company employees are employees at-will, except as state or local law may limit such status and except as this paragraph may otherwise provide. This means that employment can be terminated at any time either by the employee or Company with or without cause and with or without notice. Union employees will be subject to employment as outlined in the union/management agreements.

2. PROHIBITED CONDUCT

2.1. Prohibited Conduct Concerning Alcohol And Drug

The following conduct by employees is prohibited:

- a) **Reporting for work or remaining on duty after the employee has consumed alcohol in any amount that adversely affects the employee’s job performance.**
- b) **Consuming alcohol at any time during an employee’s workday. This includes, but is not limited to, while an employee is on or off the premises of the Company, as well as during the employee’s meal and other break periods**

- I. **Exception: This prohibition does not include the authorized and reasonable consumption of alcohol by an employee of legal drinking age at functions or activities sponsored by the Company or a client. However, an employee who is requested to submit to a “reasonable suspicion” alcohol test as a result of such drinking and whose breath alcohol test result is 0.04 or greater will be considered to have consumed more than a reasonable amount and will be in violation of this policy. Responsible, professional, business-like behavior is expected of employees (including management) at all times. Inappropriate, unprofessional behavior associated with alcohol consumption may subject employees (including management) to disciplinary action, up to and including termination.**
- c) **Consuming alcohol within the eight-hour period immediately following a work-related accident (as defined in Section 3.2) or until the employee has submitted to a post-accident alcohol test, whichever comes first.**
- d) **Engaging in any illegal or unauthorized use of drugs at any time while on or off-duty. This includes, but is not limited to, while an employee is on or off the premises of the Company, as well as during the employee’s meal and other break periods. This also includes, but is not limited to, the use of “medical marijuana” on Company premises or during work hours. Marijuana is illegal under federal law and the Company does not permit the use of marijuana on Company premises or during work hours. Also, see paragraph (h) below.**

- I. This prohibition does not apply to prescription or over-the-counter medications (other than “medical marijuana”) that:
1. have been lawfully prescribed to, or obtained by, the employee;
 2. are being used by the employee in accordance with the prescription’s guidelines (if applicable); and
 3. before reporting to work under the influence of such medication, the employee has inquired whether the drug manufacturer or the employee's physician warns against driving, operating machinery or performing other work-related tasks. If such warnings exist, the employee taking the medication must inform his or her supervisor of such restrictions before reporting to work under the influence of such substances. The Company will evaluate and respond to this information on a case-by-case basis. Responses may include, among other things, temporary job reassignment or modifications, a request for additional medical documentation and consultation, and/or an instruction that the employee not work until the restriction is removed. Any employee reporting to work without first advising the Company about warnings accompanying lawfully prescribed or obtained medications will be subject to disciplinary action up to and including possible termination of employment. An employee's lack of knowledge concerning such warnings will not excuse a violation of this rule where an employee has failed to make the inquiries required by this rule.

- e) Failing to stay in contact with the Company or its medical review officer while awaiting the results of a drug test.
- f) Engaging in the unlawful or unauthorized manufacture, distribution, dispensation, solicitation, sale, purchase, transfer or possession of drugs or alcohol while on Company-paid time, on Company premises, in Company vehicles, or while otherwise engaged in activities for or on behalf of the Company. This prohibition does not include the authorized distribution, dispensation, solicitation, sale, purchase, transfer, or possession of alcohol at Company sponsored functions or activities. In addition, an employee's illegal conduct involving drugs or alcohol during non-work times may also result in discipline, up to and including discharge.
- g) The refusal to submit to any drug or alcohol test that is required under the Company's policy will result in the employee's immediate termination of employment.
- h) Testing positive on any drug or alcohol test required under this policy (including without limitation due to the use of "medical marijuana.")

2.2. Refusal to Submit to a Test: An employee who engages in any of the following conduct will be considered to have refused to submit to a test:

- a. Refusing or failing to appear for any substance abuse test within a specified time, as determined by the Company, after being directed to do so by the Company.
- b. Failing to sign an authorization form permitting the release of the drug and/or alcohol test result to the Company.
- c. Failing to remain at the testing site until the testing process is complete.
- d. Failing to provide a urine specimen, or breath, hair or saliva specimen for testing.
- e. Failing to attempt to provide a urine, breath, hair or saliva specimen for testing.
- f. Failing to provide a sufficient amount of urine or breath when directed, without an adequate medical explanation.
- g. Failing or declining to take a second drug or alcohol test that the Company or collector has directed to be taken.
- h. Failing to undergo a medical examination or evaluation, as directed by the MRO as part of the verification process, or as directed by the Company as part of the "shy bladder" procedures, or the insufficient breath procedures.
- i. Adulterating or substituting a urine specimen, or attempting to adulterate or substitute a urine specimen.

- j. **Refusing or failing to notify the Company promptly that the employee was involved in a work-related accident (as defined in Section 3.2 of this policy), without a valid excuse; or,**
 - k. **Failing to cooperate with any part of the testing process such as by delaying the collection, testing or verification process or otherwise engaging in conduct that clearly obstructs or manipulates, or attempts to obstruct or manipulate, the testing process.**
- 2.3. **Consumption of Food or Food-Products Containing Hemp:** The consumption of food and food-products containing hemp may cause an employee to test positive. A test result that is positive as a result of an employee’s consumption of food or food-products containing or made from hemp or hemp products will be reported as a positive test and subject the employee to discipline, up to and including termination.
- 2.4. **Prohibition On Employee Working:** No supervisor or manager who has actual knowledge that an employee has engaged in or is engaging in conduct prohibited under this policy shall permit the employee to work or continue working under such circumstances. Any employee who has been directed not to work or directed to stop working under such circumstances must immediately comply.
- 2.5. **Drug Convictions:** Pursuant to federal law, employees must notify their supervisor or local Human Resources/Safety Manager of any criminal drug statute conviction for a violation occurring within the workplace within five (5) days of such conviction. Within ten (10) days of such notification or other actual notice, the Company will advise the contracting agency of such conviction. In addition, employee charged with or convicted of a drug-related offense shall report the occurrence to his or her supervisor before reporting for further duty. Any employee convicted of a drug-related offense during his/her term of employment, whether based on activity on or off the job, shall be considered in violation of this policy and may be subject to adverse employment action described in Section 4.2 below, including possible termination, in the Company’s sole discretion. If the employee has been charged with a drug-related offense, the Company may suspend the employee without pay pending the outcome of the charge.

3. REQUIRED TESTS

Except as otherwise provided in this policy, employees are required to submit to testing under the circumstances described below. Except where conditions otherwise require, all tests will normally be conducted either during or immediately after the regular work period, which includes any period when an employee is working overtime. Employees will be paid for time spent being tested.

3.1. “Reasonable Suspicion” Drug and Alcohol Testing

- a. **An employee must submit to a drug test and/or an alcohol test whenever the Company has reason to suspect the employee has or may have used drugs or alcohol in violation of the Company’s policy.**
- b. **Except as state or local law may otherwise provide, the Company’s “reasonable suspicion” determinations will be based on specific, current observations that can be verbalized, including but not limited to the employee’s actions, comments, appearance, behavior, speech, or body odors. These observations may also include**

determines that there is no legitimate medical explanation for the individual's failure to provide an adequate amount of urine, this will constitute a refusal to submit to a test. Alternatively, the Company may request that the employee submit to a blood test.

If the physician determines that there is a legitimate medical explanation for the individual's failure to provide an adequate amount of urine, the Company, in consultation with the physician or MRO, will determine whether the employee should be retested, including whether a reasonable accommodation, if applicable, can be made which will provide an adequate, accurate and timely test result that will not impose an undue hardship on the program.

f. Specimen temperature requirements

Employees must provide a urine specimen that has a temperature range of 90 to 100 degrees Fahrenheit. If the specimen is greater or less than the specified range the specimen is considered void and will not be tested. The employee will be allowed to drink up to 40 ounces of fluids and provide a new specimen. Failing to provide an adequate specimen may result in the second specimen collection being observed by a medical professional. If the employee refuses to drink the fluids as directed, or refuses to provide a new urine specimen, this will constitute a refusal to submit to a test

6.2. Alcohol Testing

- a. **In general: Alcohol screening tests will be performed by using either a screening test technician ("STT") using a non-evidential screening device which the STT is proficient to operate, or by a breath alcohol technician ("BAT") using an evidential breath testing device ("EBT") which the BAT is proficient to operate. The Company will only use non-evidential alcohol screening devices that are on the National Highway Traffic Safety Administration's ("NHTSA") Conforming Products List ("CPL") for non-evidential screening devices and EBTs which are on the NHTSA's CPL for evidential breath measurement devices.**

- b. **Confirmation of alcohol test results:**

If the result of the screening test is an alcohol concentration of 0.02 or greater, a confirmation test will be performed. The confirmation test will be conducted within 30 minutes from the end of the screening test. If the confirmation test result is an alcohol concentration level of 0.02 or greater, the test result will be reported as a positive. The confirmation test result is the final result upon which any discipline or other action taken under the Company's policy shall be based.

- c. **Inability to provide adequate specimen amount for alcohol testing:**

If the employee is unable to provide sufficient saliva to complete a test on a saliva screening device, the STT shall conduct a new test, using a new device. If the employee refuses to complete the new test, this will constitute a refusal to submit to a test and the employee will be terminated. If the new test is completed, but there is an insufficient amount of saliva to activate the device, the employee shall immediately take a breath alcohol test using an EBT. If the employee refuses to submit to the test using an EBT the employee will be terminated.

Alternatively, urine specimens may be collected on-site and then shipped to an outside laboratory for analysis.

b. Outside laboratories.

When drug testing is conducted at outside collection facilities/laboratories, the tests shall consist of urine or saliva testing. The laboratories analyzing the test results will be certified by the U.S. Department of Health and Human Services (“DHHS-certified laboratory”) or as otherwise required or permitted under applicable state law.

c. Drugs to be tested for.

The drugs to be tested for include Marijuana, Opiates, Amphetamines, Cocaine, Methamphetamine, Oxycodone, Propoxyphene, Benzodiazepines, Methadone, and their metabolites. The Company reserves the right to test for additional drugs as it deems appropriate.

d. Confirmation and review of drug test result

All positive drug test results will be confirmed by gas chromatography and mass spectrometry (“GC/MS”). All confirmed positive drug test results will be reviewed by a medical review officer (“MRO”) to determine whether there is any legitimate explanation for the positive test result. This review may include a medical interview, review of the employee’s medical history, or review of any other relevant biomedical factors and all medical records made available by the employee. The use of “medical marijuana” will not excuse a positive test result. Marijuana is illegal under federal law.

An employee’s use of prescription and over-the-counter medications may result in a positive test result. Employees will be given the opportunity to discuss with the MRO any legitimate explanation for the positive test result. If the MRO determines that there is a legitimate medical explanation for the confirmed positive test result, the MRO will report the test result as negative. If the MRO determines that there is no legitimate explanation for the confirmed positive test result, the result will be verified by the MRO as a confirmed positive test.

If an employee refuses or fails to make himself/herself available to speak with the MRO, the MRO may verify a test as positive without having communicated directly with the tested individual.

If the MRO reports to the Company that a negative drug test was dilute, the employee will be directed to take another test immediately. If the employee refuses to take a second test, this constitutes a refusal to test.

e. Inability to provide adequate amount of urine

Employees must provide at least 45 milliliters of urine for a drug test. If the employee is unable to provide such a quantity of urine, then the individual will be instructed to drink a set amount of fluids and, after a set period of time, again directed to provide a complete specimen. Failing to provide an adequate specimen may result in the second specimen collection being observed by a medical professional. If the employee refuses to drink the fluids as directed, or refuses to provide a new urine specimen, this will constitute a refusal to submit to a test.

If an employee has not provided a sufficient specimen within a certain time period after the first unsuccessful attempt to provide the specimen, the Company will direct the employee to obtain a medical evaluation, as soon as possible, from a physician selected by the Company. If the physician

records and conducting the examination. Depending upon the results of the evaluation, the Company will consider whether the safety or health risk can be eliminated or sufficiently reduced by a reasonable accommodation, if applicable.

- 4.5. Potential Loss of Workers' Compensation and/or Unemployment Compensation Benefits: An employee's violation of the Company's policy will be considered as gross and willful misconduct. In addition to the discipline and other consequences imposed under this policy, therefore, such employee misconduct may also result in the denial of unemployment compensation under applicable state law. Additionally, employees who are injured as a result of using drugs or alcohol in violation of this policy and/or the other Company safety rules also risk forfeiture of workers' compensation benefits under the applicable state law.

5. NOTIFICATION OF TEST RESULTS, CONFIDENTIALITY, TESTING EXPENSES AND COMPENSATION FOR TESTS

- 5.1. Employees will be provided with a copy of their test results if they test positive, unless otherwise required by law.
- 5.2. The Company will maintain records of its substance abuse program in a secure location with controlled access. These records are confidential and will not be disclosed, except in accordance with applicable law.
- 5.3. The Company will pay for all drug tests required by the Company, including a confirmation drug test performed on an employee's primary urine specimen. The Company will also pay for the cost of the employee's transportation to a collection site when the test is conducted at a place other than the employee's normal work site.
- 5.4. All time an employee spends providing a saliva, breath or urine specimen, including travel time to and from the collection site in order to comply with a test required under this policy, shall be considered as working time.

6. TESTING PROCEDURES

The Company's drug and alcohol testing procedures comply with applicable state law. The Company's procedures ensure the integrity, confidentiality, and reliability of the testing process, safeguard the validity of the test results and ensure that test results are attributed to the correct individual. The procedures also minimize the impact upon the privacy and dignity of employees undergoing such tests.

6.1. Drug Testing

a. On-site testing.

The Company may conduct drug testing through the use of on-site urine or oral swab testing kits that are FDA-approved. If the on-site test yields a negative result, there will be no further testing. If the on-site test yields a positive or non-negative test result, the employee will be sent to an outside collection facility/laboratory for further testing. If the test is performed by a contracted clinic, the MRO will review the test and determine if it is a positive test. The employee may opt, at their own expense, to have the sample sent into a lab for confirmation through a GC/MS laboratory analysis. Employees must agree to submit to testing at an outside collection facility/laboratory or they will be deemed to have refused to submit to a test.

4. **The Company also reserves the right to evaluate the employee's conduct that triggered the test, to determine if the conduct in and of itself warrants discipline, up to and including termination.**

4. **CONSEQUENCES FOR POLICY VIOLATIONS**

Employees who violate the Company's policy are subject to the following consequences:

- 4.1. **Refusal to Submit**: Employees who refuse to submit to a test when requested will be terminated from employment. Refer to section 2.2 of this policy for a description of the conduct which will be considered as a refusal to submit to a test.
- 4.2. **Positive Test Results**: If the Company receives a verified confirmed positive drug or a confirmed alcohol test result of 0.02 (0.04 for Company events) or greater for the employee, the Company may in its sole discretion take corrective action against the employee. Corrective employment action may include any of the following:
 - a. Termination of employment.
 - b. Suspension of the employee, with or without pay, for a designated period of time.
 - c. The Company may in its sole discretion offer a full-time employee, as an alternative to termination, the option to participate in the Employee Assistance Program (EAP) or Substance Abuse Program (SAP) of the employee's choice acceptable to the Company, at the employee's sole expense, for an appropriate counseling, treatment or rehabilitation program, if recommended. If an employee is offered and accepts this option, the employee may not return to duty until he or she agrees to participate in the program and follow any program recommendations in full. To remain employed, the employee must also agree to participate in a return-to-duty test and, at the recommendation of the SAP and additional unannounced follow-up testing. Such tests will be paid for by the Company. See Section 7 below for additional requirements.
 - d. Other corrective action at the Company's discretion.
- 4.3. **Other Policy Violations**: The employee will be immediately removed from his or her job duties and will be subject to discipline, up to and including termination. In addition to the consequences imposed under this policy, an employee who unlawfully manufactures, distributes, possesses, or uses a controlled substance may be subject to criminal fines and/or imprisonment under federal, state and/or local law. Anyone found to be in possession of a controlled substance or refuses to be escorted after found to be in violation of the alcohol policy will be reported to the local law enforcement department in whose jurisdiction the violation occurs.
- 4.4. **Fitness-For-Duty Evaluation**: Whenever an employee is required to submit to a "reasonable suspicion" test and receives a negative test result, the Company may require the employee to submit to a fitness-for-duty evaluation. The evaluation may include a review of the employee's medical records and/or a medical examination. The purpose of the evaluation is to determine whether the employee poses a significant risk of substantial harm to the health and safety of the employee or others in the workplace, including customers and visitors. Employees will be required to provide the necessary authorizations for obtaining the medical

indications of an employee's chronic use of, or the effects of withdrawal from, drugs or alcohol. The determination may be based on a single instance of conduct involving a serious potential risk of harm to the employee or others, or to Company property or the property of others.

- c. All "reasonable suspicion" tests must be administered as soon as possible following the determination.
- d. The Company shall transport or make arrangements for the transport of the employee to and from the collection site.
- e. An employee who is required to submit to a "reasonable suspicion" test will be suspended after the completion of the drug or alcohol tests. The Company also reserves the right to evaluate the employee's conduct that triggered the drug and/or alcohol test, to determine if the conduct in and of itself warrants discipline, up to and including termination.

3.2. Post-Accident Drug and Alcohol Testing:

a. Unless otherwise required by state or local law, whenever an employee causes or contributes to a work-related accident (as defined below), the employee will be required to submit to a drug test and/or an alcohol test.

- 1. As used in this policy, "work-related accident" means an accident:
 - i. which occurs while the employee is on the premises of the Company or at another work-site location, or is off-site while engaged in activities for or on behalf of the Company, or while the employee is operating a vehicle, including the employee's, for or on behalf of the Company, and
 - ii. the accident results in one or more of the following: (i) a fatality; or (ii) bodily injury to any individual who, as a result of the accident, requires immediate medical treatment (including first aid) at or away from the scene of the accident; or (iii) any property damage.
- 2. All post-accident tests must be administered as soon as possible following the accident. Employees who are involved in a work-related accident must remain readily available for testing or will be considered to have refused to submit to a test. However, an employee who is involved in a work-related accident is not prohibited from leaving the scene of an accident for the period of time necessary to obtain assistance in responding to the accident or to obtain necessary emergency medical care for the employee or others who are injured as a result of the accident.
- 3. Except where circumstances do not permit, the Company shall transport or make arrangements for the transport of the employee to and from the collection site.

6.3. Each employee shall blow forcefully into the mouthpiece of the EBT for at least six (6) seconds or until the EBT indicates that an adequate amount of breath has been obtained. If an employee fails to provide or claims that he or she is unable to provide a sufficient amount of breath to permit a valid breath test, the Company will direct the employee to obtain, within five days, an evaluation from a licensed physician who is acceptable to the Company and who has expertise in the medical issues raised by the employee's failure to provide a sufficient specimen. Failure to undergo such an evaluation constitutes a refusal to test. If the physician concludes that a medical condition has, or with a high degree of probability could have, precluded the employee from providing a sufficient amount of breath, the employee's test will be canceled. If the physician concludes that there is not an adequate basis for determining that a medical condition has, or with a high degree of probability could have, precluded the employee from providing a sufficient amount of breath, the employee will be considered to have refused to test. Alternatively, the Company may direct the employee to submit to a blood test.

7. INSPECTIONS

- 7.1. Inspections Of Company Property: The Company may conduct unannounced random inspections at any time and without cause for the presence of illegal drugs or unauthorized alcohol on Company facilities and property such as (but not limited to) Company-issued vehicles, desks, file cabinets, and lockers. Employees are expected to cooperate in the conduct of such inspections.
- 7.2. Inspections Of Individual Property: Personal inspections of employees and their personal property, such as (but not limited to) vehicles, clothing, packages, purses, brief cases, lunch boxes, or other containers brought onto or being taken off of Company premises, may be conducted by the Company in an effort to provide a workplace free of drugs, alcohol and weapons. Inspections will include visual and other means used for the detection of drugs, alcohol, weapons, and other contraband.

Tab A

RECEIPT OF SUBSTANCE ABUSE POLICY FOR EMPLOYEES

EMPLOYEE'S CERTIFICATION:

I hereby acknowledge that I received a copy of De-Cal, Inc. ("Company") Substance Abuse Policy for Employees on the date noted below. I acknowledge and agree that I am responsible for reading the policy in full and complying with its requirements. I have also been advised and understand that the Company will answer any questions which I may have regarding the policy and that my questions should be addressed to the Human Resources Manager. I also understand and acknowledge that in signing this receipt I am giving the Company my consent to submit to the Company's drug and alcohol tests under the terms and conditions described in the policy.

Prior to signing this Receipt, I read it carefully and had an opportunity to ask questions regarding its content.

Signature of Employee: _____

Date: _____

(Print name)

GUIDELINES FOR MAKING
“REASONABLE SUSPICION” DETERMINATIONS

IN GENERAL: Employees may be at work in a condition that raises concern regarding their safety or productivity or the safety of others. If a supervisor, manager, or another Company official with training in the identification of the signs and symptoms of drug use or alcohol misuse reasonably concludes that there are objective facts which indicate the employee has used or may be using drugs or alcohol in violation of the Company’s substance abuse policy there is sufficient justification to recommend to Human Resources/Safety that the employee submit to a “reasonable suspicion” test.

In general, “reasonable suspicion” means that a supervisor or manager who has received appropriate training can point to specific, contemporaneous, articulable observations, including but not limited to the employee’s appearance, behavior, speech or body odors, which indicate that the employee has or may have used drugs or alcohol in violation of the Company’s substance abuse policy. These observations can include indications of chronic drug use or the effects of the employee’s withdrawal from drugs.

All Company decisions to require an employee to submit to a “reasonable suspicion” test will be made by Human Resources/Safety based upon the recommendation(s) of the supervisor or manager who either directly observed the employee, or, in the case of a third-party report concerning an employee’s appearance, behavior, speech or body odors, the individual who took the report and followed Company procedures to ensure that: (i) the third-party making the report is reliable and credible and (ii) the nature of the particular employee’s appearance, behavior, etc. upon which a test would be based is no less than what the Company would otherwise require if the decision to test was instead being based on the supervisor’s, manager’s, or other Company official’s direct observation of the employee. Whenever first-hand observation of the employee is possible following the receipt of a third-party report, however, direct observation of the employee is recommended and to the extent possible should be obtained if doing so would not unduly delay the test or jeopardize its outcome, particularly in the case of an alcohol test because of alcohol’s rapid rate of metabolism within the body. However, whenever first-hand observation is not possible, the reason(s) should be documented.

Although employee drug tests are ordinarily to be conducted in privacy and unobserved, under limited circumstances, observation of the collection of the employee’s urine sample by a individual of the same gender as the employee may be required. Under such circumstances, the supervisor or manager who makes the recommendation to test an employee should not also serve as the observer if one is required.

If the supervisor, manager or Human Resources/Safety has reason to believe an employee has violated the Company’s policy, but is unsure whether the employee is using drugs or alcohol and cannot rule out either, the employee should be directed to submit to both a drug and alcohol test. If the employee is required to submit to a drug and alcohol test, the alcohol test should be conducted first, since an alcohol test must be performed within a defined period of time and because alcohol leaves the body much earlier than drugs.

Once it has been determined that an employee must submit to a “reasonable suspicion” drug or alcohol test, the supervisor, manager, or another on-site official should insure that the employee is immediately transported to and also from the collection site. In addition, depending on the alcohol test results and the employee’s condition at the completion of the test(s), it may be necessary to arrange for the individual to be transported home. The following are some examples of how an employee can be

transported home: (1) by his or her supervisor or another staff member, (2) by a relative or friend of the employee who is identified on the employee's emergency contact list, or (3) by the police.

“SHORT-TERM” INDICATORS OF POSSIBLE USE: The following are some examples of “short-term” indicators of possible drug or alcohol use by an employee which can provide an objective basis upon which to conclude that a legitimate basis for testing the employee exists. It is important to understand and remember, however, that this is not an exhaustive list of possible indicators of use. The occurrence of one or more of the following is also not an absolute indicator of drug or alcohol use, but merely *an indication of the possibility* that such use has occurred. Different drugs also have different symptoms and indications of use. Some medical emergencies, such as an epileptic seizure or diabetic episode, can also resemble the symptoms of alcohol or drug use. Accordingly, as part of the determination process, it is important to compare the employee's observed symptoms and appearance, behavior, speech or body odor with the employee's normal appearance, behavior, speech or body odor:

1. Direct observation of possession, distribution, or use of drugs or alcohol.
2. Slurred, rapid, or incoherent speech.
3. Hyper-body movements, staggering, unsteady, poor muscular control, or motor coordination.
4. Runny nose, sniffles, itchy nose, sores around nostrils, white powder around nose.
5. Dilated or constricted pupils or pupils which do not respond to changes in light, blank stare, rapid and involuntary eye movement.
6. Bloodshot or watery eyes.
7. Extreme fatigue or sleeping on the job.
8. Excessive sweating or clamminess of skin.
9. Flushed or very pale face.
10. Highly excited or nervous mood.
11. Nausea or vomiting.
12. Smell of alcohol, marijuana (sweet odor similar to burnt rope) or solvents (glue, nitrates, ether or turpentine).
13. Disheveled appearance.
14. Dry mouth (frequent swallowing/lip wetting).
15. Dizziness or fainting.
16. Shaking hands or body tremors/twitching.
17. Breathing irregularity or difficulty breathing.

18. Puncture or "track" marks.
19. Wearing sunglasses and long-sleeved shirts at inappropriate times (to hide dilated pupils or needle marks) — this should be exercised with care, however, to avoid provoking a possible charge of discrimination, triggered solely by the employee's selection of clothing apparel or "uniform."
20. Sudden mood, attitude or behavioral changes (for example, depression, unresponsiveness, extreme aggressiveness or agitation, combative behavior, hallucinations, disorientation, excessive euphoria, confusion, unexplained burst or lack of energy, physical or verbal abusiveness and any other erratic or inappropriate behavior which is different from the employee's mood, attitude and behavior, especially if observed after breaks or other occasions when the employee may have had an opportunity to use drugs or alcohol).
21. Presence of drugs or drug paraphernalia, e.g., small pieces of foil or folded paper, safety razor blade, containers of alcohol, cigarette papers and remnants ("roaches"), pipes, alligator clips or hemostats.
22. Statements of personal observations by co-workers.
23. A report of drug or alcohol use, provided by a reliable and credible third-party source, e.g., a customer, which has been independently corroborated.
24. Information that an employee has caused, contributed to, or been involved in an accident or a near "miss," a flagrant violation of safety rules, or serious misconduct.
25. Evidence that an employee has used, distributed, dispensed, possessed, sold, solicited, or transferred drugs or alcohol in violation of Company's substance policy.
26. Abnormal operation of a vehicle or equipment, such as driving in a weaving motion.
27. Arrest for driving while intoxicated.
28. Flushed or pale or sickly complexion.

"LONG-TERM" INDICATORS: The following are some examples of "long-term" indicators related to an employee's performance or behavior which can be caused by or employed with drug and alcohol abuse. As with the "short-term" indicators, their occurrence should be viewed as *an indication of possible abuse* and not necessarily an absolute indication. Nonetheless, the occurrence of one or more of the following can provide a good indication that the employee is experiencing a problem which may involve drugs or alcohol. The observance of such "long-term" indicators by a supervisor or manager should prompt that supervisor or manager to look more carefully and closely at the employee to see whether any of the "short-term" are also present and provide a sufficient factual basis upon to conclude that "reasonable suspicion" to test exists:

1. Work performance problems, including a deterioration in quality or quantity of work.
2. Problems with attendance such as tardiness and increasing absenteeism (especially after a weekend or holiday).

3. Increased accidents or injuries without explanation.
4. Poor judgment and difficulty in concentration.
5. Personality changes, including increased aggressiveness, mood changes, fearful or paranoid behavior.
6. Social withdrawal, including isolation, overreaction to criticism, and a lack of eye contact.
7. Emotional changes such as noticeable signs of anxiety or depression, paranoia, or excessive laughing.
8. Deterioration in personal grooming and hygiene.
9. Frequent or more frequent requests for time off during weekdays.
10. Pattern of accidents in the area during particular time period.
11. Frequent or more frequent need to borrow money.
12. Avoidance of supervisors.
13. Noticeable increase in medical insurance claims, particularly for non-job-related injuries.
14. Lack of concentration or decreased productivity after lunch or breaks.
15. Non-work-related visits from other employees, visitors, or strangers.
16. Frequent or more frequent trips to the restroom or water fountain.
17. Long or longer lunch hours.
18. Frequent visits to car/parking lot.

MAKING THE DETERMINATION: "Reasonable suspicion" determinations should be based on specific, contemporaneous, articulable observations concerning the employee's appearance, behavior, speech, or body odors. A supervisor's or manager's observations also may include indications of the chronic use and/or the effects of the employee's withdrawal from drugs. Therefore, some of the above signs and symptoms identified above may not necessarily be sufficient by themselves to conduct a test under state law. For example, under some state laws, the mere possession or distribution of drugs or alcohol, without some additional indication that the employee has used or consumed drugs or alcohol, may not be a sufficient basis for a "reasonable suspicion" drug or alcohol tests. In such cases, although the Company might not be able to conduct a test, the employee's possession or distribution may violate Company policy and, therefore, subject the employee to discipline without the need to conduct a test.

A supervisor, manager or other Company official's observations regarding an employee may be made at any time the employee is at work. "Reasonable suspicion" tests for alcohol should be conducted

within eight hours of the determination. As a general rule, alcohol tests should be conducted either just before the employee comes on-duty, while the employee is on duty, or just after the employee comes off duty.

Whenever a supervisor or manager believes a “reasonable suspicion” drug or alcohol test should be conducted, a “Reasonable Suspicion Drug and/or Alcohol Test Report” form should be completed. The form is used to identify and document the reason(s) why the test should be conducted. If at all possible, this report should be prepared before the employee is requested to submit to the tests. If not, the report should be prepared as soon as possible after the employee is directed to take the test. The report should also be reviewed by the Department Head who is on-site at that time, prior to contacting the Human Resources/Safety Department for confirmation to test.

Once there is concurrence that “reasonable suspicion” to test does exist, the test or tests should be conducted as soon as possible, following the procedures outlined in the Company’s “Reasonable Suspicion Test Procedures Checklist.” If the employee is required to submit to a drug and alcohol test, the alcohol test should be conducted first, because alcohol breaks down or metabolizes in the body much quicker than drugs and is therefore detectable for a shorter period of time.

Management’s role is to help inform employees about the Company’s substance abuse policy and to determine when there is a reasonable justification to recommend an employee be tested. Supervisors and managers are expected to determine whether the employee may have or has violated the Company’s substance abuse policy, not the substance(s) an employee may be using in violation of the policy. Supervisors and managers are expected to be able to articulate and substantiate specific behavioral performance or physical indicators of drug or alcohol use. However, it is not the responsibility of the supervisors and managers to "diagnose" an employee.

It is also essential to understand that a referral for a “reasonable suspicion” test is not and should not be treated as an out-right conclusion that the employee has, in fact, used drugs or alcohol in violation of the Company policy. Indeed, the cause of an employee’s conduct could be due to other legitimate reasons. Therefore, a request that an employee submit to a “reasonable suspicion” test should be treated as a request to obtain objective data to determine or “rule out” that drugs or alcohol was or was not the underlying cause of the observed behavior. Finally, all interactions with the employee and information about the basis of the “reasonable suspicion” determination and the test results are confidential and should be handled with utmost respect for the employee's privacy.



REASONABLE SUSPICION BEHAVIOR REPORT

Behavior that provides reasonable suspicion supporting a test for controlled substances or alcohol use must be observed and documented by a supervisor. If possible, the behavior should be observed and documented by two supervisors. The documentation of the employee's conduct shall be prepared by the observing supervisor(s) within 24 hours of the observed or reported behavior or before the results of the tests are released, whichever is earlier. Distribute this report to appropriate authorities based on policy and procedures while maintaining employee confidentiality.

Employee Name _____ Employee ID Number _____

Employee Job Title _____ Agency _____

Employee is reporting for duty _____ Employee is already on duty _____

Behavioral observation timeline:

From (date/time) _____ / _____ am/pm To (date/time) _____ / _____ am/pm

Site or Location where observation(s) occurred:

Street Address _____ City _____ Zip Code _____

CAUSE FOR REASONABLE SUSPICION

NOTE: A manager or supervisor must complete this form. A combination of one or more observable signs and symptoms of drug or alcohol use must be observed to establish reasonable suspicion. Determination of reasonable suspicion must be based on specific, contemporaneous, articulable observations concerning the appearance, behavior, body odors or speech (ABBS) of the employee. The observations may include indications of the chronic and withdrawal effects of controlled substances. In making a determination of reasonable suspicion, additional factors may include, but are not limited to the following:

- Pattern of unsatisfactory job performance or work habits;
- Occurrence of a serious or potentially serious work-related accident that may have been caused by human error or flagrant violations of safety, security, or other operating procedures;
- Evidence of illegal substance use, possession, sale, or delivery while on duty and/or possession of drug paraphernalia;
- Information provided by either a reliable or credible source or having corroborative evidence from a supervisor;

Physical Signs or Symptoms (CIRCLE ALL THAT APPLY)

Flush/pale/sweaty face	Dry mouth/lip smacking	Odor of alcohol
Profuse/excessive sweating	Vomiting/excessive belching	Odor of marijuana
Red/bloodshot eyes	Shaking hands/body tremors/twitching	Odor of chemicals
Glassy/watery eyes	Disheveled appearance	
Closed eyes	Needle tracks or puncture marks	
Droopy eyelids	Frequent sniffing	
Dilated/constricted pupils	Shortness of breath/difficulty breathing	
	Runny nose/sores around nostrils	

Behavioral Indicators (CIRCLE ALL THAT APPLY)

Agitated/insulting speech	Irritable/angry/impulsive	Sad, depressed, withdrawn
Combative/threatening speech	Use of profanity/argumentative	Anxious/fearful
Incoherent/slurred/slow speech	Swaying/stumbling/staggering	Cannot control machinery/equipment
Rapid/rambling/repetitive speech	Lack of coordination	Excessive yawning/fatigue/lethargy
Delayed/mumbling speech	Disoriented/confused	Unaccounted time/extended breaks
Shouting/whispering/silent	Euphoric	Loss of inhibition
Uncharacteristically talkative	Tearful	Inappropriate wearing of sunglasses
	Impaired judgment	Falling down/reaching for support
	Sleepy/stupor	In appropriate wearing of outerwear



Description of actions or behaviors Provide a **detailed description** of the behaviors or indicators you observed.
Apply BOAS - Describe Behavior, O odors, Apppearance, Speech when documenting observations.

Post Accident (Complete if applicable) Specify indicators of drug or alcohol use as a potential factor in this accident:

Employee Interview Ask employee, "Explain the behaviors we have observed" and provide **employee response**:

Checklist Answer the following questions to establish reasonable cause for testing. Consult with your Human Resources Business Partner, Human Resources Representative, Appointing Authority or designee to determine appropriateness of testing upon answering the following questions.

1. Has impairment been displayed by the employee in their workplace appearance, actions and/or performance?
 Yes No
2. Could the impairment result from the possible use of drugs and/or alcohol?
 Yes No
3. Is the impairment current?
 Yes No
4. Did you personally witness the situation and/or the concerning appearance, actions, behavior or performance?
 Yes No
5. Are observers able to (and/or have they) document(ed) facts about the situation?
 Yes No

Observer Information (Must be a manager or supervisor)

Supervisor/Manager Name: _____

Title: _____ **Date/Time:** _____

IMPORTANT NOTE: SECONDARY OBSERVER must complete a separate, original form. Always seek a secondary observation from another supervisor, manager, or team lead.

“REASONABLE SUSPICION” TEST PROCEDURES CHECKLIST

INSTRUCTIONS: Under the Company’s substance abuse policy for employees, the Company will conduct a “reasonable suspicion” drug and/or alcohol test whenever the Company’s Human Resources/Safety/Safety Department has determined there is “reasonable suspicion” to believe an employee may be using drugs or alcohol in violation of the Company policy, based on an employee’s appearance, behavior, conduct, speech or body odors.

To be valid, the employee’s appearance, behavior, speech or body odor must be personally observed by at least one of the employee’s supervisors or another Company official who has received training in the identification of actions, appearance or conduct indicating drug and/or alcohol usage. Note that *in the case of alcohol*, the required observations can only be made either *during, just before, or just after* the period of the workday the employee’s use of alcohol is prohibited. Examples of “short-term” and “long-term” indicators of possible drug or alcohol use are discussed in the Company’s “Guidelines for Making Reasonable Suspicion Determinations.” The applicable indicators should be documented on the Company’s “Reasonable Suspicion or Post-Accident Drug and/or Alcohol Test Report” form.

When at least one supervisor or manager believes there is “reasonable suspicion” to test an employee, the following procedures should be *immediately* followed:

- Step 1: Immediately complete the “Reasonable Suspicion or Post-Accident Drug and/or Alcohol Test Report” form, which documents the Company’s basis for its determination to test.
- Step 2: Discuss your observations with the Human Resources/Safety/Safety Department (if the Human Resources/Safety/Safety representative is not the person filling out this form), in order to determine if the Human Resources/Safety/Safety Department agrees with your observations. Remember, no testing is to be conducted without the prior approval of the Human Resources/Safety/Safety Department. The Human Resources/Safety/Safety Department representative must sign the completed “Reasonable Suspicion or Post-Accident Drug and/or Alcohol Test Report.”
- Step 3: If the Human Resources/Safety Department agrees with your determination and authorizes the test to be conducted, have the employee come to your office and, in the presence of the Human Resources/Safety representative or another supervisor if the Human Resources/Safety representative is not available (a second witness is recommended), read the following statement to the employee:

“[I] [We] have been observing your [appearance], [behavior], [conduct], [speech] and/or [body odor] and it appears that you have been using drugs and/or alcohol. In accordance with the Company’s substance abuse policy, the Company has the right to test you. As a condition of your employment, you have agreed to submit to such tests immediately. You will be suspended while awaiting your drug [and/or alcohol] test result. Although you have a right to refuse to submit to the test, if you do, you are subject to immediate termination of employment. Do you understand? Do you have anything to say?”
- Step 4: *If the employee consents to be tested:*
 - (i) Escort: Advise the employee that he/she will be escorted to the collection site and also escorted home following the drug and/or alcohol test. The employee should also be advised

that he/she will be escorted from the test site following an alcohol test if the Company continues to have reason to believe the employee is unfit to return to work following the alcohol test whose result is negative. Also advise the employee that if he/she refuses to be escorted, either to or from the site, he/she is subject to corrective action, up to and including termination of employment.

- (ii) Contact with MRO and Company: Remind employees who are being drug tested of the need to be available for contact from the Company's medical review officer (MRO) and/or local Human Resources/Safety representative to discuss a test result, if necessary. If an employee will be away from his/her house, advise the employee that he/she is responsible for calling the MRO's office periodically after the test is conducted to obtain the test result and also responsible for calling his/her local Human Resources/Safety representative to advise where the employee can be reached in the event the MRO or Company needs to contact the employee to discuss the test result.

□ Step 5: *If the employee refuses to be escorted:*

- (i) Have the employee wait in your office with another supervisor and go to Step 6.
- (ii) Complete the section of the "Reasonable Suspicion or Post-Accident Drug and/or Alcohol Test Report" form which documents that the employee refused to submit to the test and/or refused to be escorted. If the refusal was witnessed by another supervisor, that supervisor should document the refusal as well.

□ Step 6: *Regardless of whether the employee consents or refuses to be escorted to the test site, immediately contact the employee's spouse or another family member, domestic partner, or emergency contact person, or make other arrangements for transporting the employee home from the collection site or worksite. In the event you are unable to contact the employee's spouse, another family member, domestic partner or other emergency contact, you must make other arrangements for transporting the employee home. In the event the employee refuses this assistance, advise the employee that the Company will take the measures it deems appropriate to transport the employee home. REMEMBER: When conducting a "reasonable suspicion" alcohol test, a negative alcohol test result would only rule out that alcohol use was not the underlying cause for the employee's conduct. Therefore, if an alcohol test is the only test taken, unless there is sound evidence upon which to conclude that there is no longer any reason to continue questioning the employee's fitness, the Company will still have need to escort the employee home following an alcohol test even if the employee's test result is negative.*

Section 16 – Workplace Violence

DE-CAL, INC. maintains a zero tolerance standard of violence in the workplace. The purpose of this policy is to provide DE-CAL, INC. employees guidance that will maintain a work environment free of violence and the threat of violence.

Violent behavior of any kind or threats of violence either implied or direct, are prohibited at DE-CAL, INC. worksites. Such conduct by a DE-CAL, INC. employee will not be tolerated. An employee who exhibits violent behavior may be subject to criminal prosecution and shall be subject to disciplinary action up to and including dismissal. There will be an investigation of all complaints filed and of any possible violations of this policy. Retaliation against a person who makes a complaint regarding violent behavior or threats of violence made to him/her is also prohibited.

DEFINITIONS:

- **Workplace Violence:** Behavior in which an employee, former employee or visitor to a workplace inflicts or threatens to inflict damage to property, serious harm, injury or death to others at the workplace.
- **Threat:** The implication or expression of intent to inflict physical harm or actions that a reasonable person would interpret as a threat to physical safety or property.
- **Intimidation:** Making others afraid or fearful through threatening behavior.
- **Zero-tolerance:** A standard that establishes that any behavior, implied or actual, that violates the policy will not be tolerated.

PROHIBITED BEHAVIOR:

Violence in the workplace may include, but is not limited to the following list of prohibited behaviors directed at or by a co-worker, supervisor or member of the public:

1. Direct threats or physical intimidation.
2. Implications or suggestions of violence.
3. Stalking.
4. Possession of weapons of any kind, unless such possession or use is a requirement of the job.
5. Assault of any form.
6. Physical restraint, confinement.
7. Dangerous or threatening horseplay.
8. Loud, disruptive or angry behavior or language that is clearly not part of the typical work environment.
9. Blatant or intentional disregard for the safety or well-being of others.
10. Any other act that a reasonable person would perceive as constituting a threat of violence.

REPORTING ACTS OR THREATS OF VIOLENCE:

An employee who:

1. Is the victim of violence, or
2. Believes they have been threatened with violence, or

3. witnesses an act or threat of violence towards anyone else shall take the following steps:
- If an emergency exists and the situation is one of immediate danger, the employee shall contact the local police officials by dialing 9-1-1, and may take whatever emergency steps are available and appropriate to protect himself/herself from immediate harm, such as leaving the area.
 - If the situation is not one of immediate danger, the employee shall report the incident to the appropriate supervisor as soon as possible.

INCIDENT INVESTIGATION:

Acts of violence or threats will be investigated promptly. The employee's Supervisor must report the incident immediately to the General Superintendent. An investigation of the incident will take place looking into potential violation of work rules/policies. To the extent possible, DE-CAL, INC. will maintain the confidentiality of the reporting employee and the investigation but may need to disclose results in appropriate circumstances; for example, in order to protect individual safety. DE-CAL, INC. will not tolerate retaliation against any employee who reports workplace violence.

Section 17 – Harassment / Sexual Harassment

De-Cal, Inc. Harassment / Sexual harassment Policy

Purpose

It is the policy of De-Cal, Inc. to provide a working environment that is completely free of harassment of any kind, and for any reason. This policy is to be considered relevant to all De-Cal, Inc. employees, and will include all union, non-union, and sub-contract employment relationships. All unwanted derogatory language and / or actions regarding sexually explicit content, age, race, color, religion, gender, creed, national origin, disability, or any other factor will result in a thorough investigation. If the results of the investigation are found to positively substantiate the accusation(s), a prompt release of the employment relationship will be the probable result.

Definition

Harassment is defined as unwanted, derogatory attention of any kind. Sexual Harassment is defined as unwanted sexual attention of a persistent or offensive nature made by a person who knows, or reasonably should know, that such attention is unwanted. Sexual Harassment includes sexually oriented conduct that interferes with an employee's job performance and creates an intimidating, hostile, or offensive working environment.

Employee Responsibility

If any De-Cal employee believes that they have been the subject of harassment / sexual harassment, by anyone while on the job, or at any time, by a coworker, or work related associate, they should:

- 1. Make their unease and / or disapproval directly and immediately known to the alleged harasser.**
- 2. Report the incident immediately to De-Cal, Inc. Corporate Management.**
- 3. Complete an incident report.**
- 4. Expect prompt updates and feedback concerning the investigation process.**

Employees can often stop harassment or offensive behavior by immediately and directly expressing their disapproval of the behavior. In many cases, an informal warning from De-Cal Management will solve the problem. De-Cal management will follow-up and monitor the situation to a satisfactory end. All Harassment reporting, details, and findings will be held in strict confidence.

PRINT

SIGN

Section 18 – Ladder Safety

18.1 General Ladder Safety Rules and Safe Work Practices

18.1.1 Inspect ladders before each use. Ladder rungs, cleats, and steps shall be parallel, level, and uniformly spaced when the ladder is in position for use.

18.1.2 Ladders are not to be painted except for periodic inspection, numbering, or identification purposes. Information labels are not to be painted over.

18.1.3 Ladders are not to be used to support scaffold boards, as a support for pipe, as work benches or for any other use other than for their intended purpose.

18.1.4 A ladder should not be occupied by more than one person unless it is designed for that use.

18.1.5 Do not carry tools while ascending or descending a ladder. Use a hand-line or tool-belt.

18.1.6 Ladders shall be used on stable and level surfaces only. While ascending or descending the ladder, the user will always face the ladder.

18.1.7 A personal fall arrest system will be used when working at an elevation of over six (6) feet. A retractable lanyard must be used when working at an elevation under 18.5 feet.

18.1.8 Ladders with any defects will not be used.

18.1.9 All ladders shall be set on a substantial base, and the area around the ladder will be maintained free of debris.

18.1.10 Rubber safety feet will be present on all portable ladders.

18.1.11 The user of the ladder shall not exceed the rated load capacity.

18.1.12 Ladders will only be used as designed.

18.1.13 Ladders will not be loaded beyond the maximum intended load for which the ladder was built. Ladders will not be made to support loads in excess of the manufacturer's rated capacity.

18.2 Extension and Straight ladders

18.2.1 The foot of the ladder shall be placed approximately $\frac{1}{4}$ of its length away from the vertical plane of its top support.

18.2.2 Ladders shall be secured against displacement.

18.2.3 The top of the ladder must extend at least three (3) feet above its supporting when used for access to an elevated area.

18.2.4 Extension ladders must be overlapped by at least three (3) rungs.

18.3 Step Ladders

18.3.1 Do not stand on the top step or the top cap of a step ladder.

18.3.2 Step ladders must be opened completely with all four feet resting on a sound, level footing with all braces locked.

18.3.3 Two step ladders will not be used as supports for scaffold boards.

18.3.4 Only one employee will work off of a step ladder at a time unless the ladder is designed otherwise.

Section 19 – Electrical Safety / Grounding

TRAINING:

All electrical hazards pertaining to specific tasks within specific areas will be identified. All employees will be made aware of these hazards and trained as to the procedures to circumvent the identified hazards. All employees will be trained as non-qualified persons on procedures to avoid the potential of electrical shock and to be familiar with electrically related practices. Training will pertain to safety-related work practices to their respective job assignments, clearance distances, and the corresponding voltages to which the qualified worker will be exposed. All potential for working in close proximity to electrical hazards will be discussed and circumvented.

SAFE WORK PRACTICES:

Work practices to prevent shock will include:

Sub-contracting LOTO Procedures and Consultation Services to qualified electrical personal; qualified personnel will render a safe electrical condition through LOTO, or give qualified advice as to safe work procedures. Any and all work that may / will potentially expose De-Cal Employees to exposed energized electrical parts will be under the direction of a qualified electrician. All exposed energized parts will be de-energized or covered with voltage rated protective equipment and or barriers. It will be made apparent, and be fully confirmed, to all De-Cal Inc. employees, that de-energized systems are indeed positively de-energized before work begins.

Working under or near energized power lines:

All work less than 20 feet from electrical power-lines will be delayed until guidance by qualified personnel is given. **If the safe distances as described cannot be maintained, the electrical line will be de-energized and grounded by qualified personnel.**

OVERHEAD HIGH VOLTAGE SAFETY ACT:

- 1). Prohibits operating equipment within twenty (20) feet of energized power lines. Employees or tools are prohibited from less than the 8 foot distance from energized power lines.
- 2). Requires notification to the power company for work less than the distances stated above. The Power Company will render the condition safe before work can begin within these boundaries.
- 3). Warning signs visible from 12 feet and at least 5" X 7" on size, stating "WARNING UNLAWFULL TO OPERATE WITHIN 20 FEET OF OVERHEAD HIGH VOLTAGE LINES" must be placed on equipment.

Working in Close Proximity to Electrical Utilities:

De-Cal Mechanical employees are unqualified to perform electrical work and will maintain appropriate clearance distances from electrical utilities.

Clearance distances:

For voltages to ground of 50kv or below, a ten (10) foot minimum clearance will be maintained. For voltages to ground over 50kv, ten (10') feet, plus four (4") inches for every 10kv over 50kv will be maintained.

Vehicular Clearances:

Any vehicle or mechanical equipment capable of having parts of its structure elevated near energized overhead lines will be operated so that a clearance of ten (10') feet is maintained. If the voltage is greater than 50kv, the clearance will be increased four (4)" inches for every 10kv over that voltage. If a vehicle is in transit with its structured lowered, the clearance distance may be reduced to four (4)'. If the voltage is greater than 50kv, the clearance will be increased by four (4)" inches for every 10kv over that voltage.

Lengths of Conductive Material:

When handling lengths of conductive material such as lengths of pipe or mounting hardware, safe work practices must be put into place. All electrical utilities will be identified before work begins, and spotters will be

used to prevent long lengths of material to come within the approach boundaries of any electrical energy potential at any level.

Conductive apparel:

When working in close proximity to electrical utilities, Voltage Rated Barriers will be installed by a qualified person. Conductive apparel, such as jewelry, will not be worn unless they are rendered non-conductive by covering, wrapping or other insulating means.

Equipment Grounding:

All power equipment will be plugged into a GFCI protected receptacle or portable GFCI protection unit. The portable unit must be plugged into the receptacle (source of power).

Power Cords and Power Equipment – Inspections:

All power equipment requiring in-house power will have a mechanism for positive grounding. Equipment will be inspected before use, if there is any potential for exposure to live conductors (cracked cases, missing compartment electrical covers, missing ground plugs) the equipment will be red tagged and removed from service.

All power cords will be inspected before use, all damaged cords, or cords with missing ground plugs will be red tagged and removed from service. GFCI's will be used on all plug-in-type electrical equipment.

Testing GFCI Receptacles

Existing GFCI protected receptacles and portable GFCI's will be tested with a GFCI testing device. GFCI testing devices will be provided to all De-Cal supervision and safety personnel.

Section 20 – Hazard Communication



HAZARD COMMUNICATION PROGRAM

INDEX

HAZCOM.....	Page 2
Lead	Page 16
Cadmium.....	Page 21
Hydrogen Sulfide (H2S)	Page 26
Silica Exposure.....	Page 31
Naturally Occurring Radioactive Materials.....	Page 37
SDS List of frequently used chemicals (See SDS Book)	Page 41

Hazard Communications

Purpose:

To ensure that information about the dangers of all hazardous materials used by De-Cal Inc. are known to all affected employees and sub-contractors. A secondary purpose is to comply with the requirements of the OSHA Hazard Communication Standard and corresponding state laws.

Responsibility:

All employees of De-Cal Inc. (including subcontractors and their employees) will participate in the hazard communication program training, and comply with all provisions of this policy. This includes, but is not limited to, fully understanding and following all precautions listed on Safety Data Sheets for materials they will use, be exposed to, or handle while on the job site. The Safety Director is responsible for maintaining this program and ensuring compliance with all local, state, and federal laws.

Scope:

This policy covers container labeling, safety data sheets, employee training and information, hazardous non-routine tasks, contractors, list of hazardous chemicals, chemicals in unlabeled pipes and safety procedures.

Policy:Container Labeling

1. The competent person will verify that all containers received for use will be clearly labeled with the following: 1) contents, 2) the appropriate hazard warning (i.e. flammable), and 3) the name and address of the manufacturer. Existing labels will not be removed or defaced on incoming containers unless containers are to be immediately marked with required information.
2. All materials on site are to be stored in their original container with the label attached.
3. Any material with a label missing or illegible should be reported to the supervisor immediately for proper labeling.
4. Stationary, secondary, or portable containers should be clearly labeled with either an extra copy of the original manufacturer's label or with tile "central stores" generic labels which have a block for identification and blocks for the hazard warning.
5. Signs, placards, or other written materials that convey specific hazard information may be used in place of individual container labels if there are a number of stationary process containers within a work area which store similar contents.
6. Labels shall be in English. When notified of non-English speaking employees, information shall be supplied in their language.
7. Portable containers do not need to be labeled if the chemicals are transferred to labeled containers and used by the employee making the transfer during that shift. No unmarked containers of any size shall be left unattended in the work area.

Safety Data Sheets (SDS)

1. Any product having a hazardous warning on its label requires a SDS.
2. The manufacturer, distributor, or vendor shall provide De-Cal, Inc. the SDS for the hazardous product and each jobsite Supervisor shall maintain the SDS list and enforce this policy.
3. All SDS sheets shall be forwarded to the Safety Director and reviewed by the Safety Director and employee using the product to determine safe work practices and personal protection, as needed. The SDS sheets will be maintained and kept at the following location: _____ SDS sheets will also be available through the Safety Dept.
4. Electronic copies may be kept but cannot be the only copies available. An SDS binder must be maintained on site and be readily available to employees on all shifts in case of emergency.
5. The SDS provides 1) chemical information, 2) hazardous ingredients, 3) physical data, such as the potential for fire, explosion, and reactivity, 4) health hazards, 5) spill or leak procedures, 6) special protection and precautions, 7) personal protective equipment needed, and 8) name, address, and phone number of the SDS preparer or distributor.

Employee Training and Information

1. The Safety Director will provide training to employees when hired and routinely thereafter on the hazardous nature of chemical products. When informed of a hazardous substance or process that may be encountered by De-Cal personnel while performing their job assignments, De-Cal shall provide training that will relate to the site specific hazards as defined by the MIOSHA standards.
2. Special Training will include:
 - The Hazard Communication Policy
 - Methods that may include the use of monitoring devices to detect the presence or release of hazardous chemicals.
 - Chemicals or substances present in their workplace operations such as but not limited to Asbestos, Benzene, Lead, Cadmium, Hexavalent Chromium, Ammonia, Hydrogen Sulfide, CO² and other compounds as required by the nature of the work or the work environment. Air sampling may be required and test results shall be kept on file.
 - Physical and health effects of the hazardous chemicals
 - Appropriate work practices and controls when using chemicals.
 - Emergency and first-aid procedures
 - How to read labels and review an SDS to obtain appropriate hazard information
 - Location of the SDS file and written hazard communications program

3. After attending the training class, each employee will sign a form to verify that they attended the training, received the written materials, and understand the company's policies on Hazard Communication.

Hazardous Non-Routine Tasks

1. Periodically, employees are required to perform hazardous non-routine tasks. Examples of non-routine tasks performed by employees of this company are as follows: Confined space entry, tank cleaning, etc.
2. Prior to starting work on such projects, each affected employee will be given information by the competent person about the hazardous chemical he/she may encounter during such an activity. This information will include specific chemical hazards, protective safety measures the employee can use, and measures the company has taken to lessen the hazards including ventilation, respirators, presence of other employees, and emergency procedures.

Informing Sub-Contractors and Others

1. The Safety Director shall advise sub-contractors and other clients of our Hazard Communication Program.
2. Copies of the SDS sheets for all materials brought onto the site will be made available upon request to each sub-contractor from the Safety Director.
3. The Safety Director will also obtain chemical information from sub-contractors that may expose our employees to hazardous chemicals, which they bring into our workplace.

List of Hazardous Chemicals

Available is a list of known hazardous substances commonly being used. Further information on each chemical can be found by reviewing the SDS sheets.

Chemicals in Unlabeled Pipes

1. Work activities are often performed by employees in areas where chemicals are transferred through unlabeled pipes.
2. Prior to starting work in these areas, the employee shall contact the competent person for information regarding:
 - The chemical in the pipes.
 - Potential hazards.

- Safety precautions, which should be taken.

Safety Procedures & Recommendations

Work Habits

- Wash hands before and after work in a science lab, and after spill cleanups
- Restrain loose clothing, long hair, and dangling jewelry.
- Never leave heat sources unattended.
- Obtain and read the SDS for each chemical if not familiar with product.
- Analyze new procedures in advance to pinpoint hazardous areas.
- Analyze accidents to prevent repeat performances.
- Protection should be provided for not only the worker but also others working nearby.
- Always inform co-workers of plans to carry out hazardous work.
- Supervising personnel should have recent training in first aide, CPR etc.

Safety Wear

- ANSI approved eye or face protection shall be worn continuously.
- Gloves should be worn which will resist penetration by the chemical being handled and have been checked for pinholes, tears, or rips.
- Wear gloves appropriate for the work.
- Footwear should cover feet completely: no open-toes shoes or sandals.
- Hardhats required at all times while on site

Facilities and Equipment

- Have separate container for trash and broken glass.
- Never block any escape routes, and plan alternate escape routes.
- Never block a fire door open.
- Never store materials in lab or storage aisles.
- All moving belts and pulleys should have safety guards.
- Instruct personnel in the proper use of the eye-wash fountain, emphasizing rolling of the eyeballs, and turning eyelids "inside-out."
- Ensure that eye-wash fountains will supply at least 15 minutes of water flow.
- Regularly inspect fire blankets for rips and holes and keep good records of the inspections. Regularly inspect safety showers and eye-wash fountains and keep records of inspections.
- Keep up-to-date emergency phone numbers posted next to the phone.
- Place fire extinguishers near an escape route, not in a "dead end".
- Regularly maintain fire extinguishers, maintain records, and train personnel in the proper use of extinguishers.
- Acquaint personnel with the meaning of "Class A fire", "Class B fire", etc., and how they relate to fire extinguisher use.

- Secure all compressed gas cylinders when in use and transport them secured on a hand truck. Install storage shelves with lips, and never use stacked boxes in lieu of shelves.
- Have appropriate equipment and materials available for spill control.

Chemical Storage

- Do not store materials on the floor.
- Separately store Organic and Inorganic chemicals.
- No top or above eye level chemical shelf storage.
- Shelf assemblies are firmly secured to walls, preferred material is wood.
- Store acids, poisons, and flammable liquids in separate dedicated cabinets, suggested shelf storage pattern.

Purchasing, Use, and Disposal

- Properly store flammable liquids in small quantities in containers with a provision for bonding to receiving vessels when the liquid is transferred.
- Never open a reagent package until the label has been read and completely understood. Have a Safety Data Sheet on hand before using a chemical.
- Prepare a complete list of chemicals of which you wish to dispose.
- Classify each of the chemicals on the disposal list into a hazardous or non-hazardous waste chemical. (Check with the local environmental agency office for details.)
- Unlabeled bottles (a special problem) must be identified to the extent that they can then be classified as hazardous or non-hazardous wastes. Some landfills will analyze a mystery bottle for a fee, if it is shipped to the landfill in a separate package, labeled as a sample, and accompanied by a letter also identifying it as a sample, with instructions to analyze the contents sufficiently to allow proper disposal.

Substitutions

- Reduce risk by diluting substances instead of using concentrates.
- Undertake all substitutions with caution.
- Temporary electrical boxes shall be installed at least 36 inches from the floor.
- Temporary lighting shall be provided in all working and walking areas to comply with OSHA regulations.

Hazard Communication OSHA 1926.52 (Haz-Com)

- Material Safety Data Sheets (SDS) are required and must be readily available for all hazardous materials.
- De-Cal will train its employees before the material or chemical is used on-site.
- Project Management will maintain a current inventory of all materials. The SDS sheets will be maintained at (the site trailer).
- Subcontractors shall maintain a SDS file for all hazardous materials they bring on site. Copies will be sent to Host employer or contractor.

- All hazardous materials should be in a properly labeled, appropriate container.
- Employees will be trained on the safe use of hazardous materials in their work area.
- Subcontractors must train all employees on hazard communications and document that training was provided.
- PPE must conform to requirements of the SDS.

Training Documentation for Hazard Communication Program

I have received training and understand how to read the Safety Data Sheets (SDS) and container labels regarding hazardous products.

I have received general training on the hazardous chemicals in which I might be exposed.

I understand that I am required to review SDS sheets for any material I am using for the first time.

I know where the SDS sheets are for my work area are kept and understand that they are available for my review.

I understand that I am required to follow the necessary precautions outlined in the Hazard Communication Policy and SDS sheets, including use of personal protective equipment and/or apparel.

I know the location of emergency phone numbers and communications systems, and the location of medical, fire, and other emergency supplies.

I am aware of my right to obtain copies of the Hazardous Chemical list, written Hazard Communication Policy, and SDS sheets at my request.

Employee Name: _____

Signature: _____ Date: _____

Job Location: _____

Lead Exposure Compliance Program for Construction

DE-CAL does comply with the OSHA lead standard, Title 29 Code of Federal Regulations 1926.62 by:

- Ensuring that no employee is exposed to lead at concentrations greater than $50 \mu\text{g}/\text{m}^3$ of air averaged over an eight (8) hour period.
- Ensuring that if an employee is exposed to lead for more than eight (8) hours in any work day, the employee's allowable exposure, as a time weighted average (TWA) for that day, must be reduced according to the following formula: Allowable employee exposure (in $\mu\text{g}/\text{m}^3$) = 400 divided by hours worked in a day.
- Knowing that when respirators are used to limit employee exposure as required by paragraph (c) of Section 1926.62, and all requirements of paragraphs (e)(1) and (f) of Section 1926.62, have been met, employee exposure may be considered to be at the level provided by the protection factor of the respirator for those periods the respirator is worn. Those periods may be averaged with exposure levels during periods when respirators are not worn to determine the employee's daily TWA exposure.

This program applies to all abatement, construction, demolition, or renovation work where one of our employees may be occupationally exposed to lead. All work related to construction, alteration, including painting is included.

Administrative Duties

The Safety Officer is responsible for its implementation and maintenance of this program. Copies of this written program may be obtained in DE-CAL written Safety Policy or at the corporate office.

This written safety plan covers the multiple job sites of DE-CAL Corp.

Exposure Assessment*Protection of Employees during Exposure Assessment*

When informed that presumed exposure may generate lead exposures greater than the permissible exposure limit (PEL) of $50 \mu\text{g}/\text{m}^3$ of air averaged over an eight hour period, we shall treat potentially affected employees as if they were exposed above the PEL and implement procedures to protect workers until we perform an employee exposure assessment and document that an employee's lead exposure is not above the PEL.

Tasks estimated to generate a TWA of $50 \mu\text{g}/\text{m}^3$ of air include:

- Grinding painted surfaces, manual scraping, manual sanding and power tool cleaning with dust collection systems where lead coatings, products or paint are present.
- working with lead.

Tasks estimated to generate a TWA of $500 \mu\text{g}/\text{m}^3$ of air include:

- Using lead or lead burning.
- Cleanup activities, where dry expendable abrasives are used, and abrasive blasting removal where lead containing coatings or paint are present.

When informed Lead may be present, De-Cal shall take measures as recommended in 29 CFR 1926.62 to protect our employees. These measures include but are not limited to:

- Appropriate respiratory protection (protection factor of 10, 25, 50, or 100 depending on the tasks involved and the estimated exposures).

- Proper personal protective clothing and equipment
- Changing areas
- Hand washing facilities
- Biological monitoring
- Training

Initial Determination

When informed that there is a potential for exposure that employees may be exposed to lead at or above the action level of $30 \mu\text{g}/\text{m}^3$ of air as an eight hour TWA. This initial determination can be based on:

- Air Monitoring within the breathing zone
- Employee exposure monitoring.
- Objective data demonstrating that under expected conditions, specific processes, operations, or activities involving lead cannot result in employee exposure to lead at or above the action level.
- Previous monitoring for lead exposures within the last 6 months during work operations conducted under workplace conditions closely resembling the processes, types of materials, control methods, work practices, and environmental conditions used and prevailing in operations.

We base initial determinations on employee exposure data. Our employee exposure monitoring data includes:

- Information, observations, or calculations which would indicate employee exposure to lead.
- Statements of previous measurements of airborne lead by the Host Contractor or owner.

Initial Determination Results

If our initial determination reveals employee exposures to be below the action level, we will conduct periodic air monitoring during operations to confirm that airborne lead levels are below the action level.

If our initial determination reveals employee exposures to be at the action level but at or below the PEL, De-Cal shall conduct air monitoring and personal air sampling of 25% of the represented work force.

If our initial determination reveals that employee's exposures will be above the PEL, attempts will be made through administrative and engineering controls to reduce exposures below the PEL. If this should fail to reduce the exposure level, employees shall wear the appropriate level of PPE necessary to reduce exposures below the PEL.

Additional Exposure Assessments

If changes in equipment, process, control, personnel or tasks occur after initial determination, we reevaluate to determine if employees are exposed to higher concentrations of lead. We will employ an independent third party air-monitoring agency to conduct periodic air monitoring of the work site to determine if changes occur in the exposure levels and the source of the hazard.

Employee Notification

Within five (5) working days of completing an exposure assessment we notify each employee in writing of his/her assessment results. Our procedure for this notification process is that we will post all air monitoring results for employees to review within five (5) working days.

Methods of Compliance

This program is for protecting our workers from lead exposure. It incorporates all relevant information that relates to this goal, so that we determine whether we appropriately analyzed problems and solutions (including alternatives) relating to lead exposure.

This program is intended to reduce employee exposure to at or below the PEL. When all feasible engineering and work practice controls that can be instituted are not sufficient to reduce employee exposure to acceptable levels, appropriate respiratory protection will be provided to supplement such controls.

This company reviews this program at least every Six months to revise it as necessary.

To reduce and maintain employee exposures to lead at or below the PEL, we have implemented safe work practices to include, but not limited to; wet methods, negative air systems, necessary PPE.

Work Practice Programs

Our jobs are typically multi-employer worksites. The procedure we use to cooperate with other contractors and inform all employees of potential exposure to lead shall be that the contractor must supply this organization copy of lead work, and employees who may be exposed to lead from lead abatement activities.

As an employer we want to keep our employees fully informed of all aspects of this plan. Our Job Site Supervisor/Competent Person will make frequent and regular inspections of the job site, materials, and equipment, and ensure a copy of this written plan is available at the worksite. We review and update our written plan every twelve months to reflect the current status of the program.

Respiratory Protection

As safe work practices are generally sufficient to reduce exposures to at or below the PEL without the use of respirators, unless an employee specifically requests a respirator, respiratory protection will not be routinely used on our worksites.

During exposure assessment to document that our employees are not exposed above the PEL, De-Cal shall provide respiratory protection. NIOSH approved respirators, recommended in Table 1 of 29 CFR 1926.62, shall be provided to employees who request them without cost. Any employee may ask his supervisor for a respirator and one will be provided upon that request in accordance with company policy.

De-Cal shall provide powered air purifying respirators (PAPR) instead of respirators recommended in Table 1 of 29CFR1926.62 to employees exposed to $1250 \mu\text{g}/\text{m}^3$ of air or more who request them. Any employee who requests a PAPR through his supervisor will be provided one upon that request in accordance with company policy.

A copy of our respiratory protection program is attached.

Protective Work Clothing and Equipment

We will provide personal protective equipment as interim protection for employees during exposure assessment, if we are informed that our employees may be exposed to lead (1) above the PEL without regard to the use of respirators, or (2) to lead compounds which may cause skin or eye irritation. This outline of our Protective Work Clothing and Equipment policy is included as part of the site plan when required. We provide protective clothing and equipment at no cost to our employees.

The types of protective clothing provided by our company shall include, but is not limited to: Cotton tyvek coveralls, with hood; Saranex coated tyvek coveralls with hood; latex gloves with taped interfaces, safety glasses, and hardhats where necessary. This equipment is considered disposable, and is to be disposed of at the job site.

We will replace or repair any damaged equipment providing the employee notifies his supervisor of the damage to his protective clothing.

Housekeeping

De-Cal housekeeping procedures will include but are not limited to:

- Vacuuming floors and other surfaces where lead accumulates to minimize the likelihood of lead becoming airborne.
- Use of HEPA filters on vacuum cleaners.
- Emptying vacuums so that lead is not reintroduced into the workplace.

Hygiene Facilities and Practices

De-Cal shall insure hygiene facilities are available for our workers and assure they follow good hygiene practices. We prohibit smoking, eating, applying cosmetics, and the presence of tobacco products, foodstuffs, or cosmetics in all work areas where employees are exposed to lead above the PEL. All workers shall comply with these requirements through regular inspections by supervisory personnel. Employees who fail to follow accepted/proscribed hygiene and safety procedures will be subject to disciplinary actions as prescribed by company policy.

Medical Surveillance

The medical surveillance program supplements the primary goals of the lead exposure control program of preventing disease through elimination or reduction of airborne concentrations of lead, and sources of ingestion. The medical surveillance provisions incorporate both initial and ongoing medical surveillance at no cost to the employee.

De-Cal shall provide initial medical surveillance to employees who are occupationally exposed to airborne lead levels at or above the PEL. This monitoring consists of sampling blood and analyzing it for lead and zinc protoporphyrin levels. Where this initial biological monitoring indicates that an employee's blood lead level is at or above 40 µg/dl of whole blood, we provide biological monitoring every month during the removal period. This frequency will continue until two consecutive blood samples and analysis indicates that the employee's blood lead level is below 40 µg/dl of whole blood. Otherwise, employees will be biologically monitored on a semi-annual basis.

All medical examinations, procedures, and blood lead level sampling/analysis shall be conducted by a licensed healthcare practitioners and/or physicians. Our medical surveillance program shall meet the requirements of 29CFR1926.62.

Medical Removal Protection

De-Cal shall remove employees from work who have exposures to lead at or above the action level each time a periodic and a follow-up blood sample indicate that the blood lead levels are at or above 50 µg/dl of whole blood. We also remove employees from work who have exposures to lead at or above the action level when a health care professional determines that they have medical conditions which, when exposed to lead, places them at greater risk for those health problems. Employees who are removed from work will receive all wages, benefits, for a period of 18 months without loss of seniority or promotion opportunities. The company reserves the right to place an employee in a position, of equal responsibility, where the employee will not be exposed occupationally to lead.

Employee Education and Training

De-Cal training programs shall inform employees of the specific hazards associated with their work environment, protective measures which can be taken, and their rights under the standard (Including the contents of 29 CFR 1926.62 and appendices A & B) prior to the time of initial assignment. All employees working in areas with airborne lead levels above the PEL are required to possess appropriate training certifications. Training certifications will detail identity of employee trained, signature of qualified trainer, and dates of training. Training records will be retained at the corporate office for no less than one year.

Signs

Because exposure to lead is a serious health hazard, we shall when required, post signs that warn employees of lead hazards and of the possible need to use respirators and other protective equipment in the area. Appropriate lead warning signs will be provided at all entrances and exits to the work area. Additionally, employees will be instructed as to the meanings of the various signs at the worksite during training.

Record keeping

We shall maintain accurate biological and environmental monitoring records of employee exposures to potentially toxic materials, including lead. We allow employees unlimited access to their own personal records.

De-Cal shall include the following exposure monitoring records:

- Exposure assessment
- Medical surveillance results
- Medical removals
- Objective data for exemption from requirement for initial monitoring
- Procedures for making records available
- Procedures for transfer of records

Observation of Monitoring

De-Cal will provide our employees or their representatives the opportunity to observe exposure monitoring of toxic materials or harmful physical agents. When an observer is present, supervisory personnel shall ensure that the observer is provided with the following:

- An explanation of the measurement procedures being used.
- Allowing the observation of all steps related to the measurement procedures.
- The dissemination of the results when returned by the laboratory.
- Providing the observer with the proper personal protective equipment.
- Assuring that observers comply with all applicable safety and health procedures.

Cadmium Exposure Compliance Program for Construction

The purpose of this program is to inform employees that De-Cal is complying with the OSHA cadmium standard, Title 29 Code of Federal Regulations 1926.1127 and 1910.1027 by:

- Ensuring that no employee is exposed to cadmium at concentrations greater than 5 ug/m³ of air averaged over an eight (8) hour period.
- Knowing that when respirators are used to limit employee exposure as required by paragraph (c) of Section 1926.1127, and all requirements of paragraphs (e)(1) and (f) of Section 1926.1127, have been met, employee exposure may be considered to be at the level provided by the protection factor of the respirator for those periods the respirator is worn. Those periods may be averaged with exposure levels during periods when respirators are not worn to determine the employee's daily TWA exposure.

This program applies to all, construction, demolition, or renovation work where one of our employees may be occupationally exposed to cadmium. All work related to construction, alteration, including painting is included.

This program is available for review and copying by all employees, their representatives, the Assistant Secretary, and Director.

Administrative Duties

The Safety Officer is responsible for its implementation and maintenance of this program. Copies of this written program may be obtained in the DE-CAL written Safety manual or at the corporate office.

This written safety plan covers the multiple job sites of DE-CAL Inc.

Exposure Assessment

Protection of Employees during Exposure Assessment

When informed that presumed exposure may generate cadmium exposures greater than the permissible exposure limit (PEL) of 5 ug/m³ of air averaged over an eight hour period, we shall treat potentially affected employees as if they were exposed above the PEL and implement procedures to protect workers until we perform an employee exposure assessment and document that an employee's cadmium exposure is not above the PEL.

Tasks estimated to generate a TWA of 5 ug/m³ of air include:

- Emergency operations involving cadmium.
- Grinding on surfaces that have been proven to contain Cadmium.
- Power tool usage without dust collection systems where cadmium is present.

- Cleanup activities and removal where cadmium containing coatings or contaminants is present.

When informed Cadmium may be present De-Cal will take measures as recommended in 29 CFR 1926.62 to protect our employees. These measures include but are not limited to:

- Appropriate respiratory protection (protection factor of 10, 25, 5, or 100 depending on the tasks involved and the estimated exposures).
- Proper personal protective clothing and equipment
- Change areas
- Hand washing facilities
- Biological monitoring
- Training

Initial Determination

When informed that there is a potential for exposure on a project, assessments will be completed to determine if employees may be exposed to cadmium at or above the action level of 2.5 ug/m³ of air as an eight hour TWA. This initial determination can be based on:

- Employee exposure monitoring.
- Objective data demonstrating that under expected conditions, specific processes, operations, or activities involving cadmium cannot result in employee exposure to cadmium at or above the action level.
- Previous monitoring for cadmium exposures within the last 12 months during work operations conducted under workplace conditions closely resembling the processes, types of materials, control methods, work practices, and environmental conditions used and prevailing in operations.

We base initial determinations on employee exposure data. Our employee exposure monitoring data shall include:

- Information, observations, or calculations which would indicate employee exposure to cadmium.
- Statements of previous measurements of airborne cadmium.

Initial Determination Results

If our initial determination reveals employee exposures to be below the action level, we will conduct periodic air monitoring during operations to confirm that airborne cadmium levels are below the action level. If our initial determination reveals employee exposures to be at the action level but at or below the PEL, we will conduct air monitoring and personal air sampling of 25% of the represented work force. If our initial determination reveals that employee's exposures will be above the PEL, attempts will be made through administrative and engineering controls to reduce exposures below the PEL. If this should fail to reduce the exposure level, employees shall wear the appropriate level of PPE necessary to reduce exposures below the PEL.

Additional Exposure Assessments

If changes in equipment, process, control, personnel or tasks occur after initial determination, we will reevaluate to determine if employees are exposed to higher concentrations of cadmium. When deemed necessary we shall conduct periodic air monitoring of the work site to determine if changes occur in the exposure levels.

Employee Notification

Within five (5) working days of completing an exposure assessment we notify each employee in writing of his/her assessment results. Our procedure for this notification process is that we will post all air monitoring results for employees to review within five (5) working days.

Methods of Compliance

This program is for protecting our workers from cadmium exposure. It incorporates all relevant information that relates to this goal, so that we determine whether we appropriately analyzed problems and solutions (including alternatives) relating to cadmium exposure.

This program is intended to reduce possible employee exposure to at or below the PEL. When all feasible engineering and work practice controls that can be instituted are not sufficient to reduce employee exposure to acceptable levels, appropriate respiratory protection will be provided to supplement such controls.

This company reviews this program at least every twelve months to revise it as necessary.

To prevent employee exposures to cadmium at or below the PEL, we shall implement safe work practices to include, but not limited to; wet methods and necessary PPE. Additionally, housekeeping practices that will be followed include:

- Use of HEPA filters on vacuum cleaners.
- Emptying vacuums so that cadmium is not reintroduced into the workplace.

Safe work practices shall be utilized to control exposure to cadmium. Our jobs are typically multi-employer worksites. The procedure we use to cooperate with other contractors and inform all employees of potential exposure to cadmium shall be that the contractor must supply these organizations, copies of cadmium training certificates for all employees who may be exposed to cadmium from potential cadmium exposure activities. All contractor employees shall receive a site safety orientation to include the hazards of cadmium of the site prior to beginning work when the potential of exposure exists.

De-Cal shall keep employees fully informed of all aspects of this plan when the potential for exposure exists. The Job Site Supervisor/Competent Person will make frequent and regular inspections of the job site, materials, and equipment, and ensure a copy of this written plan is available at the worksite.

Respiratory Protection

As safe work practices are generally sufficient to prevent exposures to at or below the PEL without the use of respirators, unless an employee specifically requests a respirator, respiratory protection will not be routinely used on our worksites. When notified of potential for exposure the following shall be standard procedure.

During exposure assessment to document that our employees are not exposed above the PEL, precautions shall be taken as if exposure is above the PEL. De-Cal shall provide respiratory protection. NIOSH approved respirators, recommended in Table 1 of 29 CFR 1926.1127, and shall be provided to employees without cost. Any employee may ask his supervisor for a respirator and one will be provided upon that request in accordance with company policy.

We will also provide powered air purifying respirators (PAPR) instead of respirators recommended in Table 1 of 29CFR1926.1127 to employees exposed to 250 ug/m³ of air or more who request them. Any employee who requires a PAPR will be provided one in accordance with company policy at no cost to the employee.

See respiratory protection program section XIV.

Protective Work Clothing and Equipment

We shall provide personal protective equipment as interim protection for employees during exposure assessment, if we are informed that our employees may be exposed to cadmium (1) above the PEL without regard to the use of respirators, or (2) to cadmium compounds which may cause skin or eye irritation. We provide protective clothing and equipment at no cost to our employees.

The types of protective clothing provided by our company shall include, but is not limited to: Cotton tyvek coveralls, with hood; Saranex coated tyvek coveralls with hood; latex gloves with taped interfaces, safety glasses, and hardhats where necessary. This equipment is considered disposable, and is to be disposed of at the job site. We will replace or repair any damaged equipment providing the employee notifies his supervisor of the damage to his protective clothing.

Hygiene Facilities and Practices

We will ensure hygiene facilities are available for our workers and assure they follow good hygiene practices. We prohibit smoking, eating, applying cosmetics, and the presence of tobacco products, foodstuffs, or cosmetics in all work areas where employees may be exposed to cadmium above the PEL. All workers shall comply with these requirements through regular inspections by supervisory personnel. Employees who fail to follow accepted/proscribed hygiene and safety procedures will be subject to disciplinary actions as prescribed by company policy.

Medical Surveillance

The medical surveillance program supplements the primary goals of the cadmium exposure control program of preventing disease through elimination or reduction of airborne concentrations of cadmium, and sources of ingestion. The medical surveillance provisions incorporate both initial and ongoing medical surveillance.

We shall provide initial medical surveillance to employees who are occupationally exposed to airborne cadmium levels greater than the action level 30 days a year or above the PEL for greater than 10 days a year. This monitoring consists of visits with the physician to include a detailed occupational history and laboratory analysis per 1910.1027(I), as required. To

ensure appropriate medical surveillance is performed, we shall provide to the physician and/or representative copies of the regulation and appendices, a description of the employees duties, a list of the personal protective equipment worn by the employee, and past exposure assessment data if any.

All medical examinations, procedures, and blood Cadmium level sampling/analysis shall be conducted by licensed healthcare practitioners and/or physicians. Medical surveillance shall meet the requirements of 29 CFR 1910.1028(l).

Medical Removal Protection

De-Cal shall remove employees from work who have exposures to cadmium at or above the action level each time a periodic and a follow-up blood sample indicates that medical removal is necessary as required by 1926.1127 (l)(3),(4), & (6). We shall remove employees from work who have exposures to cadmium at or above the action level when a health care professional determines that they have medical conditions which, when exposed to cadmium, places them at greater risk for those health problems. Employees who are removed from work will receive all wages, benefits, for a period of 18 months without loss of seniority or promotion opportunities. The company reserves the right to place an employee in a position, of equal responsibility, where the employee will not be exposed occupationally to cadmium.

Employee Education and Training

De-Cal training programs shall inform employees of the specific hazards associated with their work environment, protective measures which can be taken, and their rights under the standard (Including the contents of 29 CFR 1926.1127 and appendices A & B) prior to the time of initial assignment. All employees working in areas with airborne cadmium levels above the PEL are required to possess appropriate training certifications. Training certifications will detail identity of employee trained, signature of qualified trainer, and date(s) of training. Training records will be retained at the corporate office for a period of no less than 1 year.

Signs

Because exposure to cadmium is a serious health hazard, we shall when required, post signs that warn employees of cadmium hazards and of the possible need to use respirators and other protective equipment in the area. Appropriate cadmium warning signs will be provided at all entrances and exits to the work area. Additionally, employees will be instructed as to the meanings of the various signs at the worksite during training.

Record keeping

De-Cal shall maintain accurate biological and environmental monitoring records of employee exposures to potentially toxic materials, including cadmium. De-Cal will allow employees unlimited access to their own personnel records.

De-Cal shall include the following exposure monitoring records:

- Exposure assessment
- Medical surveillance results

- Medical removals
- Objective data for exemption from requirement for initial monitoring
- Procedures for making records available
- Procedures for transfer of records

Observation of Monitoring

De-Cal will provide our employees or their representatives the opportunity to observe exposure monitoring of toxic materials or harmful physical agents. When an observer is present, supervisory personnel shall ensure that the observer is provided with the following:

- An explanation of the measurement procedures being used.
- Allowing the observation of all steps related to the measurement procedures.
- The dissemination of the results when returned by the laboratory.
- Providing the observer with the proper personal protective equipment.
- Assuring that observers comply with all applicable safety and health procedures.

Emergency Situations

In emergency situations, which involve a substantial release of cadmium, De-Cal shall ensure workers are protected by following all aspects of this program. This will include limiting access to authorized employees, provision and use of PPE, exposure monitoring, medical surveillance, hygiene facilities, work practices, fugitive emission controls, and proper disposal.

Hydrogen Sulfide (H₂S) Program for Construction

De-Cal complies with OSHA's Gases, Vapors, Fumes, Dusts, and Mists standard, Title 29 Code of Federal Regulations 1926.55 and other OSHA rules as needed to ensure that no employee is exposed to inhalation, ingestion, skin absorption, or contact with any material or substance at a concentration above those specified in the "Threshold Limit Values of Airborne Contaminants for 1970" of the American Conference of Governmental Industrial Hygienists found in Appendix A of 29 CFR 1926.55. **This program will address potential exposures to Hydrogen Sulfide.**

For compliance we must implement all feasible administrative and engineering controls. However, when such controls are not feasible, we will use protective equipment or other protective measures to keep the exposure of employees to air contaminants within the limits prescribed in Appendix A of 29 CFR 1926.55. All equipment and technical measures used to achieve compliance will first be approved for each particular use by a competent industrial hygienist or other technically qualified person.

Administrative Duties

This written safety program is for De-Cal construction work sites. The site supervisor and De-Cal Safety Officer are the responsible persons for its implementation. Site specific safety policies must be followed and must contain escape and contingency plans. Copies of The De-Cal written program may be obtained at our corporate offices and found in the De-Cal HazCom Policy. This written safety plan covers the multiple job sites of DE-CAL Inc.

H2S Awareness

Sulfur and Sulfur Compounds may be present in crude oil as hydrogen sulfide (H₂S), as compounds (e.g. mercaptans, sulfides, disulfides, thiophenes, etc.), or as elemental sulfur. Each crude oil has different amounts and types of sulfur compounds, but as a rule the proportion stability and complexity of the compounds are greater in heavier crude-oil fractions. As part of the work of De-Cal, our employees may be exposed to H₂S especially when working on corroded pipe repairs. Hydrogen sulfide is a primary contributor to corrosion in refinery processing units and piping. Other corrosive substances are elemental sulfur and mercaptans. Moreover, the corrosive sulfur compounds have an obnoxious odor.

Hydrogen Sulfide is a colorless gas at normal temperature and pressure with an odor similar to that of rotten eggs. However, presence of this gas may deaden the sense of smell, so odor alone cannot be used for detection. In cases of extreme low temperature and/or high pressure H₂S may be a liquid.

Definitions:

Sour gas-Natural gas that contains corrosive, sulfur-bearing compounds such as hydrogen sulfide and mercaptans.

Sweetening-Processes that either remove obnoxious sulfur compounds (primarily hydrogen sulfide, mercaptans, and thiophenes) from petroleum fractions or streams, or convert them, as in the case of mercaptans, to odorless disulfides to improve odor, color and oxidation stability.

Health Effects & Background

Atmospheric and vacuum distillations are closed processes, and exposures are expected to be minimal. When sour (high-sulfur) crude are processed, there is potential for exposure to hydrogen sulfide in the preheat exchanger and furnace, tower flash zone and overhead system, vacuum furnace and tower, and bottoms exchanger. There is little potential for exposure to crude oil unless a leak or release occurs. Where elevated operating temperatures are used when desalting sour crudes, hydrogen sulfide will be present. There is the possibility of exposure to ammonia, dry chemical demulsifiers, caustics and/or acids during this operation. Hydrogen chloride may be present in the preheat exchanger tower top zones, and overheads. Wastewater may contain water-soluble sulfides in high concentrations and other water-soluble compounds such as ammonia, Chlorides, phenol, mercaptans, etc, depending upon the crude feedstock and the treatment chemicals. Safe work practices and/or the use of appropriate personal protective equipment may be needed for exposures to chemicals and other hazards such as heat and noise, and during sampling, inspection, maintenance, and turnaround.

Crude oils that contain appreciable quantities of hydrogen sulfide or other reactive sulfur compounds are called "sour." Those with less sulfur are called "sweet." Some exceptions to this rule are West Texas crudes, which are always considered "sour" regardless of their H₂S content, and Arabian high-sulfur crudes, which are not considered "sour" because their sulfur compounds are not highly reactive.

Inhalation, ingestion, and contact with are all methods by which H₂S can affect the body. The effects may range from irritation of the eyes, nose, and throat; to temporary loss of smell.

Headaches, dizziness, and upset stomach are more intense symptoms caused by higher concentrations. However, inhalation of high concentrations of H₂S may cause instant paralysis of the respiratory system causing loss of consciousness and death. In concentrations of H₂S at 1000 to 2000 ppm even a single breath may cause coma and may be fatal. Because of its extremely serious and/ or fatal potential, any employee believed to be exposed to H₂S shall immediately notify the supervisor or Project Manager.

Permissible Exposure Levels (PEL)

While not definitive, H₂S levels below 10 ppm appears to cause little short term effects.

When H₂S level are unknown, respirators shall be used.

Current OSHA standards are:

20 ppm Ceiling Level

50 ppm Maximum allowable peak for 10 minutes with no other exposure

Current NIOSH standards are:

10 ppm PEL averaged over 10 minute period

50 ppm Area shall be evacuated

29 CFR 1910 1000(b)(2) which requires that an employee's exposure to any substance listed in Table Z-2 shall not exceed at any time the acceptable ceiling concentration limit, except for a time period and up to a concentration not exceeding the maximum duration and concentration allowed in the acceptable maximum peak column.

Hydrogen sulfide can be a severe acute hazard, and in reviewing the ANSI Standard Z 37.2-1966 it was noted that hydrogen sulfide is an extremely toxic and irritating gas and a significant property of the gas is its temporary paralytic effect on the olfactory nerves. High concentrations can result in severe consequences before the odor is detected. Sampling methods are currently available and should be used for measuring both the 10 minute and instantaneous levels of hydrogen sulfide in the workplace

Exposure detection, assessment, and monitoring

When notified by the host employer of potential for exposure De-Cal shall conduct personal or area sampling for hydrogen sulfide to measure worker exposures. Air sampling is needed to measure worker exposures and select appropriate engineering controls and respiratory protection. Where data is collected it must be retained to support negative exposure assessments. De-Cal when notified of the potential for exposure De-Cal shall conduct both initial and periodic air monitoring

De-Cal will further perform air monitoring as needed to measure the effectiveness of controls and as required under site excavation procedures. De-Cal shall utilize direct reading instruments with alarms for exposures above 20 PPM and colorimetric tubes for quantification of exposures to Hydrogen Sulfide.

De-Cal shall train our employees to identify the presence and signs and symptoms of exposure to hydrogen sulfide. Operations that could result in exposure to our employees include: Crude Oil Distribution, Refining, and Storage. Signs and symptoms of exposure are as follows:

Short Term Effects

0.13 ppm Threshold of odor detection
0.77 ppm Faint, but readily perceptible odor
4.6 ppm Easily noticeable odor
10 ppm Eye irritation, soreness, redness, burning
27 ppm Strong, unpleasant, but not intolerable odor
50 ppm Irritation & dryness of nose, throat, and airways
cough, shortness of breath, pneumonia
100 ppm Immediate irritation of eyes and respiratory tract
150 ppm Sense of smell may be paralyzed
200 ppm Headaches, dizziness, nausea
500 ppm Unconsciousness and death within a few minutes
may be no warning odor
 consciousness and respiratory paralysis leading to death

NOTE Concentration levels from 10-50 ppm may be tolerable without immediate symptoms. However, the onset of eye and perhaps respiratory irritation may occur several hours or even days after initial exposure. Most eye and respiratory diseases occur at these exposure levels because of the delayed effects.

Medical surveillance

De-cal shall provide medical examinations for all workers who may be exposed to Hydrogen Sulfide at or above the respective PEL for greater than 30 days per year, found in 29 CFR 1926.55.

These medical examinations are provided by professional healthcare organizations and shall include all components as required under particular substance standards at no charge to the employee.

Record keeping

We know record keeping is critical to our safety and health program. Our record keeping tasks, at a minimum, include:

- Exposure monitoring data – 30 Years
- Medical surveillance data – Duration of employment plus 30 years

Training and information

De-Cal shall provide employees with regulatory training that includes requirements of the substance specific requirements in accordance with the construction site. This will include health effects, background information, engineering controls, ppe, medical surveillance, communication of hazards, hygiene, and methods of compliance at a minimum.

Methods of compliance

Compliance with the requirements of 29 CFR 1926.55

Exposures to Hydrogen Sulfide (H₂S) can generally be controlled through the use of engineering controls, work practices, and personal protective equipment. Engineering controls are hazard controls designed into equipment and workplaces. Work practices are procedures followed by host employers and employees to control hazards. The following engineering Controls, work practices, and personal protective equipment should be used when dealing with H₂S.

- Ventilate spaces to mitigate accumulation of hydrogen sulfide or other gases.
- Notify the site supervisor upon detection of H₂S
- If the potential for exposure exists and assessment of levels cannot be performed, assume the Permissible Exposure Limit is being exceeded, and wear a NIOSH approved supplied air respirator or SCBA equipment.
- For persons escaping or providing emergency help, a respirator with proper acidic gas or H₂S canister filters may be used. Do not return until all hazards have been eliminated.
- Should an alarm sound on an H₂S detector, immediately evacuate the area, and notify your supervisor.
- When entering confined spaces, comply with 29 CFR 1910.146, Permit Required Confined Spaces. See De-Cal written Confined Spaces (Permit Required) Program.

First Aid/Medical Treatment

For exposures to hydrogen Sulfide follow the following guidelines. If you are not sure what to do, immediately initiate the jobsite Emergency Action plan and by calling 911 or contacting the posted emergency numbers located at the job site.

Eye Exposure: If liquid H₂S contacts eyes wash eyes immediately with water, lifting both lids. Contact lenses should not be worn when working with any chemicals. If irritation persists seek medical attention.

Skin Exposure: If liquid H₂S contacts skin wash skin immediately with water. If clothing is penetrated, remove and flush skin with water. If irritation persists seek medical attention.

Breathing. If a person breathes in a large amount of H₂S, move the person to fresh air at once. If breathing has stopped, perform artificial respiration. Keep the affected person warm and at rest. Get medical attention as soon as possible.

Rescue: Move the affected person from the hazardous exposure. If the exposed person has been overcome, notify someone else and put into effect the established emergency rescue procedures. Do not become a casualty. Understand the facility's emergency rescue procedures and know the location of rescue equipment before the need arises

Communication of Hazards

De-cal shall insure warning signs will mark the boundaries of work areas that have been identified to contain or potentially contain hydrogen sulfide. Additionally, we will inform contractors on Multi-employer job sites in accordance with our Contractor Safety Program.

Our Communication of Hazards program is supplemented by the requirements of 29 CFR 1926.59-Hazard Communication and is attached to this written program.

Sandblasting & Silica Exposure Control Plan

The purpose of this program is to inform employees, that De-Cal is complying with OSHA's Gases, Vapors, Fumes, Dusts, and Mists standard, Title 29 Code of Federal Regulations 1926.55 and other OSHA rules as needed to ensure that no employee is exposed to inhalation, ingestion, skin absorption, or contact with any material or substance at a concentration above those specified in the "Threshold Limit Values found in Appendix A of 29 CFR 1926.55.

This program deals with exposure to Crystalline Silica and hazards associated with sandblasting.

To achieve compliance we must first implement all feasible administrative and engineering controls. However, when such controls are not feasible, we will use protective equipment or other protective measures to keep the exposure of employees to air contaminants within the limits prescribed in Appendix A of 29 CFR 1926.55. All equipment and technical measures used to achieve compliance will first be approved for each particular use by a competent industrial hygienist or other technically qualified person.

This program applies to all construction work (including alteration and repair) where one of our employees may be occupationally exposed to gases, vapors, fumes, dusts, and mists at concentrations above those specified in Appendix A of 29 CFR 1926.55.

Administrative Duties

This written safety program covers De-Cal's various construction work sites. The job-site supervisor and the De-Cal safety officer are the program administrators and are responsible for its implementation. Copies of the written program may be obtained from the written safety and health manual or by contacting the corporate office.

Exposure assessment and monitoring

De-Cal shall conduct personal or area sampling for gases, vapors, fumes, dusts, and mists to measure worker exposures when required by the standard. Air sampling is needed to measure worker exposures and select appropriate engineering controls and respiratory protection. Where data is collected it must be retained to support negative exposure assessments.

De-Cal will perform air monitoring as needed to measure the effectiveness of controls.

Our Exposure Assessment and Monitoring Program is attached to this written program.

The current OSHA permissible exposure limit (PEL) for respirable dust containing crystalline silica (quartz) is measured by millions of particles per cubic foot (mppcf) and is calculated as:

$$\text{PEL} = (250 \text{ mppcf}) / (\% \text{ silica} + 5)$$

Note: PEL is an 8 hour time-weighted average (TWA).

Medical surveillance

De-Cal will provide medical examinations for all workers who may be exposed to Crystalline Silica s at or above the respective PEL found in 29 CFR 1926.55:

These medical examinations are provided for affected employees:

1. Prior to job assignment and every 3 years (or annually if a physician determines that is sufficient.)
2. At termination of employment;
3. Before reassignment to an area where medical examinations are not required;
4. If the examining physician believes that a periodic follow-up is medically necessary;
5. As soon as possible for employees injured or becoming ill from exposure to hazardous substances during an emergency, or who develop signs or symptoms of exposure from hazardous substances.

They include:

1. A medical and occupational history to collect data on exposure and signs and symptoms of respiratory disease such as silicosis.
2. A chest X-ray classified according to the 1980 International Labour Office (ILO) International Classification of Radiographs of Pneumoconiosis
3. Pulmonary function testing (spirometry).
4. Availability of air and medical surveillance data to workers is an OSHA requirement (29 CFR 1926.33).

Note: The National Institute for Occupational Safety and Health (NIOSH) recommends that examinations must occur before job placement or upon entering a trade, and at least every three years thereafter. They also encourage reporting of cases of silicosis to OSHA or MSHA.

Training and information

It is the policy of De-Cal to permit only trained and authorized personnel to operate sandblasting or grinding equipment. The site supervisor will identify all new employees in the employee orientation program and make arrangements with the Safety Officer to schedule training.

The Safety Officer or designee will conduct initial training and evaluation: The instructor(s) must have the necessary knowledge, training, and experience to train new cutting equipment operators and the hazards associated with crystalline silica exposure.

De-Cal instruction includes both classroom instruction and MUST Safety Awareness training.

During training, De-Cal shall cover the operational hazards of sandblasting operations, including:

- Hazards associated with the particular make and model of the sandblasting equipment;
- Hazards of the abrasives utilized; and
- General hazards that apply to the operation of all sandblasting operations.

Each potential employee who has received training in any of the elements of our training program for the types of equipment which that employee will be authorized to operate and for the type of workplace in which the sandblasting equipment will be operated need not be retrained in those elements before initial assignment in our workplace if the employee is evaluated to be competent.

We will provide our employees with training on Sandblasting and Silica Exposure that includes:

1. Information about the potential health effects of exposure to crystalline silica.
2. Material safety data sheets for silica, masonry products, alternative abrasives, and other hazardous materials (29 CFR 1926.59)
3. Instruction about the purpose and set-up of regulated areas marking the boundaries of work areas containing crystalline silica.
4. Information about safe handling, labeling, and storage of hazardous materials.
5. Discussion about the importance of substitution, engineering controls, work practices, and personal hygiene in reducing crystalline silica exposure.
6. Instruction about the use and care of appropriate protective equipment (including protective clothing and respiratory protection).

What is crystalline silica (quartz)?

The terms "crystalline silica" and "quartz" refer to the same thing. Crystalline silica is a basic component of sand and granite.

What is silicosis?

Silicosis is a disease of the lungs due to breathing of dust containing crystalline silica particles. This dust can cause fibrosis or scar tissue formations in the lungs that reduce the lung's ability to work to extract oxygen from the air. There is no cure for this disease.

What are the symptoms of silicosis?

There are several stages of silicosis. Early stages may go completely unnoticed. Continued exposure may result in the exposed person noticing a shortness of breath upon exercising, possible fever and occasionally bluish skin at the ear lobes or lips. Silicosis makes a person more susceptible to infectious diseases of the lungs like tuberculosis. Progression of the disease leads to fatigue, extreme shortness of breath, loss of appetite, pain in the chest, and respiratory failure, which all may lead eventually to death. Acute silicosis may develop after short periods of exposure. There are three types of Silicosis:

1. Chronic silicosis usually occurs after 10 or more years of exposure to lower levels of quartz.
2. Accelerated silicosis usually develops in 5-10 years after initial exposure to high concentrations.
3. Acute silicosis is exposure to extremely high concentrations & symptoms develop within a few weeks to a few years

Where are construction workers exposed to crystalline silica dust?

The most severe exposures to crystalline silica result from sandblasting to remove paint and rust from stone buildings, metal bridges, tanks, and other surfaces. Other activities that may produce crystalline silica dust include jack hammering, rock/well drilling, concrete mixing, concrete drilling, and brick and concrete block cutting and sawing and tunneling operations.

Methods of compliance

Administrative procedures, engineering controls, and good work practices

Exposures to gases, vapors, fumes, dusts, and mists can be controlled through the use of engineering controls and safe work practices. Engineering controls are hazard controls designed into equipment and workplaces. Safe work practices are procedures followed by employers and workers to control hazards. Some of the engineering controls and work practices you may use during work that could generate silica dust are:

1. Recognize when silica dust may be generated and plan ahead to eliminate or control the dust at the source. Awareness and planning are keys to prevention of silicosis.
2. Use dust collection systems available for many types of dust-generating equipment. When purchasing equipment, our priority will be equipment that contains dust control methods.

3. During masonry drilling, use water through the drill stem to reduce the amount of dust in the air, or use a drill with a dust collection system.
4. When sawing concrete or masonry, use saws that provide water to the blade.
5. When available, use local exhaust ventilation systems to prevent dust from being released into the air.
6. When doing abrasive blasting, substitute less hazardous materials than silica sand or other substances containing more than 1% crystalline silica.
7. Use engineering controls and containment methods, wet drilling, or wet sawing of silica-containing materials to control the hazard and protect adjacent workers from exposures.

Hygiene facilities and practices

Personal hygiene practices are essential for protecting workers from gases, vapors, fumes, dusts, and mists. The same is true for respirable crystalline silica and other contaminants during abrasive-blasting operations. Safe work practices for protecting workers from crystalline silica during work operations are:

1. Do not eat, drink, or use tobacco products in dusty areas.
2. Wear protective clothing such as coveralls (greens).
3. Wash your hands and faces before eating, drinking, or smoking outside dusty areas.
4. Park cars where you will not be contaminated with silica and other substances such as lead and keep all windows closed.
5. Practice good personal hygiene to avoid unnecessary exposure to other work site contaminants such as lead.
6. Shower (if possible) and change into clean clothes before leaving the work site to prevent contamination of cars, homes, and other work areas.

Housekeeping

Housekeeping practices include:

Housekeeping must be done often and it must be done properly. You may choose to use vacuums with high-efficiency particulate air (HEPA) filters, or use wet sweeping instead of dry sweeping. When removing dust from equipment, use a water hose. Never use compressed air.

Protective clothing

Coveralls can provide suitable protection over regular work clothes. Gloves should be taped to the sleeves to provide an air tight seal against dust flowing into the sleeves. Tyvek disposable suits may also be used.

Respirators and the respiratory protection program

OSHA regulation requires implementation of a respirator program when engineering, administrative, and good work practices are not enough to keep Silica exposure below their permissible exposure limit (PEL), as found in 29 CFR 1926.55. Respirators shall not be used as the primary means of preventing or minimizing exposures to airborne contaminants. Instead, we will use effective source controls such as:

- Substitution,
- Automation,
- Enclosed systems,
- Local exhaust ventilation,
- Wet methods, and
- Safe work practices.

When source controls cannot keep exposures below the PEL, controls will be supplemented with the use of respirators.

Our Respirator Program is attached to this written program and follows the requirements of 29 CFR 1926.103 more information can also be found in section XIII

Communication of Hazards

De-cal shall insure warning signs will mark the boundaries of work areas that have been identified to contain or potentially contain contaminated Crystalline Silica at or above their PELs. Additionally, we will inform contractors on Multi-employer job sites in accordance with our Contractor Safety Program.

Our Communication of Hazards program is supplemented by the requirements of 29 CFR 1926.59-Hazard Communication and is part of our written safety and health program.

NATURALLY OCCURRING RADIOACTIVE MATERIAL (NORM) PROGRAM

PURPOSE and SCOPE

De-Cal employees may have the potential to encounter radiation hazards that may be present when performing work while at Host-facility job-sites. Because high levels of radiation can cause lung cancer and other diseases, it poses a serious health risk and requires that we take steps to protect ourselves when working in areas contaminated with radiation.

Even though De-Cal employee exposure potential is reasonably anticipated to be minimal due to precautions, prescribed distances and barriers, operator work practices and

procedures in place for health and safety reasons, this written program does offer guidelines for employee safety and health protection from incidental or emergency exposures.

The **Program Administrator** for our Company is the **Project Manager** who shall make arrangements with Host-facility operators that may offer indirect program assistance by making available a staff-assigned radiation safety officer whenever required. This written safety plan covers the multiple job sites of De-Cal Inc

TRAINING

Training will be conducted annually by De-Cal Management and site-specifically by any Host-facility operator prior to the commencement of assigned work. Employees will be informed of hazards (acute and chronic exposure effects), locations (known or suspect contaminants), methods to identify the hazards (signs, notices, barricade tape), and methods used to protect themselves (personal protective equipment to include respiratory protection provided with NIOSH approved High Efficiency Particulate Air filters or supplied air equipment). Discussions will include information relative to normal and emergency situations.

RADIOACTIVE SOURCE IDENTIFICATION

Notification to employees will be furnished wherever the presence of radioactive contamination is known, and this will be accomplished through the posting of signs and notices. At times you may encounter a barricaded area at a Host-facility work-site, that is demarcated by the use of yellow-colored barricade tape with purple/magenta imprinted wording and a three-pronged propeller pictograph, or yellow and purple/ magenta vinyl roping that has both colors intertwined. Wording or signs will state:

CAUTION - RADIOACTIVE MATERIAL
CAUTION - RADIATION AREA
CAUTION - HIGH RADIATION AREA

NOTE: Caution radioactive material represents exposure potentials are less than 5 millirems per hour.

Caution radiation area represents exposure potentials are between 6 and 100 millirems per hour.

Caution high radiation area represents exposure potentials are greater than 100 millirems per hour.

De-Cal employees are not allowed to enter a radiation barricaded area for any reason or purpose, as they are to observe and obey all posted signs or barricades.

RADIATION SOURCE LOCATIONS

Although not utilized by De-Cal employees, portable inspection equipment is widely utilized by various inspection agencies. Since these are sealed sources, the radioactive substance is

not accessible. The stainless steel container has sufficient mechanical strength to prevent the substance from spreading during normal conditions of use.

A well-protected source of contamination may exist in petrochemical/refinery work settings that employ the use of a fixed, enclosed, level-gauging/flow-rate determination device in process piping or on tank shells/storage drums that emits low-level gamma radiation. These detection devices are clearly signed to warn workers of their presence and operation.

Brick building materials and refractory coatings designed for thermal protection of process equipment, blast furnaces or ovens that are subject to structural transformations (removal, remodel, repair, chipping, grinding, spray-blasting, sanding, cutting, hammering) which would allow for particulate material to become airborne would require the proper use of NIOSH-approved respiratory equipment to include a North half-face negative pressure respirator with HEPA filter or supplied air.

Another source of radiation, however considered to be minor, can be found in TENORM - *“technology enhanced naturally occurring radioactive material”*. Examples of where TENORM can be found are in drill pipe, production vessels, separators, shale shakers, produced waste water, and in the formation material brought to the surface in the production of oil and gas.

Estimates suggest that up to 30% of domestic oil and gas wells may produce some elevated TENORM contamination.

Radium is a major contributor to the radioactivity found in these wastes, which are found in pipe scale and sludge from production and processing operations. Uranium, Thorium and Potassium-40 compounds are mostly insoluble, and as oil and natural gas are brought to the surface, these compounds tend to remain embedded in underground geologic formations. However, some radium and radium daughter products (progeny) are slightly soluble in water and can become mobilized when ground water (containing dissolved mineral salts - barium sulfate, calcium sulfate, and calcium carbonate) is brought to the surface from production and processing.

When this occurs, some radium and its daughters may precipitate out of solution because of geologic chemical changes and reduced temperature and pressure. Radium concentrations from geologic formations can precipitate out in sludge's and on the internal surfaces of oil and natural gas piping and production and processing equipment. The solid scale residue typically consists mainly of barium, calcium, and strontium sulfates, silicates, and carbonates along with smaller portions of radium compounds. Sludge deposits, consisting of barium and silica compounds, are generally in the form of oily, loose material.

TENORM radionuclide concentrations in scales that accumulate in process piping and surface equipment may vary from background soil levels (about 1 pico-Curie per gram to several hundred thousand pico-Curies per gram with an average activity of about 1000-2000 pico-Curies per gram. Radium and its decay products are also found in elevated

concentrations in ground water extracted to the surface from oil drilling. However, these concentrations are much less than those found for the scale or sludge wastes.

TENORM wastes from natural gas plant deposits differ from oil production TENORM wastes and typically consist of radon decay products plated out on the interior surfaces of pipes, valves, filters, and other gas production and processing equipment.

EXPOSURE MONITORING

Employees with the intended use of radioactive sources (such as a radiographer) are required to be passively monitored by the use of film badges, pocket dosimeters, film rings, or pocket chambers. This could be a detection level determination source for employee information should an inadvertent De-Cal employee exposure occur by incidental or accidental entrance into a restricted area. This monitoring shall be done under the direct supervision of the host employer.

Employee exposure levels are to never exceed the following Rems per calendar quarter:

Whole body - head & trunk, active blood-forming organs, eye-lens, or gonads.	1.25
Hands & forearms, feet & ankles	18.75
Skin of whole body	7.50

Should a Host-facility operator or contractor working at a Host- facility inadvertently expose a De-Cal employee to radiation levels that ever exceed these levels, or greater than 2 millirems per hour, then that employee shall be notified as soon as this information becomes available.

TESTING FOR RADIATION

The Host-facility radiation safety officer in conjunction with the De-Cal Safety Officer will utilize a calibrated radiation survey meter with Geiger-Meuller pancake probe or a radiation survey meter with Gamma Scintillator to identify suspect locations where TENORM could possibly exist, or for personnel body detection should an exposure occur. Any air samples drawn will be after a minimum of 60 cubic feet of air sample has been collected, and the filter disk will be sent to an EPA-certified radiochemistry laboratory for analysis.

Any Company employee being monitored has the right to observe such monitoring being conducted in their work area, and any recordings that may be documented. Any results will be compared to the HPS/ANSI Standard for occupational exposure (which allows for 100 millirem per year exposure) to determine if an exposure level has been exceeded.

Oil field piping and equipment that has been surveyed for the presence of radioactivity that indicates positive readings for excessive levels will be either held in storage by the

determining Host-facility operator, or it may be sent to a commercial decontamination facility for treatment.

PROTECTIVE MEASURES

Standard methods for protection against radiation are time, distance and shielding. Exposure time limitations and prescribed distances have previously been discussed, but shielding is yet to be addressed. This last form of protection is provided by the correct use of properly inspected, maintained, Company-provided personal protective equipment to include hard hats, rubber steel-toed boots, rubber or latex gloves, safety glasses with face shields, disposable anti-contamination suits, and respiratory protection. Also, the ground can be shielded by the use of poly-film sheeting at a minimum of 10-mil thickness.

Personnel are not allowed to eat, drink, smoke, or chew anything in the immediate work area where TENORM contaminated materials/items/air/soil is or are located. Hand washing facilities/materials will be made available for control of employee personal hygiene.

EMERGENCY PROCEDURES

In the event of an emergency whereupon contamination has occurred or is suspect, employees will utilize Host-facility provided safety shower/eye-wash stations, or if injured, they will be provided with emergency medical attention. All personnel involved will be detained and checked for contamination prior to and after decontamination efforts. All TENORM contaminated materials (with readings greater than 2,000 pico-Curies per gram) will be placed in DOT approved 17-H drums or other DOT approved containers, labeled properly, and manifested for shipment to an approved hazardous waste site for treatment, storage, or disposal.

CONCLUSION

Non-compliance by any De-Cal employee, with any part of this described program will result in disciplinary action as outlined in the Company's Corrective Action/ Disciplinary Program found in section VIII page one of the De-Cal Safety manual.

Common SDS Sheets

Material Safety Data Sheets

Index

2 Cycle Engine Oil	4 Pages	Hihi CP 606 Fire Stop	2 Pages
3 M Super 77 Spray Adhesive	9 Pages	Hilti Hit-RE 500	2 Pages
10W30 Motor Oil	5 Pages	Hitti Hit -HY 20 A	4 Pages
15% Silver Solder	2 Pages	Hilti Hit -HY 20 B	4 Pages
Abzorbit	1 Page	HiltiHVU A	4 Pages
Atom Arc Low Flydrogen Rod	6 Pages	Hilti HVU Adhesive Capsules	2 Pages
Black Swan Leak Tracer	4 Pages	Hilti HVU B	3 Pages
Black Swan Leak Detector	4 Pages	Hilti Mineral Wool	2 Pages
Black Swan Stainless Putty	4 Pages	HiJti JUT HY I SO	2 Pages
Bostic Never Seez Regular Grade	4 Pages	Intercool P 300	5 Pages
Cold Galv Aerosol	5 Pages	Jamar Gimme the Green Stuff Pipe Dope	2 Pages
COOL-TOOL II	6 Pages	Jamar Gimme the White Stuff Pipe Dope	2 Pages
Dap Clear Latex Caulk	6 Pages	Jamar High Temp No Seize	2 Pages
DAP White Latex Caulk	7 Pages	Jom;ir The Heavy Weight	2 Pages
Duct Tape	2 Pages	JomarW.O.G	2 Pages
Energizer Batteries	2 Pages	Lead Free Silver Solder Oatey	4 Pages
Eveready Batteries	4 Pages	Lead Free Solder 95-5 Oatey	4 Pages
Fast Orange Hand Cleaner	3 Pages	Lead Free Solder Silva Bright 100	9 Pages
Fast Orange	3 Pages	LEAD MSDS-Applies to Flashings,Sheet- Lead, Caulking Lead and Lead Wool	7 Pages
Fire extinguisher ABC	3 Pages	LEAD	3 Pages
Fire Extinguisher BC	3 Pages	Leaded Solder 50_50 Oatey	4 Pages
Fire xtinguisher CO2	12 Pages	Leaded Solder 60-40 Oatey	4 Pages
Fire Extinguisher K Wet & Dly	6 Pages	Lincoln Electric SP+ Welding Rod	2 Pages
Gases Acetylene	5 Pages	Lincoln Electric JetweJd LH?O	2 Pages
Gases Argon	4 Pages	Liquid Wrench Penetrating Oil	3 Pages
Gase Nitrogen	4 Pages	Loctite 242	5 Pages
Gases Oxygen	4 Pages	Loctjte 565 Thread Sealant	5 Pages
Gases Propane	4 Pages	Loctite 567 PST Pipe Sealant	5 Pages
Gasoline 111idgrade	6 Pages	Loctite c5a Ant seize Lubricant	4 Pages
Gasoline Premium	6 Pages	Loctite Food Grade Anti-Seize	5 Pages
Gasoline Regular	6 Pages	Loctite Thread Sealant with PTFE	5 Pages
Hercules Blackmagic Asphalt Paint	3 Pages	Marking Paint	4 Pages
Hercules clear-cutting-oil	3 Pages	Metacaulk LOOO Fire Sealant.	2 Pages
Hercules clobber	3 Pages	Murex 601 lc Weld Rod.	2 Pages
Hercules dark-cutting-oil	3 Pages	Murex 7018 1'vHI	2 Pages
Hercules furnace cement	3 Pages	Murex Solid Stainless Rods & Wires	2 Pages
Hercules pipe joint Compound	3 Pages	Murex Stainless Manual Welding Rod	2 Pages
Hercules plastic seal	3 Pages	No2 Diesel Dyed	6 Pages
Hercules plumbers-grease	3 Pages	No2 Diesel	6 Pages
Hercules reaultuff	3 Pages	Nokorode Solder Paste Flux	4Pages
Hercules roof sealant	3 Pages	Oatey # 5 Paste Flux	5 Pages
Hercules sizzle	3 Pages	Oatey # 95 Tinning Flux.	5 Pages
Hercules sta-put Putty	3 Pages	Oatey All Purpose Cemenl	5 Pages
Hercules tape dc.)pe	3 Pages	Oatey All Purpose Leak Detector	4 Pages
Hercules tfe tape	3 Pages	Oatey All Weather Cement	5 Pages
Hercules Wax ring	3 Pages	Oatey Bar Solder	4 Pages
Hilti Fire Stop	4 Pages		

Section 21 – Hydrogen Sulfide

Hydrogen Sulfide (H₂S) Program for Construction

De-Cal complies with OSHA's Gases, Vapors, Fumes, Dusts, and Mists standard, Title 29 Code of Federal Regulations 1926.55 and other OSHA rules as needed to ensure that no employee is exposed to inhalation, ingestion, skin absorption, or contact with any material or substance at a concentration above those specified in the "Threshold Limit Values of Airborne Contaminants for 1970" of the American Conference of Governmental Industrial Hygienists found in Appendix A of 29 CFR 1926.55. **This program will address potential exposures to Hydrogen Sulfide.**

For compliance we must implement all feasible administrative and engineering controls. However, when such controls are not feasible, we will use protective equipment or other protective measures to keep the exposure of employees to air contaminants within the limits prescribed in Appendix A of 29 CFR 1926.55. All equipment and technical measures used to achieve compliance will first be approved for each particular use by a competent industrial hygienist or other technically qualified person.

Administrative Duties

This written safety program is for De-Cal construction work sites. The site supervisor and De-Cal Safety Officer are the responsible persons for its implementation. Site specific safety policies must be followed and must contain escape and contingency plans. Copies of The De-Cal written program may be obtained at our corporate offices and found in the De-Cal HazCom Policy. This written safety plan covers the multiple job sites of DE-CAL Inc.

H₂S Awareness

Sulfur and Sulfur Compounds may be present in crude oil as hydrogen sulfide (H₂S), as compounds (e.g. mercaptans, sulfides, disulfides, thiophenes, etc.), or as elemental sulfur. Each crude oil has different amounts and types of sulfur compounds, but as a rule the proportion stability and complexity of the compounds are greater in heavier crude-oil fractions. As part of the work of De-Cal, our employees may be exposed to H₂S especially when working on corroded pipe repairs. Hydrogen sulfide is a primary contributor to corrosion in refinery processing units and piping. Other corrosive substances are elemental sulfur and mercaptans. Moreover, the corrosive sulfur compounds have an obnoxious odor.

Hydrogen Sulfide is a colorless gas at normal temperature and pressure with an odor similar to that of rotten eggs. However, presence of this gas may deaden the sense of smell, so odor alone cannot be used for detection. In cases of extreme low temperature and/or high pressure H₂S may be a liquid.

Definitions:

Sour gas-Natural gas that contains corrosive, sulfur-bearing compounds such as hydrogen sulfide and mercaptans.

Sweetening-Processes that either remove obnoxious sulfur compounds (primarily hydrogen sulfide, mercaptans, and thiophenes) from petroleum fractions or streams, or convert them, as

in the case of mercaptans, to odorless disulfides to improve odor, color and oxidation stability.

Health Effects & Background

Atmospheric and vacuum distillations are closed processes, and exposures are expected to be minimal. When sour (high-sulfur) crude are processed, there is potential for exposure to hydrogen sulfide in the preheat exchanger and furnace, tower flash zone and overhead system, vacuum furnace and tower, and bottoms exchanger. There is little potential for exposure to crude oil unless a leak or release occurs. Where elevated operating temperatures are used when desalting sour crudes, hydrogen sulfide will be present. There is the possibility of exposure to ammonia, dry chemical demulsifiers, caustics and/or acids during this operation. Hydrogen chloride may be present in the preheat exchanger tower top zones, and overheads. Wastewater may contain water-soluble sulfides in high concentrations and other water-soluble compounds such as ammonia, Chlorides, phenol, mercaptans, etc, depending upon the crude feedstock and the treatment chemicals. Safe work practices and/or the use of appropriate personal protective equipment may be needed for exposures to chemicals and other hazards such as heat and noise, and during sampling, inspection, maintenance, and turnaround.

Crude oils that contain appreciable quantities of hydrogen sulfide or other reactive sulfur compounds are called "sour." Those with less sulfur are called "sweet." Some exceptions to this rule are West Texas crudes, which are always considered "sour" regardless of their H₂S content, and Arabian high-sulfur crudes, which are not considered "sour" because their sulfur compounds are not highly reactive.

Inhalation, ingestion, and contact with are all methods by which H₂S can affect the body. The effects may range from irritation of the eyes, nose, and throat; to temporary loss of smell. Headaches, dizziness, and upset stomach are more intense symptoms caused by higher concentrations. However, inhalation of high concentrations of H₂S may cause instant paralysis of the respiratory system causing loss of consciousness and death. In concentrations of H₂S at 1000 to 2000 ppm even a single breath may cause coma and may be fatal. Because of its extremely serious and/or fatal potential, any employee believed to be exposed to H₂S shall immediately notify the supervisor or Project Manager.

Permissible Exposure Levels (PEL)

While not definitive, H₂S levels below 10 ppm appears to cause little short term effects.

When H₂S level are unknown, respirators shall be used.

Current OSHA standards are:

20 ppm Ceiling Level

50 ppm Maximum allowable peak for 10 minutes with no other exposure

Current NIOSH standards are:

10 ppm PEL averaged over 10 minute period

50 ppm Area shall be evacuated

29 CFR 1910 1000(b)(2) which requires that an employee's exposure to any substance listed in Table Z-2 shall not exceed at any time the acceptable ceiling concentration limit, except for a time period and up to a concentration not exceeding the maximum duration and concentration allowed in the acceptable maximum peak column.

Hydrogen sulfide can be a severe acute hazard, and in reviewing the ANSI Standard Z 37.2-1966 it was noted that hydrogen sulfide is an extremely toxic and irritating gas and a significant property of the gas is its temporary paralytic effect on the olfactory nerves. High concentrations can result in severe consequences before the odor is detected. Sampling methods are currently available and should be used for measuring both the 10 minute and instantaneous levels of hydrogen sulfide in the workplace

Exposure detection, assessment, and monitoring

When notified by the host employer of potential for exposure De-Cal shall conduct personal or area sampling for hydrogen sulfide to measure worker exposures. Air sampling is needed to measure worker exposures and select appropriate engineering controls and respiratory protection. Where data is collected it must be retained to support negative exposure assessments. De-Cal when notified of the potential for exposure De-Cal shall conduct both initial and periodic air monitoring

De-Cal will further perform air monitoring as needed to measure the effectiveness of controls and as required under site excavation procedures. De-Cal shall utilize direct reading instruments with alarms for exposures above 20 PPM and colorimetric tubes for quantification of exposures to Hydrogen Sulfide.

De-Cal shall train our employees to identify the presence and signs and symptoms of exposure to hydrogen sulfide. Operations that could result in exposure to our employees include: Crude Oil Distribution, Refining, and Storage. Signs and symptoms of exposure are as follows:

Short Term Effects

- 0.13 ppm Threshold of odor detection
- 0.77 ppm Faint, but readily perceptible odor
- 4.6 ppm Easily noticeable odor
- 10 ppm Eye irritation, soreness, redness, burning
- 27 ppm Strong, unpleasant, but not intolerable odor
- 50 ppm Irritation & dryness of nose, throat, and airways
cough, shortness of breath, pneumonia
- 100 ppm Immediate irritation of eyes and respiratory tract
- 150 ppm Sense of smell may be paralyzed
- 200 ppm Headaches, dizziness, nausea
- 500 ppm Unconsciousness and death within a few minutes
may be no warning odor
consciousness and respiratory paralysis leading to death

NOTE Concentration levels from 10-50 ppm may be tolerable without immediate symptoms. However, the onset of eye and perhaps respiratory irritation may occur several hours or even

days after initial exposure. Most eye and respiratory diseases occur at these exposure levels because of the delayed effects.

Medical surveillance

De-Cal shall provide medical examinations for all workers who may be exposed to Hydrogen Sulfide at or above the respective PEL for greater than 30 days per year, found in 29 CFR 1926.55.

These medical examinations are provided by professional healthcare organizations and shall include all components as required under particular substance standards at no charge to the employee.

Record keeping

We know record keeping is critical to our safety and health program. Our record keeping tasks, at a minimum, include:

- Exposure monitoring data – 30 Years
- Medical surveillance data – Duration of employment plus 30 years

Training and information

De-Cal shall provide employees with regulatory training that includes requirements of the substance specific requirements in accordance with the construction site. This will include health effects, background information, engineering controls, ppe, medical surveillance, communication of hazards, hygiene, and methods of compliance at a minimum.

Methods of compliance

Compliance with the requirements of 29 CFR 1926.55

Exposures to Hydrogen Sulfide (H₂S) can generally be controlled through the use of engineering controls, work practices, and personal protective equipment. Engineering controls are hazard controls designed into equipment and workplaces. Work practices are procedures followed by host employers and employees to control hazards. The following engineering Controls, work practices, and personal protective equipment should be used when dealing with H₂S.

- Ventilate spaces to mitigate accumulation of hydrogen sulfide or other gases.
- Notify the site supervisor upon detection of H₂S
- If the potential for exposure exists and assessment of levels cannot be performed, assume the Permissible Exposure Limit is being exceeded, and wear a NIOSH approved supplied air respirator or SCBA equipment.

- For persons escaping or providing emergency help, a respirator with proper acidic gas or H₂S canister filters may be used. Do not return until all hazards have been eliminated.
- Should an alarm sound on an H₂S detector, immediately evacuate the area, and notify your supervisor.
- When entering confined spaces, comply with 29 CFR 1910.146, Permit Required Confined Spaces. See De-Cal written Confined Spaces (Permit Required) Program.

First Aid/Medical Treatment

For exposures to hydrogen Sulfide follow the following guidelines. If you are not sure what to do, immediately initiate the jobsite Emergency Action plan and by calling 911 or contacting the posted emergency numbers located at the job site.

Eye Exposure: If liquid H₂S contacts eyes wash eyes immediately with water, lifting both lids. Contact lenses should not be worn when working with any chemicals. If irritation persists seek medical attention.

Skin Exposure: If liquid H₂S contacts skin wash skin immediately with water. If clothing is penetrated, remove and flush skin with water. If irritation persists seek medical attention.

Breathing. If a person breathes in a large amount of H₂S, move the person to fresh air at once. If breathing has stopped, perform artificial respiration. Keep the affected person warm and at rest. Get medical attention as soon as possible.

Rescue: Move the affected person from the hazardous exposure. If the exposed person has been overcome, notify someone else and put into effect the established emergency rescue procedures. Do not become a casualty. Understand the facility's emergency rescue procedures and know the location of rescue equipment before the need arises

Communication of Hazards

De-Cal shall insure warning signs will mark the boundaries of work areas that have been identified to contain or potentially contain hydrogen sulfide. Additionally, we will inform contractors on Multi-employer job sites in accordance with our Contractor Safety Program.

Our Communication of Hazards program is supplemented by the requirements of 29 CFR 1926.59-Hazard Communication and is attached to this written program.

Section 22 – Hexavalent Chromium

Hexavalent Chromium Program

Purpose

The purpose of the DE-CAL's Hexavalent Chromium Safety Program is to protect both our employees and the environment from hexavalent chromium contamination from our facility operations. The intent of our program is to be in full, continuous compliance with OSHA

Standard 29 CFR 1910.1027 and all other local, State and Federal requirements for our industry.

Responsibilities

Safety Director / Competent Person will implement, maintain & monitor effectiveness

of:

- Entire Hexavalent Chromium safety program, including semi-annual revisions and updates to reflect the current status of the program
- Engineering & administrative controls for Hexavalent Chromium exposure
- Employee training and awareness
- Medical surveillance program
- Respiratory protection program
- Hexavalent Chromium disposal program
- Housekeeping program
- Protective clothing issue, storage and disposal

Competent Person will:

- Provide effective and continuous control of all Hexavalent Chromium operations
- Immediately inform management of any deficiencies in engineering or administrative controls
- Conduct routine assigned inspections
- Immediately correct any deviation from operational safety requirements
- Provide immediate on-the-spot training for any employee who shows lack of knowledge or application of required operational Hexavalent Chromium safety requirements

All employees who have the potential exposure prior to the time of initial job assignment and annually shall be trained. The employees shall be informed of the specific nature of the operations which could result in exposure to Hexavalent Chromium above the action level, the purpose, proper selection, fitting, use, and limitation of respirators, engineering controls, purpose & a description of the medical surveillance program & the medical removal program.

Employees will:

- Follow all operational and Hexavalent Chromium safety procedures
- Seek immediate supervisor guidance to resolve questions
- Conduct operations in accordance with company provided training
- Immediately report to a supervisor any deficiency in engineering or administrative controls
- Properly use, store and dispose of issued and assigned personal protective clothing
- Maintain change and shower areas neat and orderly

Hexavalent Chromium

Hexavalent chromium is prevalent in the metal fabricating industry. Cr(VI) compounds are used most commonly as a structural and anticorrosive element in stainless steel, iron, and steel production and in welding and painting.

Occupational exposures to Cr(VI) can occur from inhaling its mist (such as from chrome plating), dusts [including inorganic pigments or Cr(VI)-painted surfaces], or fumes (as in stainless steel welding) and from dermal contact. Exposure to Cr(VI) has been linked conclusively to lung cancer, asthma, nasal ulcerations and perforations, skin ulcerations (or chrome holes), and allergic and irritant contact dermatitis.

Monitoring

DE-CAL, Inc. shall provide for monitoring or measuring of employee exposure. Periodic monitoring shall be conducted at least every 6 months if initial monitoring shows employee exposure. Air monitoring will be performed at the beginning of each new job task. If exposure monitoring results indicate exposure is above the PEL, DE-CAL, Inc. shall take corrective measures to reduce exposure below the PEL.

Exposure Determination.

- DE-CAL Inc. shall ensure their employees are not exposed in excess of the permissible exposure level (PEL).
- DE-CAL Inc. shall determine the eight-hour TWA exposure for each employee exposed to Cr(VI). DE-CAL Inc. will choose between a scheduled monitoring option and a performance-based option for making exposure determinations when there is the potential for exposure to hexavalent chromium at or above the action level.
- The **action level** is set at one-half of the PEL, or 2.5 micrograms per cubic meter of air calculated as an eight-hour TWA. Because employee exposures to airborne concentrations of Cr(VI) are variable, workers may sometimes be exposed above the PEL even if exposure samples (which are not conducted on a daily basis) generally are below the PEL. Maintaining exposures below the action level provides increased assurance that employees will not be exposed to Cr(VI) at levels above the PEL because of exposure variations in the workplace.

Regulated Areas.

DE-CAL Inc. will establish a regulated area wherever an employee's exposure to airborne concentrations of Cr(VI), or can reasonably be expected to be, is in excess of the PEL. DE-CAL Inc. shall ensure that regulated areas are demarcated from the rest of the workplace in a manner that adequately establishes and alerts employees of the boundaries of the regulated area.

Methods of Compliance.

DE-CAL Inc. shall implement engineering and work practice controls to achieve the proposed PEL, or the lowest levels feasibly achievable. This could include ventilation systems, materials substitution, or work practice modifications. Wherever feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, the employer must provide respiratory protection. DE-CAL Inc. will not rotate employees to different jobs to achieve compliance with the PEL.

DE-CAL Inc. shall implement effective engineering and work practice controls if the exposure level is above the permissible limit for more than 30 days per year.

Respiratory Protection.

DE-CAL Inc. shall provide respiratory protection for employees during:

- Periods necessary to install or implement feasible engineering and work practice controls.
- Work operations, such as maintenance and repair activities, for which engineering and work practice controls are not feasible.
- Work operations where controls are not sufficient to reduce exposures to or below the PEL.
- Work operations where employees are exposed above the PEL for fewer than 30 days per year, and the employer has elected not to implement engineering and work practice controls to achieve the PEL.
- Emergencies.

Protective Work Clothing and Equipment.

Where a hazard is present or is likely to be present from skin or eye contact with Cr(VI), DE-CAL Inc. shall provide appropriate personal protective clothing and equipment at no cost to employees, and it shall ensure that employees use such clothing and equipment. In addition, a stringent program will be developed for removing, handling, and cleaning contaminated clothing and equipment.

Housekeeping and Hygiene.

All surfaces must be maintained free of accumulations of Cr(VI), and all spills and

releases of Cr(VI)-containing material must be cleaned up promptly. Dry shoveling, sweeping, and brushing may be used only when HEPA-filtered vacuuming or other methods that minimize the likelihood of exposure to Cr(VI) have been tried and found ineffective. Effective wet shoveling, sweeping, and brushing are allowed.

The use of compressed air to remove Cr(VI) when no alternative method is feasible, but only when used with a ventilation system designed to capture the dust cloud created by the compressed air. Waste, scrap, debris, and any other materials contaminated with Cr(VI) and consigned for disposal shall be collected and disposed of in labeled, sealed, impermeable bags or containers. Four-Four Inc shall provide washing facilities in areas where skin contact with Cr(VI) can occur and ensure that employees use them as needed.

Medical Surveillance.

Medical surveillance is required for employees experiencing signs or symptoms of the adverse health effects associated with Cr(VI) exposure or those exposed in an emergency. "Emergency" means any unexpected and significant release of Cr(VI), such as equipment failure, rupture of containers, and failure to control equipment. DE-CAL Inc. shall make medical surveillance available at no cost to the employee, and at a reasonable time and place for all employees who are:

- Occupationally exposed to Cr(VI) at or above the action level for 30 or more days a year.
- Experiencing signs or symptoms of the adverse health effects associated with Cr(VI) exposure.
- Exposed in an emergency.

Hazard Training and Communication.

DE-CAL Inc. shall provide initial training prior to or at time of initial assignment. DE-CAL Inc. shall provide training that is understandable and ensure each employee can demonstrate knowledge of the health hazards associated with hexavalent chromium exposure; location, manner of use, and release of chromium in the workplace; engineering controls and work practice controls; purpose, proper selection, fitting, proper use and limitations of respirators and protective clothing; emergency procedures; measures employees can take to protect themselves from exposure; purpose and description of medical surveillance program; contents of the standard. DE-CAL Inc. shall make a copy readily available without cost to all affected employees. Training shall be documented.

DE-CAL Inc. shall ensure that each employee can demonstrate knowledge of the contents of this standard, and the purpose and a description of the medical surveillance program required by this standard. In addition, DE-CAL Inc. shall provide a copy of this standard to all affected employees.

Changing and Hygiene Facilities:

DE-CAL Inc. shall provide change rooms for decontamination and ensure facilities prevent cross-contamination. Washing facilities shall be readily accessible for removing chromium from the skin. Workers must wash their hands and face or any other potentially exposed skin before eating, drinking, or smoking.

Recordkeeping.

DE-CAL Inc. shall make provisions for exposure records to be maintained, including:

- All data related to air monitoring: date of measurement; the operation involving exposure to Cr(VI) being monitored; sampling and analytical methods used and evidence of their accuracy; and the number, duration, and the results of samples taken.
- The type of personal protective equipment worn (such as respirators).
- The name, Social Security number, and job classification of all employees represented by the monitoring, indicating which employees actually were monitored.
- An accurate record of all objective data relied upon to comply with the requirements of the standard, including the chromium-containing material in question; the source of the objective data; the testing protocol and results of testing or analysis of the material for the release of Cr(VI); a description of the process, operation, or activity and how the data support the determination; and other data relevant to the process, operation, activity, material, or employee exposures.
- An accurate record for each employee covered by medical surveillance under this standard, including the physician's written opinions.

Section 23 – Naturally Occurring Radiation

NATURALLY OCCURRING RADIOACTIVE MATERIAL (NORM) PROGRAM

PURPOSE and SCOPE

De-Cal employees may have the potential to encounter radiation hazards that may be present when performing work while at Host-facility job-sites. Because high levels of radiation can cause lung cancer and other diseases, it poses a serious health risk and requires that we take steps to protect ourselves when working in areas contaminated with radiation.

Even though De-Cal employee exposure potential is reasonably anticipated to be minimal due to precautions, prescribed distances and barriers, operator work practices and procedures in place for health and safety reasons, this written program does offer guidelines for employee safety and health protection from incidental or emergency exposures.

The **Program Administrator** for our Company is the **Project Manager** who shall make arrangements with Host-facility operators that may offer indirect program assistance by making available a staff-assigned radiation safety officer whenever required. This written safety plan covers the multiple job sites of De-Cal Inc

TRAINING

Training will be conducted annually by De-Cal Management and site-specifically by any Host-facility operator prior to the commencement of assigned work. Employees will be informed of hazards (acute and chronic exposure effects), locations (known or suspect contaminants), methods to identify the hazards (signs, notices, barricade tape), and methods used to protect themselves (personal protective equipment to include respiratory protection provided with NIOSH approved High Efficiency Particulate Air filters or supplied air equipment). Discussions will include information relative to normal and emergency situations.

RADIOACTIVE SOURCE IDENTIFICATION

Notification to employees will be furnished wherever the presence of radioactive contamination is known, and this will be accomplished through the posting of signs and notices. At times you may encounter a barricaded area at a Host-facility work-site, that is demarcated by the use of yellow-colored barricade tape with purple/magenta imprinted wording and a three-pronged propeller pictograph, or yellow and purple/ magenta vinyl roping that has both colors intertwined. Wording or signs will state:

CAUTION - RADIOACTIVE MATERIAL
CAUTION - RADIATION AREA
CAUTION - HIGH RADIATION AREA

NOTE: Caution radioactive material represents exposure potentials are less than 5 millirems per hour.

Caution radiation area represents exposure potentials are between 6 and 100 millirems per hour.

Caution high radiation area represents exposure potentials are greater than 100 millirems per hour.

De-Cal employees are not allowed to enter a radiation barricaded area for any reason or purpose, as they are to observe and obey all posted signs or barricades.

RADIATION SOURCE LOCATIONS

Although not utilized by De-Cal employees, portable inspection equipment is widely utilized by various inspection agencies. Since these are sealed sources, the radioactive substance is not accessible. The stainless steel container has sufficient mechanical strength to prevent the substance from spreading during normal conditions of use.

A well-protected source of contamination may exist in petrochemical/refinery work settings that employ the use of a fixed, enclosed, level-gauging/flow-rate determination device in process piping or on tank shells/storage drums that emits low-level gamma radiation. These detection devices are clearly signed to warn workers of their presence and operation.

Brick building materials and refractory coatings designed for thermal protection of process equipment, blast furnaces or ovens that are subject to structural transformations (removal, remodel, repair, chipping, grinding, spray-blasting, sanding, cutting, hammering) which would allow for particulate material to become airborne would require the proper use of NIOSH- approved respiratory equipment to include a North half-face negative pressure respirator with HEPA filter or supplied air.

Another source of radiation, however considered to be minor, can be found in TENORM - “*technology enhanced naturally occurring radioactive material*”. Examples of where TENORM can be found are in drill pipe, production vessels, separators, shale shakers, produced waste water, and in the formation material brought to the surface in the production of oil and gas.

Estimates suggest that up to 30% of domestic oil and gas wells may produce some elevated TENORM contamination.

Radium is a major contributor to the radioactivity found in these wastes, which are found in pipe scale and sludge from production and processing operations. Uranium, Thorium and Potassium-40 compounds are mostly insoluble, and as oil and natural gas are brought to the surface, these compounds tend to remain embedded in underground geologic formations. However, some radium and radium daughter products (progeny) are slightly soluble in water and can become mobilized when ground water (containing dissolved mineral salts - barium sulfate, calcium sulfate, and calcium carbonate) is brought to the surface from production and processing.

When this occurs, some radium and its daughters may precipitate out of solution because of geologic chemical changes and reduced temperature and pressure. Radium concentrations from geologic formations can precipitate out in sludge’s and on the internal surfaces of oil and natural gas piping and production and processing equipment. The solid scale residue typically consists mainly of barium, calcium, and strontium sulfates, silicates, and carbonates along with smaller portions of radium compounds. Sludge deposits, consisting of barium and silica compounds, are generally in the form of oily, loose material.

TENORM radionuclide concentrations in scales that accumulate in process piping and surface equipment may vary from background soil levels (about 1 pico-Curie per gram to several hundred thousand pico-Curies per gram with an average activity of about 1000-2000 pico-Curies per gram. Radium and its decay products are also found in elevated concentrations in ground water extracted to the surface from oil drilling. However, these concentrations are much less than those found for the scale or sludge wastes.

TENORM wastes from natural gas plant deposits differ from oil production TENORM wastes and typically consist of radon decay products plated out on the interior surfaces of pipes, valves, filters, and other gas production and processing equipment.

EXPOSURE MONITORING

Employees with the intended use of radioactive sources (such as a radiographer) are required to be passively monitored by the use of film badges, pocket dosimeters, film rings, or pocket chambers. This could be a detection level determination source for employee information should an inadvertent De-Cal employee exposure occur by incidental or accidental entrance into a restricted area. This monitoring shall be done under the direct supervision of the host employer.

Employee exposure levels are to never exceed the following Rems per calendar quarter:

Whole body - head & trunk, active blood-forming organs, eye-lens, or gonads.	1.25
Hands & forearms, feet & ankles	18.75
Skin of whole body	7.50

Should a Host-facility operator or contractor working at a Host- facility inadvertently expose a De-Cal employee to radiation levels that ever exceed these levels, or greater than 2 millirems per hour, then that employee shall be notified as soon as this information becomes available.

TESTING FOR RADIATION

The Host-facility radiation safety officer in conjunction with the De-Cal Safety Officer will utilize a calibrated radiation survey meter with Geiger-Meuller pancake probe or a radiation survey meter with Gamma Scintillator to identify suspect locations where TENORM could possibly exist, or for personnel body detection should an exposure occur. Any air samples drawn will be after a minimum of 60 cubic feet of air sample has been collected, and the filter disk will be sent to an EPA-certified radiochemistry laboratory for analysis.

Any Company employee being monitored has the right to observe such monitoring being conducted in their work area, and any recordings that may be documented. Any results will be compared to the HPS/ANSI Standard for occupational exposure (which allows for 100 millirem per year exposure) to determine if an exposure level has been exceeded.

Oil field piping and equipment that has been surveyed for the presence of radioactivity that indicates positive readings for excessive levels will be either held in storage by the determining Host-facility operator, or it may be sent to a commercial decontamination facility for treatment.

PROTECTIVE MEASURES

Standard methods for protection against radiation are time, distance and shielding. Exposure time limitations and prescribed distances have previously been discussed, but shielding is yet to be addressed. This last form of protection is provided by the correct use of properly inspected, maintained, Company-provided personal protective equipment to include hard hats, rubber steel-toed boots, rubber or latex gloves, safety glasses with face shields, disposable anti-contamination suits, and respiratory protection. Also, the ground can be shielded by the use of poly-film sheeting at a minimum of 10-mil thickness.

Personnel are not allowed to eat, drink, smoke, or chew anything in the immediate work area where TENORM contaminated materials/items/air/soil is or are located. Hand washing facilities/materials will be made available for control of employee personal hygiene.

EMERGENCY PROCEDURES

In the event of an emergency whereupon contamination has occurred or is suspect, employees will utilize Host-facility provided safety shower/eye-wash stations, or if injured, they will be provided with emergency medical attention. All personnel involved will be detained and checked for contamination prior to and after decontamination efforts. All TENORM contaminated materials (with readings greater than 2,000 pico-Curies per gram) will be placed in DOT approved 17-H drums or other DOT approved containers, labeled properly, and manifested for shipment to an approved hazardous waste site for treatment, storage, or disposal.

CONCLUSION

Non-compliance by any De-Cal employee, with any part of this described program will result in disciplinary action as outlined in the Company's Corrective Action/ Disciplinary Program found in section VIII page one of the De-Cal Safety manual.

Section 24 – Lead In Construction

Lead Exposure Compliance Program for Construction

Purpose

Remain in compliance with the OSHA lead standard, Title 29 Code of Federal Regulations 1926.62 for the health and safety of our employees.

- Ensuring that no employee is exposed to lead at concentrations greater than $50 \mu\text{g}/\text{m}^3$ of air averaged over an eight (8) hour period.
- Ensuring that if an employee is exposed to lead for more than eight (8) hours in any work day, the employee's allowable exposure, as a time weighted average (TWA) for that day, must be reduced according to the following formula: Allowable employee exposure (in $\mu\text{g}/\text{m}^3$) = 400 divided by hours worked in a day.
- Knowing that when respirators are used to limit employee exposure as required by paragraph (c) of Section 1926.62, and all requirements of paragraphs (e)(1) and (f) of Section 1926.62, have been met, employee exposure may be considered to be at the level provided by the protection factor of the respirator for those periods the respirator is worn. Those periods may be averaged with exposure levels during periods when respirators are not worn to determine the employee's daily TWA exposure.

This program applies to all abatement, construction, demolition, or renovation work where one of our employees may be occupationally exposed to lead. All work related to construction, alteration, including painting is included.

Administrative Duties

The Safety Director is responsible for its implementation and maintenance of this program. Copies of this written program may be obtained in DE-CAL written Safety Policy or at the corporate office.

Exposure Assessment

Protection of Employees during Exposure Assessment

When informed that presumed exposure may generate lead exposures greater than the permissible exposure limit (PEL) of $50 \mu\text{g}/\text{m}^3$ of air averaged over an eight hour period, we shall treat potentially affected employees as if they were exposed above the PEL and implement procedures to protect workers until we perform an employee exposure assessment and document that an employee's lead exposure is not above the PEL.

Tasks estimated to generate a TWA of $50 \mu\text{g}/\text{m}^3$ of air include:

- Grinding painted surfaces, manual scraping, manual sanding and power tool cleaning with dust collection systems where lead coatings, products or paint are present.
- working with lead.

Tasks estimated to generate a TWA of 500 $\mu\text{g}/\text{m}^3$ of air include:

- Using lead or lead burning.
- Cleanup activities, where dry expendable abrasives are used, and abrasive blasting removal where lead containing coatings or paint are present.

When informed Lead may be present, De-Cal shall take measures as recommended in 29 CFR 1926.62 to protect our employees. These measures include but are not limited to:

- Appropriate respiratory protection (protection factor of 10, 25, 50, or 100 depending on the tasks involved and the estimated exposures).
- Proper personal protective clothing and equipment
- Changing areas
- Hand washing facilities
- Biological monitoring
- Training

Initial Determination

When informed that there is a potential for exposure that employees may be exposed to lead at or above the action level of 30 $\mu\text{g}/\text{m}^3$ of air as an eight hour TWA. This initial determination can be based on:

- Air Monitoring within the breathing zone
- Employee exposure monitoring.
- Objective data demonstrating that under expected conditions, specific processes, operations, or activities involving lead cannot result in employee exposure to lead at or above the action level.
- Previous monitoring for lead exposures within the last 6 months during work operations conducted under workplace conditions closely resembling the processes, types of materials, control methods, work practices, and environmental conditions used and prevailing in operations.

We base initial determinations on employee exposure data. Our employee exposure monitoring data includes:

- Information, observations, or calculations which would indicate employee exposure to lead.
- Statements of previous measurements of airborne lead by the Host Contractor or owner.

Initial Determination Results

If our initial determination reveals employee exposures to be below the action level, we will conduct periodic air monitoring during operations to confirm that airborne lead levels are below the action level. If our initial determination reveals employee exposures to be at the action level but at or below the PEL, De-Cal shall conduct air monitoring and personal air sampling of 25% of the represented work force.

If our initial determination reveals that employee's exposures will be above the PEL, attempts will be made through administrative and engineering controls to reduce exposures below the PEL. If this should fail to reduce the exposure level, employees shall wear the appropriate level of PPE necessary to reduce exposures below the PEL.

Additional Exposure Assessments

If changes in equipment, process, control, personnel or tasks occur after initial determination, we reevaluate to determine if employees are exposed to higher concentrations of lead. We

will employ an independent third party air-monitoring agency to conduct periodic air monitoring of the work site to determine if changes occur in the exposure levels and the source of the hazard.

Employee Notification

Within five (5) working days of completing an exposure assessment we notify each employee in writing of his/her assessment results. Our procedure for this notification process is that we will post all air monitoring results for employees to review within five (5) working days.

Methods of Compliance

This program is for protecting our workers from lead exposure. It incorporates all relevant information that relates to this goal, so that we determine whether we appropriately analyzed problems and solutions (including alternatives) relating to lead exposure.

This program is intended to reduce employee exposure to at or below the PEL. When all feasible engineering and work practice controls that can be instituted are not sufficient to reduce employee exposure to acceptable levels, appropriate respiratory protection will be provided to supplement such controls.

This company reviews this program at least every Six months to revise it as necessary.

To reduce and maintain employee exposures to lead at or below the PEL, we have implemented safe work practices to include, but not limited to; wet methods, negative air systems, necessary PPE.

Work Practice Programs

Our jobs are typically multi-employer worksites. The procedure we use to cooperate with other contractors and inform all employees of potential exposure to lead shall be that the contractor must supply this organization copy of lead work, and employees who may be exposed to lead from lead abatement activities.

As an employer we want to keep our employees fully informed of all aspects of this plan. Our Job Site Supervisor/Competent Person will make frequent and regular inspections of the job site, materials, and equipment, and ensure a copy of this written plan is available at the worksite. We review and update our written plan every twelve months to reflect the current status of the program.

Respiratory Protection

As safe work practices are generally sufficient to reduce exposures to at or below the PEL without the use of respirators, unless an employee specifically requests a respirator, respiratory protection will not be routinely used on our worksites.

During exposure assessment to document that our employees are not exposed above the PEL, De-Cal shall provide respiratory protection. NIOSH approved respirators, recommended in Table 1 of 29 CFR 1926.62, shall be provided to employees who request them without cost. Any employee may ask his supervisor for a respirator and one will be provided upon that request in accordance with company policy.

De-Cal shall provide powered air purifying respirators (PAPR) instead of respirators recommended in Table 1 of 29CFR1926.62 to employees exposed to 1250 $\mu\text{g}/\text{m}^3$ of air or more who request them. Any employee who requests a PAPR through his supervisor will be provided one upon that request in accordance with company policy.

A copy of our respiratory protection program is attached.

Protective Work Clothing and Equipment

We will provide personal protective equipment as interim protection for employees during exposure assessment, if we are informed that our employees may be exposed to lead (1) above the PEL without regard to the use of respirators, or (2) to lead compounds which may cause skin or eye irritation. This outline of our Protective Work Clothing and Equipment policy is included as part of the site plan when required. We provide protective clothing and equipment at no cost to our employees.

The types of protective clothing provided by our company shall include, but is not limited to: Cotton Tyvek coveralls, with hood; Saranex coated Tyvek coveralls with hood; latex gloves with taped interfaces, safety glasses, and hardhats where necessary. This equipment is considered disposable, and is to be disposed of at the job site.

We will replace or repair any damaged equipment providing the employee notifies his supervisor of the damage to his protective clothing.

Housekeeping

De-Cal housekeeping procedures will include but are not limited to:

- Vacuuming floors and other surfaces where lead accumulates to minimize the likelihood of lead becoming airborne.
- Use of HEPA filters on vacuum cleaners.
- Emptying vacuums so that lead is not reintroduced into the workplace.

Hygiene Facilities and Practices

De-Cal shall insure hygiene facilities are available for our workers and assure they follow good hygiene practices. We prohibit smoking, eating, applying cosmetics, and the presence of tobacco products, foodstuffs, or cosmetics in all work areas where employees are exposed to lead above the PEL. All workers shall comply with these requirements through regular inspections by supervisory personnel. Employees who fail to follow accepted/proscribed hygiene and safety procedures will be subject to disciplinary actions as prescribed by company policy.

Medical Surveillance

The medical surveillance program supplements the primary goals of the lead exposure control program of preventing disease through elimination or reduction of airborne concentrations of lead, and sources of ingestion. The medical surveillance provisions incorporate both initial and ongoing medical surveillance at no cost to the employee.

De-Cal shall provide initial medical surveillance to employees who are occupationally exposed to airborne lead levels at or above the PEL. This monitoring consists of sampling blood and analyzing it for lead and zinc protoporphyrin levels. Where this initial biological monitoring indicates that an employee's blood lead level is at or above 40 µg/dl of whole blood, we provide biological monitoring every month during the removal period. This frequency will De-Calnue until two consecutive blood samples and analysis indicates that the employee's blood lead level is below 40 µg/dl of whole blood. Otherwise, employees will be biologically monitored on a semi-annual basis.

All medical examinations, procedures, and blood lead level sampling/analysis shall be conducted by a licensed healthcare practitioners and/or physicians. Our medical surveillance program shall meet the requirements of 29CFR1926.62.

Medical Removal Protection

De-Cal shall remove employees from work who have exposures to lead at or above the action level each time a periodic and a follow-up blood sample indicate that the blood lead levels are at or above 50 µg/dl of whole blood. We also remove employees from work who have exposures to lead at or above the action level when a health care professional determines that they have medical conditions which, when exposed to lead, places them at greater risk for those health problems. Employees who are removed from work will receive all wages, benefits, for a period of 18 months without loss of seniority or promotion opportunities. The company reserves the right to place an employee in a position, of equal responsibility, where the employee will not be exposed occupationally to lead.

Employee Education and Training

De-Cal training programs shall inform employees of the specific hazards associated with their work environment, protective measures which can be taken, and their rights under the standard (Including the contents of 29 CFR 1926.62 and appendices A & B) prior to the time of initial assignment. All employees working in areas with airborne lead levels above the PEL are required to possess appropriate training certifications. Training certifications will detail identity of employee trained, signature of qualified trainer, and dates of training. Training records will be retained at the corporate office for no less than one year.

De-Cal Inc. shall provide training for each employee who has the potential for exposure to lead.

prior to the time of initial job assignment and annually thereafter to maintain the employees level of awareness while the lead exposure potential is still recognized. Employees shall be trained on the health hazards and symptoms of lead exposure.

Health effects of lead exposure can include:

- Neurological Effects
 - Peripheral neuropathy
 - Fatigue / Irritability
 - Impaired concentration
 - Hearing loss
 - Wrist / Foot drop
 - Seizures

- o Encephalopathy
- Gastrointestinal Effects
 - o Nausea
 - o Dyspepsia
 - o Constipation
 - o Colic
 - o Lead line on gingival tissue
- Reproductive Effects
 - o Miscarriages/Stillbirths
 - o Reduced sperm count & motility
 - o Abnormal sperm
- Heme Synthesis
 - o Anemia
 - o Erythrocyte protoporphyrin elevation
- Renal Effects
 - o Chronic nephropathy with proximal tubular damage
 - o Hypertension

Signs

Because exposure to lead is a serious health hazard, we shall when required, post signs that warn employees of lead hazards and of the possible need to use respirators and other protective equipment in the area. Appropriate lead warning signs will be provided at all entrances and exits to the work area. Additionally, employees will be instructed as to the meanings of the various signs at the worksite during training.

Record keeping

We shall maintain accurate biological and environmental monitoring records of employee exposures to potentially toxic materials, including lead. We allow employees unlimited access to their own personal records.

De-Cal shall include the following exposure monitoring records:

- Exposure assessment
- Medical surveillance results
- Medical removals
- Objective data for exemption from requirement for initial monitoring
- Procedures for making records available
- Procedures for transfer of records

Observation of Monitoring

De-Cal will provide our employees or their representatives the opportunity to observe exposure monitoring of toxic materials or harmful physical agents. When an observer is present, supervisory personnel shall ensure that the observer is provided with the following:

- An explanation of the measurement procedures being used.
- Allowing the observation of all steps related to the measurement procedures.

- The dissemination of the results when returned by the laboratory.
- Providing the observer with the proper personal protective equipment.
- Assuring that observers comply with all applicable safety and health procedures.

Section 25 – Silica

Silica Exposure Control Plan

NOTE: See Table 1: Specified Exposure Control Methods When working With Materials Containing Crystalline Silica.

The purpose of this program is to inform employees, that De-Cal is complying with OSHA's **NEW Crystalline Silica standard of 2017**, Title 29 Code of Federal Regulations 1926.1153 and **Table 1 contained within the new** OSHA rules as specified in the "Threshold Limit Values for Crystalline Silica found in 29 CFR 1926.1153.

This program deals with exposure to Crystalline Silica and hazards associated with drilling into concrete for the anchorage of mechanical support systems, or other mechanical procedures that may produce Crystalline Silica dust.

To achieve compliance we must first implement all feasible administrative and engineering controls. However, when such controls are not feasible, we will use protective equipment or other protective measures to keep the exposure of employees to air contaminants within the limits prescribed in Appendix A of 29 CFR 1926.1155. All equipment and technical measures used to achieve compliance will first be approved for each particular use by a competent industrial hygienist or other technically qualified person.

Before operations begin regarding the potential of silica exposure:

Table 1: Specified Exposure Control Methods When Working With Materials Containing Crystalline Silica.

This program applies to all construction work (including alteration and repair) where one of our employees may be occupationally exposed to Crystalline Silica dusts at concentrations above **25 micrograms per cubic meter of air as an 8 hour time-weighted average**.

Administrative Duties

This written safety program covers De-Cal's various construction work sites. The job-site supervisor and the De-Cal Safety Director are the program administrators and are responsible for its implementation. **Copies of this written program are available to all employees, and may be obtained from the De-Cal Safety and Health Manual, or by contacting the De-Cal corporate office. An assessment of the silica programs effectiveness will be completed annually.**

Exposure assessment and monitoring

De-Cal shall conduct personal or area sampling for Silica Dust and measure worker exposures when required by the standard. Air sampling is needed to measure worker exposures, and to select appropriate engineering controls and respiratory protection. Engineering Controls and Best Work Practices will be used to reduce or eliminate or reduce

respirable silica to the lowest level possible Respirators will be provided to De-Cal employees to prevent silica exposure. Where data is collected it must be retained to support negative and exposure assessments. All Applicable records such as air sampling, medical surveillance will be retained at the De-Cal main office building.

De-Cal will perform air monitoring as needed to measure the effectiveness of controls.

Our Exposure Assessment and Monitoring Program is attached to this written program.

The current OSHA permissible exposure limit (PEL) for respirable dust containing crystalline silica (quartz) is measured by millions of particles per cubic foot (mppcf) and is calculated as:

PEL = (50 ug/m³) and Action Level (25 ug/m³)

Note: PEL is an 8 hour time-weighted average (TWA).

Medical surveillance

De-Cal will provide medical examinations for all workers who may have been exposed to Crystalline Silica at or above the respective PEL found in 29 CFR 1926.1155:

These medical examinations are provided for affected employees:

1. Prior to job assignment and every 3 years (or annually if a physician determines that is sufficient.) All employees whose exposure is equal to or exceeds the Action Level for 30 or more days per year will be subject to medical surveillance.
2. At termination of employment;
3. Before reassignment to an area where medical examinations are not required;
4. If the examining physician believes that a periodic follow-up is medically necessary;
5. As soon as possible for employees injured or becoming ill from exposure to hazardous substances during an emergency, or who develop signs or symptoms of exposure from hazardous substances.

They include:

1. A medical and occupational history to collect data on exposure and signs and symptoms of respiratory disease such as silicosis.
2. A chest X-ray classified according to the 1980 International Labor Office (ILO) International Classification of Radiographs of Pneumoconiosis
3. Pulmonary function testing (spirometry).
4. Availability of air and medical surveillance data to workers is an OSHA requirement (29 CFR 1926.1153).

Note: The National Institute for Occupational Safety and Health (NIOSH) recommends that examinations must occur before job placement or upon entering a trade, and at least every three years thereafter. They also encourage reporting of cases of silicosis to OSHA or MSHA.

Training and information

It is the policy of De-Cal to permit only trained and authorized personnel to participate in Crystalline Silica producing operations. The site supervisor will identify all new employees in the employee orientation program and make arrangements with the Site Safety Officer or the De-Cal Safety Director to schedule training.

The Safety Officer or designee will conduct initial training and evaluation: The instructor(s) must have the necessary knowledge, training, and experience to train new De-Cal Personnel on the potential hazards associated with crystalline silica exposure.

De-Cal instruction includes both classroom instruction and computer based Safety Awareness training.

During training, De-Cal shall cover the operational hazards of drilling in concrete:

- Hazards associated with a particular process.
- General hazards that apply to the operation of equipment used to penetrate concrete.

Each potential employee who has received training for the types of equipment which that employee will be authorized to operate and for the type of workplace in which the equipment will be operated need not be retrained in those elements before initial assignment in the workplace if the employee is evaluated to be competent.

We will provide our employees with training on Silica Exposure that includes:

1. Information about the potential health effects of exposure to crystalline silica.
2. Material safety data sheets for silica, masonry products, alternative abrasives, and other hazardous materials (29 CFR 1926.59)
3. Instruction about the purpose and set-up of regulated areas marking the boundaries of work areas containing crystalline silica.
4. Information about safe handling, labeling, and storage of hazardous materials.
5. Discussion about the importance of substitution, engineering controls, work practices, and personal hygiene in reducing crystalline silica exposure.
6. Instruction about the use and care of appropriate protective equipment (including protective clothing and respiratory protection).

What is crystalline silica (quartz)?

The terms "crystalline silica" and "quartz" refer to the same thing. Crystalline silica is a basic component of sand and granite.

What is silicosis?

Silicosis is a disease of the lungs due to breathing of dust containing crystalline silica particles. This dust can cause fibrosis or scar tissue formations in the lungs that reduce the lung's ability to work to extract oxygen from the air. There is no cure for this disease.

What are the symptoms of silicosis?

There are several stages of silicosis. Early stages may go completely unnoticed. De-Calnued exposure may result in the exposed person noticing a shortness of breath upon exercising, possible fever and occasionally bluish skin at the ear lobes or lips. Silicosis makes a person more susceptible to infectious diseases of the lungs like tuberculosis. Progression of the disease leads to fatigue, extreme shortness of breath, loss of appetite, pain in the chest, and respiratory failure, which all may lead eventually to death. Acute silicosis may develop after short periods of exposure. There are three types of Silicosis:

1. Chronic silicosis usually occurs after 10 or more years of exposure to lower levels of quartz.
2. Accelerated silicosis usually develops in 5-10 years after initial exposure to high concentrations.
3. Acute silicosis is exposure to extremely high concentrations & symptoms develop within a few weeks to a few years

Where are construction workers exposed to crystalline silica dust?

The most severe exposures to crystalline silica result from sandblasting to remove paint and rust from stone buildings, metal bridges, tanks, and other surfaces. Other activities that may produce crystalline silica dust include jack hammering, rock/well drilling, concrete mixing, concrete drilling, and brick and concrete block cutting. Even-though De-Cal personnel do not actively participate on most of the above operations, they may be exposed when working in conjunction with other trades.

Methods of compliance

Administrative procedures, engineering controls, and good work practices

Exposures to Crystalline Silica dusts can be controlled through the use of engineering controls and safe work practices (**SEE TABLE 1**). Engineering controls are hazard controls designed into equipment and / or safe work practices. Safe work practices are procedures

followed by employers and workers to control hazards. Some of the engineering controls and work practices you may use during work that could generate silica dust are:

1. Recognize when silica dust may be generated and plan ahead to eliminate or control the dust at the source. Awareness and planning are keys to prevention of silicosis.
2. **Use dust collection systems available for many types of dust-generating equipment. When purchasing equipment, our priority will be equipment that contains dust control methods.**
3. During masonry drilling, use water through the drill stem to reduce the amount of dust in the air, or use a drill with a dust collection system.
4. When sawing concrete or masonry, use saws that provide water to the blade.
5. When available, use local exhaust ventilation systems to prevent dust from being released into the air.
6. Use engineering controls and containment methods, wet drilling, or wet sawing of silica-containing materials to control the hazard and protect adjacent workers from exposures. **Follow the Best Work Practices found in table 1**

Hygiene facilities and practices

Personal hygiene practices are essential for protecting workers from inadvertent exposure to silica dust, and to prevent exposure to vehicles and homes. Safe work practices for protecting workers from crystalline silica during work operations are:

1. Do not eat, drink, or use tobacco products in dusty areas.
2. Wear protective clothing such as coveralls (greens).
3. Wash your hands and faces before eating, drinking, or smoking outside dusty areas.
4. Park cars where you will not be contaminated with silica, and keep all windows closed.
5. Practice good personal hygiene to avoid unnecessary exposure to family members at home.
6. Shower (if possible) and change into clean clothes before leaving the work site to prevent contamination of cars, homes, and other work areas.

Housekeeping

Housekeeping practices include:

Housekeeping must be done often and it must be done properly. You may choose to use vacuums with high-efficiency particulate air (HEPA) filters, or use wet sweeping instead of dry sweeping. When removing dust from equipment, use a water hose. Never use compressed air.

Protective clothing

Coveralls can provide suitable protection over regular work clothes. Gloves should be taped to the sleeves to provide an air tight seal against dust flowing into the sleeves. Tyvek disposable suits may also be used.

Respirators and the respiratory protection program

OSHA regulation requires implementation of a respirator program when engineering, administrative, and good work practices are not enough to keep Silica exposure below their permissible exposure limit (PEL), as found in 29 CFR 1926.1155. Respirators shall not be used as the primary means of preventing or minimizing exposures to airborne contaminants. Instead, we will use effective source controls such as:

- Substitution,
- Automation,
- Enclosed systems,
- Local exhaust ventilation,
- Wet methods, and
- Safe work practices.

When source controls cannot keep exposures below the PEL, controls will be supplemented with the use of respirators.

Our Respirator Program is attached to this written program and follows the requirements of 29 CFR 1926.103 more information can also be found in section XIII

Communication of Hazards

De-Cal, Inc. shall insure warning signs will mark the boundaries of work areas that have been identified to contain or potentially contain contaminated Crystalline Silica at or above their PELs. Additionally, we will inform contractors on Multi-employer job sites in accordance with our Contractor Safety Program.

Our Communication of Hazards program is supplemented by the requirements of 29 CFR 1926.59-Hazard Communication and is part of our written safety and health program.

Section 26 – Cadmium Exposure and Compliance

Cadmium Exposure Compliance Program for Construction

The purpose of this program is to inform employees that De-Cal is complying with the OSHA cadmium standard, Title 29 Code of Federal Regulations 1926.1127 and 1910.1027 by:

- Ensuring that no employee is exposed to cadmium at concentrations greater than 5 ug/m³ of air averaged over an eight (8) hour period.
- Knowing that when respirators are used to limit employee exposure as required by paragraph (c) of Section 1926.1127, and all requirements of paragraphs (e)(1) and (f) of Section 1926.1127, have been met, employee exposure may be considered to be at the level provided by the protection factor of the respirator for those periods the respirator is worn. Those periods may be averaged with exposure levels during periods when respirators are not worn to determine the employee's daily TWA exposure.

This program applies to all, construction, demolition, or renovation work where one of our employees may be occupationally exposed to cadmium. All work related to construction, alteration, including painting is included.

This program is available for review and copying by all employees, their representatives, the Assistant Secretary, and Director.

Employee Education and Training

De-Cal training programs are initially established at the New-Hire Orientation, and annually afterward, all training will be documented.. De-Cal, Inc. shall inform employees of the specific hazards associated with their work environment, protective measures which can be taken, and their rights under the standard (Including the contents of 29 CFR 1926.1127 and appendices A & B) prior to the time of initial assignment. All employees working in areas with airborne cadmium levels above the PEL are required to possess appropriate training certifications. Training certifications will detail identity of employee trained, signature of qualified trainer, and date(s) of training. Training records will be retained at the corporate office for a period of no less than 1 year. All affected employees and their representatives have access to the written procedures.

Administrative Duties

The Safety Officer is responsible for its implementation and maintenance of this program. Copies of this written program may be obtained in the DE-CAL written Safety manual or at the corporate office.

This written safety plan covers the multiple job sites of DE-CAL Inc.

Written procedures will be reviewed and updated annually if significant changes occur.

Exposure Assessment

Protection of Employees during Exposure Assessment

When informed that presumed exposure may generate cadmium exposures greater than the permissible exposure limit (PEL) of 5 ug/m³ of air averaged over an eight hour period, we shall treat potentially affected employees as if they were exposed above the PEL and implement procedures to protect workers until we perform an employee exposure assessment and document that an employee's cadmium exposure is not above the PEL.

Tasks estimated to generate a TWA of 5 ug/m³ of air include:

- Emergency operations involving cadmium.
- Grinding on surfaces that have been proven to contain Cadmium.
- Power tool usage without dust collection systems where cadmium is present.
- Cleanup activities and removal where cadmium containing coatings or contaminants is present.

When informed Cadmium may be present De-Cal will take measures as recommended in 29 CFR 1926.62 to protect our employees. These measures include but are not limited to:

- Appropriate respiratory protection (protection factor of 10, 25, 5, or 100 depending on the tasks involved and the estimated exposures).
- Proper personal protective clothing and equipment
- Change areas
- Hand washing facilities
- Biological monitoring
- Training

Initial Determination

When informed that there is a potential for exposure on a project, assessments will be completed to determine if employees may be exposed to cadmium at or above the action level of 2.5 ug/m³ of air as an eight hour TWA. This initial determination can be based on:

- Employee exposure monitoring.
- Objective data demonstrating that under expected conditions, specific processes, operations, or activities involving cadmium cannot result in employee exposure to cadmium at or above the action level.
- Previous monitoring for cadmium exposures within the last 12 months during work operations conducted under workplace conditions closely resembling the processes, types of materials, control methods, work practices, and environmental conditions used and prevailing in operations.

We base initial determinations on employee exposure data. Our employee exposure monitoring data shall include:

- Information, observations, or calculations which would indicate employee exposure to cadmium.
- Statements of previous measurements of airborne cadmium.

Initial Determination Results

If our initial determination reveals employee exposures to be below the action level, we will conduct periodic air monitoring during operations to confirm that airborne cadmium levels are

below the action level. If our initial determination reveals employee exposures to be at the action level but at or below the PEL, we will conduct air monitoring and personal air sampling of 25% of the represented work force. If our initial determination reveals that employee's exposures will be above the PEL, attempts will be made through administrative and engineering controls to reduce exposures below the PEL. If this should fail to reduce the exposure level, employees shall wear the appropriate level of PPE necessary to reduce exposures below the PEL.

Additional Exposure Assessments

If changes in equipment, process, control, personnel or tasks occur after initial determination, we will reevaluate to determine if employees are exposed to higher concentrations of cadmium. When deemed necessary we shall conduct periodic air monitoring of the work site to determine if changes occur in the exposure levels.

Employee Notification

Within five (5) working days of completing an exposure assessment we notify each employee in writing of his/her assessment results. Our procedure for this notification process is that we will post all air monitoring results for employees to review within five (5) working days.

Methods of Compliance

This program is for protecting our workers from cadmium exposure. It incorporates all relevant information that relates to this goal, so that we determine whether we appropriately analyzed problems and solutions (including alternatives) relating to cadmium exposure.

This program is intended to reduce possible employee exposure to at or below the PEL. When all feasible engineering and work practice controls that can be instituted are not sufficient to reduce employee exposure to acceptable levels, appropriate respiratory protection will be provided to supplement such controls.

This company reviews this program at least every twelve months to revise it as necessary.

To prevent employee exposures to cadmium at or below the PEL, we shall implement safe work practices to include, but not limited to; wet methods and necessary PPE. Additionally, housekeeping practices that will be followed include:

- Use of HEPA filters on vacuum cleaners.
- Emptying vacuums so that cadmium is not reintroduced into the workplace.

Safe work practices shall be utilized to control exposure to cadmium. Our jobs are typically multi-employer worksites. The procedure we use to cooperate with other contractors and inform all employees of potential exposure to cadmium shall be that the contractor must supply these organizations, copies of cadmium training certificates for all employees who may be exposed to cadmium from potential cadmium exposure activities. All contractor employees shall receive a site safety orientation to include the hazards of cadmium of the site prior to beginning work when the potential of exposure exists.

De-Cal shall keep employees fully informed of all aspects of this plan when the potential for exposure exists. The Job Site Supervisor/Competent Person will make frequent and regular

inspections of the job site, materials, and equipment, and ensure a copy of this written plan is available at the worksite.

Respiratory Protection

As safe work practices are generally sufficient to prevent exposures to at or below the PEL without the use of respirators, unless an employee specifically requests a respirator, respiratory protection will not be routinely used on our worksites. When notified of potential for exposure the following shall be standard procedure.

During exposure assessment, or while performing maintenance procedures while working on ventilation systems and changing of filters, Appropriate (maximum) respiratory protection will be used. In order to document that our employees are not exposed above the PEL, precautions shall be taken as if exposure is above the PEL. De- Cal shall provide respiratory protection. NIOSH approved respirators, recommended in Table 1 of 29 CFR 1926.1127, and shall be provided to employees without cost. Any employee may ask his supervisor for a respirator and one will be provided upon that request in accordance with company policy. Under an Emergency release, all personnel will immediately don their respirators and evacuate the area.

We will also provide powered air purifying respirators (PAPR) instead of respirators recommended in Table 1 of 29CFR1926.1127 to employees exposed to 250 ug/m³ of air or more who request them. Any employee who requires a PAPR will be provided one in accordance with company policy at no cost to the employee.

See the respiratory protection program section of this manual.

Protective Work Clothing and Equipment

We shall provide personal protective equipment as interim protection for employees during exposure assessment, if we are informed that our employees may be exposed to cadmium (1) above the PEL without regard to the use of respirators, or (2) to cadmium compounds which may cause skin or eye irritation. We provide protective clothing and equipment at no cost to our employees.

The types of protective clothing provided by our company shall include, but is not limited to: Cotton tyvek coveralls, with hood; Saranex coated tyvek coveralls with hood; latex gloves with taped interfaces, safety glasses, and hardhats where necessary. This equipment is considered disposable, and is to be disposed of at the job site. We will replace or repair any damaged equipment providing the employee notifies his supervisor of the damage to his protective clothing.

Hygiene Facilities and Practices

We will ensure hygiene facilities are available for our workers and assure they follow good hygiene practices. We prohibit smoking, eating, applying cosmetics, and the presence of tobacco products, foodstuffs, or cosmetics in all work areas where employees may be exposed to cadmium above the PEL. All workers shall comply with these requirements through regular inspections by supervisory personnel. Employees who fail to follow

accepted/proscribed hygiene and safety procedures will be subject to disciplinary actions as prescribed by company policy.

Medical Surveillance

The medical surveillance program supplements the primary goals of the cadmium exposure control program of preventing disease through elimination or reduction of airborne concentrations of cadmium, and sources of ingestion. The medical surveillance provisions incorporate both initial and ongoing medical surveillance.

We shall provide initial medical surveillance to employees who are occupationally exposed to airborne cadmium levels greater than the action level 30 days a year or above the PEL for greater than 10 days a year. This monitoring consists of visits with the physician to include a detailed occupational history and laboratory analysis per 1910.1027(l), as required. To ensure appropriate medical surveillance is performed, we shall provide to the physician and/or representative copies of the regulation and appendices, a description of the employees duties, a list of the personal protective equipment worn by the employee, and past exposure assessment data if any.

All medical examinations, procedures, and blood Cadmium level sampling/analysis shall be conducted by licensed healthcare practitioners and/or physicians. Medical surveillance shall meet the requirements of 29 CFR 1910.1028(l).

Medical Removal Protection

De-Cal shall remove employees from work who have exposures to cadmium at or above the action level each time a periodic and a follow-up blood sample indicates that medical removal is necessary as required by 1926.1127 (l)(3),(4), & (6). We shall remove employees from work who have exposures to cadmium at or above the action level when a health care professional determines that they have medical conditions which, when exposed to cadmium, places them at greater risk for those health problems. Employees who are removed from work will receive all wages, benefits, for a period of 18 months without loss of seniority or promotion opportunities. The company reserves the right to place an employee in a position, of equal responsibility, where the employee will not be exposed occupationally to cadmium.

Signs

Because exposure to cadmium is a serious health hazard, we shall when required, post signs that warn employees of cadmium hazards and of the possible need to use respirators and other protective equipment in the area. Appropriate cadmium warning signs will be provided at all entrances and exits to the work area. Additionally, employees will be instructed as to the meanings of the various signs at the worksite during training.

Record keeping

De-Cal shall maintain accurate biological and environmental monitoring records of employee exposures to potentially toxic materials, including cadmium. De-Cal will allow employees unlimited access to their own personnel records.

De-Cal shall include the following exposure monitoring records:

- Exposure assessment
- Medical surveillance results
- Medical removals
- Objective data for exemption from requirement for initial monitoring
- Procedures for making records available
- Procedures for transfer of records

Observation of Monitoring

De-Cal will provide our employees or their representatives the opportunity to observe exposure monitoring of toxic materials or harmful physical agents. When an observer is present, supervisory personnel shall ensure that the observer is provided with the following:

- An explanation of the measurement procedures being used.
- Allowing the observation of all steps related to the measurement procedures.
- The dissemination of the results when returned by the laboratory.
- Providing the observer with the proper personal protective equipment.
- Assuring that observers comply with all applicable safety and health procedures.

Emergency Situations

In emergency situations, which involve a substantial release of cadmium, De-Cal shall ensure workers are protected by following all aspects of this program. This will include limiting access to authorized employees, provision and use of PPE, exposure monitoring, medical surveillance, hygiene facilities, work practices, fugitive emission controls, and proper disposal.

Section 27 – Benzene in Construction

INTRODUCTION

The following Awareness level Benzene Safety Program has been established by De-Cal Inc to reduce employee exposure and potential hazards that may be encountered during various industrial maintenance operations conducted at assigned work locations. This written program is available for affected employee or employee representative inspection, and upon request for examination or copying by an auditing or regulatory agency.

Employees are not expected to perform emergency response cleanup where concentrations of Benzene have the potential to be above the **PEL** (Permissible Exposure Limit) of 1ppm (part per million). Should employees be assigned such duties, specialize training will be provided. This written program is being established to effectively control any employee exposures to the extremely hazardous benzene containing materials.

De-Cal Inc employees work in locations such as 1. Petroleum refining sites 2. Coke Batteries 3. Field maintenance. Employees shall be made aware of the host facilities De-Calngency plans and programs for preventing exposure to Benzene.

TOXICITY

Airborne: The maximum time-weighted average (TWA) exposure limit is 1 ppm vapor per million parts of air (1 ppm) for an 8-hour workday and the maximum exposure limit (STEL) is 5 ppm for any 15-minute period.

2. Dermal: Eye contact shall be prevented and skin contact with liquid benzene shall be limited.

C. Appearance and odor: Benzene is a clear, colorless liquid with a pleasant, sweet odor. The odor of benzene does not provide adequate warning of its hazard.

II. Health Hazard Data

A. Ways in which benzene affects your health. Benzene can affect your health if you inhale it, or if it comes in contact with your skin or eyes. Benzene is also harmful if you happen to swallow it.

B. Effects of overexposure. 1. Short-term (acute) overexposure: If you are overexposed to high concentrations of benzene, well above the levels where its odor is first recognizable, you may feel breathless, irritable, euphoric, or giddy; you may experience irritation in eyes, nose, and respiratory tract. You may develop a headache; feel dizzy, nauseated, or intoxicated. Severe exposures may lead to convulsions and loss of consciousness.

2. Long-term (chronic) exposure. Repeated or prolonged exposure to benzene, even at relatively low concentrations, may result in various blood disorders, ranging from anemia to leukemia, an irreversible, fatal disease. Many blood disorders associated with benzene exposure may occur without symptoms.

3. The by-products of Benzene should be considered toxic and the same precautions shall be used when around or otherwise handling Benzene containing materials.

IDENTIFICATION

Liquefied or gaseous Benzene (C₆H₆) is a clear, colorless sweet-smelling aromatic highly flammable hydrocarbon that can usually be found naturally occurring in crude oil, and in processed intermediate or finished product hydrocarbon streams at petrochemical or refining operation facilities and is a by product in steel manufacturing process when refining Coke. It is further described by the following physical and chemical characteristics:

Boiling Point (C 760 mmHg)	80.1C or 176F
Melting Point (C)	5.5C
Specific Gravity (H ₂ O = 1)	0.879
Vapor Pressure (mm Hg)	74.6 @ 20C
Percent Volatile by Vol (%)	99+%
Vapor Density (Air = 1)	2.77
Evaporation Rate (BuAc = 1)	6.0
Solubility in Water (%)	Insoluble
NFPA Hazard Ratings :	Health : 2
Flammability : 3	
Reactivity : 0	Special Hazards : None

EXPOSURE DETERMINATION AND LIMITS

Prior to any De-Cal Inc employee's entry into an assigned work location, the host-facility operator will have conducted tests to determine the actual presence of benzene (positive test), or identified a potential area where Benzene could be reasonably expected to be encountered. This area is usually demarcated by the use of specific-worded signs or colored barricade tape.

De-Cal Inc Management is accountable for informing employees of the location of potential Benzene exposures.

The Host company is accountable for identifying the locations where Benzene containing materials are used and for informing employees of their De-Calagency plans along with the awareness of general plant safety rules, including evacuation.

A positive test is one, which exceeds the airborne concentration action level of .5 ppm, or the PEL (permissible exposure limit), which could be either the 8-hour TWA (time-weighted average) of 1 ppm or the STEL (short-term exposure limit) of 5 ppm for 15 minutes.

Determination of employee exposure is then made from breathing zone air samples that are representative of each employee's average exposure to airborne benzene.

Representative 8-hour TWA employee exposures shall be determined on the basis of one

sample or samples representing the full shift exposure for each job classification in each work area.

Determinations of compliance with the STEL shall be made from 15 minute employee breathing zone samples measured at operations where there is reason to believe exposures are high, such as where tanks are opened, filled, unloaded, or gauged; where containers or process equipment are opened and where benzene is used for cleaning or as a solvent in an uncontrolled situation..

The Company may then use objective data, such as measurements from brief period measuring devices to determine where STEL monitoring is needed. Except for initial monitoring as required, where the employer can document that one shift will consistently have higher employee exposures for an operation, De-Cal Inc shall only be required to determine representative employee exposure for that operation during the shift on which the highest exposure is expected.

Initial monitoring must be conducted at each covered work place or work operation to determine accurately the airborne concentrations of benzene to which employees may be exposed. The initial monitoring required shall be completed by 60 days after the effective date of this standard or within 30 days of the introduction of benzene into the workplace. Where De-Cal Inc. **or the host-facility operator** has monitored, and the monitoring satisfies all other requirements, De-Cal Inc. may rely on such historical monitoring results.

Periodic monitoring and monitoring frequency requirements must be met if the monitoring reveals employee exposure at or above the action level but at or below the TWA. This shall be repeated at least every year. IF the monitoring reveals employee exposure above the TWA, the monitoring shall be repeated for each such employee every (6) six months.

The Company may alter the monitoring schedule from every six months to annually for any employee for whom two consecutive measurements taken at least 7 days apart indicate that the employee exposure has decreased to the TWA or below, but is at or above the action level. Monitoring for the STEL shall be repeated as necessary to evaluate exposure of employees subject to short-term exposures.

Monitoring can be terminated if the initial monitoring reveals employee exposure to be below the action level, except as otherwise required. If the periodic monitoring reveals that employee exposures, as indicated by at least two consecutive measurements taken at least 7 days apart, are below the action level, then De-Cal Inc may disDe-Calnue the monitoring for that employee, except as otherwise required.

Additional monitoring shall be conducted when there has been a change in the production, process, control equipment, personnel, or work practices which may result in new or additional exposures to benzene, or when De-Cal Inc has any reason to suspect a change which may result in new or additional exposures. Whenever spills, ruptures, or other breakdowns occur that may lead to employee exposure, De-Cal Inc or the host-facility shall monitor (using area or personal sampling) after the cleanup of the spill or repair of the leak,

rupture or other breakdown to ensure that exposures have returned to the level that existed prior to the incident.

Monitoring accuracy shall be accurate to a confidence level of 95%, to within plus or minus 25 percent for airborne concentrations of benzene.

Employees shall be notified of all monitoring results, within 15 working days after the receipt of the results of any monitoring performed, in writing, individually or by posting of results in an appropriate location that is accessible to affected employees. Whenever PEL's are exceeded, the written notification shall contain the corrective action taken to reduce the employee exposure to or below the PEL, or shall refer to a document available to the employee which states the corrective action to be taken.

CONTROLS

Employees are protected from Benzene exposure by the use of various engineering and safe work practice controls established by the various host-facility operations where Maintenance work will be performed.

Hydrocarbon liquids and vapors are normally contained by designed closed systems consisting of reactors, towers, process piping, vessels, or stored in closed tanks, drums, barrels, cylinders, bottles, and cans. However, sometimes these closed systems rupture, leak, fail, or are required to be opened up for service work, increasing exposure potentials.

Benzene liquid is highly flammable and its vapors may form explosive mixtures in air. Fire extinguishers must be readily available for use. Smoking is prohibited in areas where Benzene is stored or used.

Regulated areas are then established wherever the airborne concentration of benzene exceeds or can reasonably be expected to exceed the permissible exposure limits, either the 8-hour time-weighted average exposure of 1 ppm or the short term exposure limit of 5 ppm for 15 minutes. Access to these regulated areas is then limited to authorized personnel who will be provided with appropriate levels of personal protective equipment.

Safe work practices are then instituted which could consist of or involve product line removal, blinding, blanking, draining, cleaning, steaming, purging, high-pressure washing, or neutralizing. Safe-work procedures such as lock-out/tag-out, hot-work, or confined space entry are implemented to further control exposure potentials.

PERSONAL PROTECTIVE EQUIPMENT - (PPE)

PPE will be worn where appropriate to prevent eye contact and limit dermal (skin) exposure to liquid benzene. Employees will comply with any host-facility's PPE rules or regulations. Employees can expect to wear one or more combinations of the following provided equipment, as based on the work permit requirements, operator's instructions, or established PPE guidelines:

- ANSI Z87.1 safety glasses with rigid side shields
- Chemical splash-proof goggles
- Full face-shield
- Chemical/hydrocarbon-resistant suit/coverall/clothing
- Chemical/hydrocarbon-resistant gloves
- Chemical/hydrocarbon-resistant over-shoes/boots

This equipment will be inspected prior to use and maintained in a safe working condition. If any defects are found or occur during use, this equipment will not be allowed for use and will be provided and replaced at no cost to the employee.

RESPIRATORY PROTECTION

Whenever the described engineering and work practice controls are determined to be ineffective at reducing employee Benzene exposure potentials, then respiratory protection will be provided in accordance with the Respirator Program, found in this manual, which meets the guidelines established by OSHA Regulation 29 CFR 1910.134 (b) (d) (e) and (f). Respirators shall be used in the following circumstances:

- During the time period necessary to install or implement feasible engineering and work practice controls;
- In work operations for which assessments establishes that compliance with either the TWA or STEL through the use of engineering or work practice controls is not feasible, such as maintenance and repair activities in designated areas.
- Other operations where engineering and work practice controls are infeasible because exposures are intermittent in nature and limited in duration;
- In work situations where feasible engineering and work practice controls are not yet sufficient or are not required to reduce exposure to or below the PEL's;
- In emergency repair or maintenance situations can reasonably be expected to be encountered;

Employees will be required to participate in a respirator user's program to prevent Benzene exposures, and their selection of NIOSH/MSHA approved equipment will be based on the following guidelines:

- For airborne concentrations of 10 ppm or less, as a minimum, a half-face, negative-pressure, air-purifying respirator with organic vapor cartridge must be used.

- For airborne concentrations of 50 ppm or less, as a minimum, a full-face piece, negative-pressure, air-purifying respirator with organic vapor cartridges must be used
- For airborne concentrations of 100 ppm or less, as a minimum, a full-face piece, powered air-purifying respirator with organic vapor cartridges must be used.
- For any unknown or concentrations determined to be immediately dangerous to life and health (IDLH), a self-contained breathing apparatus (SCBA) with full-face piece in positive pressure demand mode, or a full-face piece, supplied-air respirator in positive pressure demand mode with auxiliary self-contained air supply must be used.
- For an emergency escape of any concentration, any organic vapor or supplied-air respirator must be used.

De-Cal Inc shall select and provide, at no cost to the employee, the appropriate respirator as specified above, and shall ensure that the employee uses the respirator provided. Any employee who cannot wear a negative pressure respirator shall be given the option of wearing a respirator with less breathing resistance such as a powered air-purifying respirator or supplied-air respirator.

Where air-purifying respirators are used, De-Cal Inc shall replace the air purifying element at the expiration of service life or at the beginning of each shift in which they will be used, whichever comes first. If an air-purifying element becomes available with an end of useful life indicator for benzene approved by MSHA/NIOSH, the element may be used until such time as the indicator shows no further useful life.

De-Cal shall permit employees who wear respirators to leave the regulated area to wash their faces and respirator face-pieces as necessary in order to prevent skin irritation associated with respirator use or to change the filter elements of air-purifying respirators whenever they detect a change in breathing resistance or chemical vapor breakthrough. All respirators issued to be worn shall be fit-tested according to the Company's Respirator User's Program found in this manual.

MEDICAL SURVEILLANCE

The Company recognizes that some employees might be exposed to Benzene levels that could exceed established permissible exposure levels. The medical surveillance program has been implemented and the following guidelines are to be followed at all times:

- A Benzene blood test prior to employment shall be completed to establish a baseline before any personnel can be employed in areas where Benzene exposure may be encountered and annually where De-Calued employment exists. This test shall coincide with an annual physical and fit test in accordance with the Respiratory Protection policy found in section XIV of the De-Cal Safety Policy Manual.

- In the event employees are or may be exposed to Benzene at or above the action level of .5 ppm for 30 or more days per year.
- In the event employees are exposed to a PEL or greater for 10 or more days per year.
- For employees who have been exposed to more than 10 ppm of Benzene for 30 or more days in a year prior to the effective date of the standard when informed of employment by a former employer.

De-Cal Inc. will assure that all medical examinations and procedures are performed by or under the supervision of a licensed physician and that all laboratory tests are conducted by an accredited laboratory. Persons other than licensed physicians who administer the pulmonary function testing required by this section shall complete a training course in spirometry sponsored by an appropriate governmental, academic or professional institution.

All examinations and procedures are provided at no cost to the employee and at a reasonable time and place. Within 60 days of the effective date of this standard, or before the time of initial assignment, De-Cal Inc. shall provide each affected employee with a medical examination based on the approved MIOSHA questionnaire:

- A. A detailed occupational history which includes:
 - A detailed questionnaire that must be filled out by the employee.
- B. A complete physical examination.

Laboratory tests. A baseline Benzene blood test to establish a baseline exposure rate.

- D. Additional tests as necessary in the opinion of the examining physician, based on alterations to the components of the blood or other signs which may be related to benzene exposure, and
- E. For all workers required to wear respirators for at least 30 days a year, the physical examination shall pay special attention to the cardiopulmonary system and shall include a pulmonary function test.

No initial medical examination is required if adequate records show that the employee has been examined in accordance with the procedures of this section within the twelve months prior to job placement.

PERIODIC EXAMINATIONS

De-Cal shall provide each affected employee with a medical examination annually following the previous examination. These periodic examinations shall include at least the following elements:

- A. A brief health history.
- B. A Benzene blood test to establish a baseline.
- C. Appropriate additional tests as necessary, in the opinion of the examining physician, in consequence of alterations in the components of the blood or other signs which may be related to benzene exposure.

Where the employee develops signs and symptoms commonly associated with toxic exposures to benzene, DE-CAL INC will provide employees with an additional medical examination which shall include those elements considered appropriate by the examining physician.

For persons required to use respirators for at least 30 days a year, a pulmonary function test shall be performed every three year. A specific evaluation of the pulmonary system shall be made at the time of the pulmonary function test.

EMERGENCY EXAMINATIONS

In addition to the surveillance required, if an employee is exposed to benzene in an emergency situation, De-Cal Inc. will have the employee provide a urine sample at the end of the employee's shift and have a urinary phenol test performed on the sample within 72 hours. The urine specific gravity shall be corrected to 1.024. If the result of the urinary phenol test is below 75 mg. Phenol/L. of urine, no further testing is required.

If the result of the urinary phenol test is equal to or greater than 75 mg. Phenol/L. of urine, then De-Cal Inc. will provide the employee with a complete blood count including an erythrocyte count, leukocyte count with differential and thrombocyte count at monthly intervals for a duration of three (3) months following the emergency exposure. If any of the conditions specified exists, then the further requirements of this section shall be met, and De-Cal Inc. will, in addition, provide the employees with periodic examinations if directed by the physician.

ADDITIONAL EXAMINATIONS AND REFERRALS

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

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

- B. The thrombocyte (platelet) count varies more than 20% below the employee's most recent values or falls outside the normal limit (95% C.I.) as determined by the laboratory.
- C. The leukocyte count is below 4,000 per mm³ or there is an abnormal differential count.
1. If the abnormality persists, the examining physician shall refer the employee to a hematologist or an Internist for further evaluation unless the physician has good reason to believe such referral is unnecessary.
- D. De-Cal Inc. will provide the hematologist or internist with the information required to be provided to the physician and the medical record required to be maintained. The hematologist or internist's evaluation shall include a determination as to the need for additional test, and De-Cal Inc. will assure that these tests are provided.

INFORMATION PROVIDED TO THE PHYSICIAN

De-Cal Inc. will provide the following information to the examining physician:

- A copy of this regulation and its appendices.
- A description of the affected employee's duties as they relate to the employee's exposure.
- The employee's actual or representative exposure level
 1. a description of any personal protective equipment used or to be used
- Information from previous employment-related medical examinations of the affected employee which is not otherwise available to the examining physician.

PHYSICIAN'S WRITTEN OPINIONS

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

- The occupationally pertinent results of the medical examination and tests.
- The physician's opinion concerning whether the employee has any detected medical conditions which would place the employee's health at greater than normal risk of material impairment from exposure to benzene.

- The physician's recommended limitations upon the employee's exposure to benzene or upon the employee's use of protective clothing or equipment and respirators.
- A statement that the employee has been informed by the physician of the results of the medical examination and any medical conditions resulting from benzene exposure which require further explanation or treatment.

The written opinion obtained by De-Cal Inc will not reveal specific records, findings and diagnoses that have no bearing on the employee's ability to work in a benzene-exposed workplace.

Based on the physician's/hematologist's/internist's written opinion, an employee can be removed from benzene exposure if the examinations reveals that exposure levels may exceed the action level. A follow-up examination will be provided to the affected employee. Return to a benzene work-related environment may occur based upon physician referral after a 6 month period and review of further medical testing that is conducted.

FIRST AID MEASURES

- Eye Contact: Flush with water for at least 15 minutes. Get medical assistance.
- Skin Contact: Wash with soap and water thoroughly. Immediately remove soaked clothing. Wash clothing separately before re-use.
- Inhalation: Move person to fresh air. If breathing has stopped, perform artificial respiration. Get medical assistance immediately.
- Ingestion: **Do not** induce vomiting. **Do not** give liquids. Get medical assistance immediately. Small amounts that enter the mouth should be rinsed out thoroughly.

POTENTIAL HEALTH EFFECTS (Acute and Chronic)

Symptoms of exposure include toxic by any route, headache, dizziness, nausea, weakness, breathing difficulties, collapse.

May cause anemia, liver and kidney damage. Irritation on contact with skin or eyes; may cause eye damage. Benzene is a known, proven carcinogenic substance per NTP, IARC, & OSHA.

All known exposures are to be reported to the employee's immediate supervisor and member's management as soon as practical.

Non-compliance by any employees, with any part of this described program will result in disciplinary action as outlined in the Company's Corrective Action/Disciplinary Program.

Section 28 – Blood-borne pathogens

29 CFR 1910.1030

Bloodborne Pathogen Exposure Control Plan

Table of Contents

- I. Objective
- II. Background
- III. Assignment of Responsibility
- IV. Exposure Determination
- V. Implementation Schedule and Methodology
- VI. Hepatitis B Vaccines and Post-Exposure Evaluation and Follow Up
- VII. Labels and Signs
- VIII. Training
- IX. Recordkeeping
- X. Appendices
 - A. Category I Job Classification/Expected Exposure List
 - B. Category II Job Classification/Possible Exposure List
 - C. Exposure Log
 - D. Personal Protective Equipment/Task List
 - E. Cleaning and Decontamination Schedule
 - F. Hepatitis B Vaccine Declination

Bloodborne Pathogen Exposure Control Plan For

DE-CAL INC.

I. OBJECTIVE

The objective of the De-Cal Inc. Bloodborne Pathogen Exposure Control Plan is to comply with the Occupational Safety and Health Administration's (OSHA) Bloodborne Pathogens Standard, 29 CFR 1910.1030, and to eliminate or minimize employee occupational exposure to blood, certain other body fluids, or other potentially infectious materials as defined below:

- A. Blood means human blood, human blood components, and products made from human blood.

- B. Bodily fluids means semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids.

- C. Other potentially infectious materials means any unfixed tissue or organ (other than intact skin) from a human (living or dead), and human immunodeficiency virus (HIV)-containing cell or tissue cultures, organ cultures, and HIV- or hepatitis B virus (HBV)-containing culture medium or other solutions; and blood, organs, or other tissues from experimental animals infected with HIV or HBV.

II. BACKGROUND

OSHA requires employers to identify situations and job classifications in which employees may be exposed to blood or other potentially infectious materials, and to provide protection to these employees in the form of engineering controls, personal protective equipment, training, and risk reduction.

III. ASSIGNMENT OF RESPONSIBILITY

- A. Program Administrator

Steve Koralewski, De-Cal Safety Director shall manage the Bloodborne Pathogen Exposure Control Plan for De-Cal Inc., and maintain all records pertaining to the plan.

- B. Management

De-Cal Inc. will provide adequate controls and equipment that, when used properly, will minimize or eliminate risk of occupational exposure to blood or other potentially infectious materials. These shall be provided at no cost to the employees. De-Cal Inc. management will ensure proper adherence to this plan through periodic audits.

C. Supervisors

Supervisors shall themselves follow and ensure that their employees are trained in and use proper work practices, universal precautions, the use of personal protective equipment, and proper cleanup and disposal techniques.

D. Employees

Employees are responsible for employing proper work practices, universal precautions, personal protective equipment and cleanup/disposal techniques as described in this plan. Employees are also responsible for reporting all exposure incidents to Steve Koralewski / Safety Department immediately or within two Hours of the incident.

E. Contractors

Contract employees shall be responsible for complying with this plan, and shall be provided the training described herein by the De-Cal Safety Department.

IV. EXPOSURE DETERMINATION

All job classifications and locations in which employees may be expected to incur occupational exposure to blood or other potentially infectious materials, based on the nature of the job or collateral duties, regardless of frequency, shall be identified and evaluated by the De-Cal safety Department. This list shall be updated as job classifications or work situations change. Exposure determination shall be made without regard to the use of personal protective equipment (**employees are considered to be exposed even if they wear personal protective equipment**).

A. Category I

Job classifications in which employees are exposed to blood or other potentially infectious materials on a regular basis, and in which such exposures are considered normal course of work, fall into Category I. Steve Koralewski shall maintain a list of these types of jobs and the locations in which the work will be performed (see Appendix A).

B. Category II

Job classifications in which employees may have an occasional exposure to blood or other potentially infectious materials, and in which such exposures occur only during certain tasks or procedures that are collateral to the normal job duties, fall into Category II. Steve Koralewski shall maintain a list of these types of jobs and the locations in which the work may be performed (see Appendix B).

These lists shall be updated as job classifications or work situations change.

V. ***IMPLEMENTATION SCHEDULE AND METHODOLOGY***

A. Compliance Methods

1. Universal precautions

Universal precautions shall be used at De-Cal Inc. to prevent contact with blood or other potentially infectious materials. All blood or other potentially infectious materials shall be considered infectious, regardless of the perceived status of the source individual.

2. Engineering Controls

The engineering and work practice controls listed below shall be used to minimize or eliminate exposure to employees at De-Cal Inc..

An exposure log (see Appendix C) shall be maintained (for employers that keep records under 29 CFR 1904), and shall include the following information for each incident:

- a. period of time the log covers;
- b. date incident is entered on the log;
- c. date of incident;
- d. type and brand of device involved;
- e. department or area of incident; and
- f. description of incident.

The log shall be retained for five years after the end of the log year.

3. Hand Washing Facilities

Hand washing facilities shall be made available and readily accessible to all employees who may incur exposure to blood or other potentially infectious materials. Where hand washing facilities are not feasible, De-Cal Inc. will provide an antiseptic cleanser in conjunction with clean cloth/paper towels or antiseptic towelettes. Such areas include:

When these alternatives are used, employees shall wash their hands with soap and running water as soon as feasible.

4. Work Area Restrictions

In work areas where there is a reasonable risk of exposure to blood or other potentially infectious materials, employees shall not eat, drink, apply cosmetics or lip balm, smoke, or handle contact lenses. Food and beverages shall not be kept in refrigerators, freezers, shelves, cabinets, or on counter tops or bench tops where blood or other potentially infectious materials may be present.

5. Contaminated Equipment

Steve Koralewski shall ensure that equipment that has become contaminated with blood or other potentially infectious materials is examined prior to servicing or shipping. Contaminated equipment shall be decontaminated, unless decontamination is not feasible. Contaminated equipment shall be tagged and labeled as such.

6. Personal Protective Equipment (PPE)

a. PPE Provision

Steve Koralewski shall ensure that the provisions regarding personal protective equipment described in this plan are met and maintained.

Personal protective equipment shall be chosen based on the anticipated exposure to blood or other potentially infectious materials. Protective equipment shall be considered appropriate only if it does not permit blood or other potentially infectious materials to pass through or reach an employees' clothing, skin, eyes, mouth, or other mucous membranes under normal and proper conditions of use and for the duration of time that the equipment will be used.

A list of personal protective equipment and associated tasks for De-Cal Inc. can be found in Appendix D of this plan.

b. PPE Use

The De-Cal Safety Department and supervisors shall ensure that employees use appropriate PPE. In cases where an employee temporarily and briefly declines to use PPE because, in the employee's

professional judgement, its use may prevent delivery installed work or pose an increased hazard to the safety of the worker or co-worker, then the supervisor shall investigate and document the situation to determine whether changes can be instituted to prevent such occurrences in the future.

c. PPE Accessibility

Steve Koralewski shall ensure that appropriate PPE in the necessary sizes is readily accessible at the work site or is issued at no cost to employees. Hypoallergenic gloves, glove liners, powderless gloves, or other similar alternatives shall be readily accessible to those employees who are allergic to the gloves normally provided.

d. PPE Cleaning, Laundering and Disposal

All PPE shall be cleaned, laundered, and disposed of by De-Cal Inc. at no cost to the employees. De-Cal Inc. will also make all necessary repairs and replacements at no cost to employees.

All garments penetrated by blood or other potentially infectious materials shall be removed immediately or as soon as feasible. All PPE shall be removed before leaving the work area.

When PPE is removed, it shall be placed in appropriately designated areas or containers for storage, washing, decontamination, or disposal.

e. Types of PPE

i. Gloves

Disposable gloves are not to be washed or decontaminated for re-use, and are to be replaced as soon as possible when they become contaminated. Gloves that become torn or punctured (or their ability to function as a barrier is otherwise compromised) shall be replaced immediately or as soon as feasible.

Utility gloves may be decontaminated for re-use if the integrity of the glove is uncompromised. Utility gloves shall be disposed of properly if they are cracked, peeling, torn, punctured, or they exhibit other signs of deterioration or inability to function as a barrier without compromise.

ii. Eye and Face Protection

Masks worn in combination with eye protection devices (such as goggles or glasses with solid side shield, or chin-length face

shields) are required when the occurrence of splashes, splatters, or droplets of blood or other potentially infectious materials can reasonably be anticipated to contaminate an employee's eye, nose, or mouth. Situations at De-Cal Inc. where eye and face protection may be required include:

- a) Waste-water treatment facilities.
- b) Sewage Containment tanks, pits, and / or enclosures.

iii. Other PPE

Additional protective clothing (such as over-clothing similar outer garments) shall be worn in instances when gross contamination can reasonably be expected. The following situations require additional protective clothing:

- a) Sewage Containment tanks, pits, and / or enclosures.

VI. *Hepatitis B Vaccines and Post-Exposure Evaluation and Follow Up*

A. General

De-Cal Inc. will make the Hepatitis B vaccine and vaccination series available to all employees who have the potential for occupational exposure, as well as post-exposure follow up to employees who have experienced an exposure incident.

Steve Koralewski shall ensure that all medical evaluations and procedures involved in the Hepatitis B vaccine and vaccination series and post-exposure follow up, including prophylaxis are:

1. made available at no cost to the employee;
2. made available to the employee at a reasonable time and place;
3. performed by or under the supervision of a licensed physician or other licensed healthcare professional; and
4. provided in accordance with the recommendations of the United States Public Health Service.

An accredited laboratory shall conduct all laboratory tests at no cost to the employee.

B. Hepatitis B Vaccination

Steve Koralewski shall manage the Hepatitis B vaccination program. De-Cal Inc. has contracted with Concentra Medical Centers to provide this service.

1. Category I Employees

The Hepatitis B vaccination shall be made available to an affected Category I employee after he or she has received training in occupational exposure and within 10 working days of initial assignment to job duties that involve exposure. Exceptions to the administration of the Hepatitis B vaccination include situations where an employee has previously received the complete Hepatitis B vaccination series, antibody testing has revealed that the employee is immune, or the vaccine is contraindicated for medical reasons.

Participation in a pre-screening program shall not be a prerequisite for an affected employee to receive the Hepatitis B vaccination. If an employee initially declines the Hepatitis B vaccination, but later decides to accept the vaccination and is still covered under the OSHA standard, the vaccination shall then be made available.

All employees who decline the Hepatitis B vaccination shall sign a waiver indicating their refusal (Appendix F), as required by OSHA. If the United States Public Health Service recommends a routine booster dose of Hepatitis B vaccine, this shall also be made available free of charge to affected employees.

2. Category II Employees

The Hepatitis B vaccination series shall be made available and administered to Category II employees no later than 24 hours after an exposure incident (as per OSHA Letter of Interpretation, November 1, 2000). All employees who decline the Hepatitis B vaccination shall sign a waiver indicating their refusal (Appendix F).

C. Post-Exposure Evaluation and Follow Up

All employees must report all exposure incidents to Steve Koralewski immediately or within two hours. Steve Koralewski shall investigate and document each exposure incident. Following a report of an exposure incident, the exposed employee shall immediately receive a confidential post-exposure evaluation and follow up, to be provided by Concentra Medical Centers. The post-exposure evaluation and follow up shall include the following elements, at a minimum:

Accident or incident that causes an employee to be contaminated by another's blood:

1. Documentation of the route of exposure, and the circumstances under which the exposure occurred.
2. Identification and documentation of the source individual, unless it can be established that identification is infeasible or prohibited by state or local law.
3. When the source individual is already known to be infected with the Hepatitis B virus (HBV) or human immunodeficiency virus (HIV), testing for the source individual's known HBV or HIV status need not be repeated.
4. Results of the source individual's testing shall be made available to the exposed employee, and the employee shall be informed of applicable laws and regulations concerning disclosure of the identity and infectious status of the source individual.
5. The exposed employee's blood shall be collected as soon as feasible and tested after consent is obtained.
6. The exposed employee shall be offered the option of having their blood tested for HBV and HIV serological status. The blood sample shall be preserved for up to 90 days to allow the employee to decide if their blood should be tested for HBV and HIV serological status.

Names of employees that contract HIV, Hepatitis, or tuberculosis shall not be recorded on the OSHA 300 log.

D. Information Provided to the Healthcare Professional

After an exposure incident occurs, Steve Koralewski shall ensure that the healthcare professional responsible for the exposed employee's Hepatitis B vaccination, as well as the healthcare provider providing the post-exposure evaluation, if different, are provided with the following:

1. a copy of 29 CFR 1910.1030, OSHA's Bloodborne Pathogen Standard, with emphasis on the confidentiality requirements contained therein;
2. a written description of the exposed employee's duties as they relate to the exposure incident;
3. written documentation of the route of exposure and circumstances under which the exposure occurred;
4. results of the source individual's blood testing, if available; and
5. all medical records relevant to the appropriate treatment of the employee, including vaccination status.

E. Healthcare Professional's Written Opinion

Steve Koralewski shall obtain and provide the exposed employee a copy of the evaluating healthcare professional's written opinion within 15 days of completion of the evaluation.

The healthcare professional's written opinion for HBV vaccination shall be limited to whether HBV vaccination is indicated for the employees, and if the employee has received said vaccination.

The healthcare professional's written opinion for post-exposure follow up shall be limited to ONLY the following information:

1. a statement that the employee has been informed of the results of the evaluation; and
2. a statement that the employee has been told about any medical conditions resulting from exposure to blood or other potentially infectious materials that require further evaluation or treatment.

Other findings or diagnosis resulting from the post-exposure follow up shall remain confidential and shall not be included in the written report.

VII. Training

Steve Koralewski shall ensure that training is provided at the time of initial assignment to tasks where occupational exposure to blood or other potentially infectious materials may occur. Training shall be repeated every 12 months, or when there are any changes to tasks or procedures affecting an employee's occupational exposure. Training shall be tailored to the education level and language of the affected employees, and offered during the normal work shift. Training shall be interactive and shall include:

- A. a copy of 29 CFR 1910.1030, OSHA's Bloodborne Pathogen Standard;
- B. a discussion of the epidemiology and symptoms of bloodborne diseases;
- C. an explanation of the modes of transmission of bloodborne pathogens;
- D. an explanation of De-Cal Inc. Bloodborne Pathogen Exposure Control Plan, and how employees can obtain a copy of the plan;

- E. a description and recognition of tasks that may involve exposure;
- F. an explanation of the use and limitations of the methods employed by De-Cal Inc. to reduce exposure (such as engineering controls, work practices, and personal protective equipment);
- G. information about the types, use, location, removal, handling, decontamination, and disposal of personal protective equipment;
- H. an explanation of the basis of selection of personal protective equipment;
- I. information about the Hepatitis B vaccination (including efficacy, safety, method of administration, and benefits), as well as an explanation that the vaccination will be provided at no charge to the employee;
- J. instruction on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials;
- K. an explanation of the procedures to follow if an exposure incident occurs, including the method of reporting and medical follow up;
- L. information on the post-incident evaluation and follow up required for all exposure incidents; and
- M. an explanation of signs, labels, and color-coding systems.

The person conducting the training shall be knowledgeable in the subject matter.

VIII. Recordkeeping

A. Medical Records

Steve Koralewski shall maintain medical records as required by 29 CFR 1910.1020 in the De-Cal Inc. Main Office. All records shall be kept confidential and shall be retained for at least the duration of employment plus 30 years.

Steve Koralewski shall also ensure that all contracts with Concentra Medical Center for Hepatitis B vaccinations and post-exposure evaluations and follow ups stipulate any OSHA recordkeeping and retention requirements.

Medical records shall include:

1. name and social security number of the employee;
2. a copy of the employee's HBV vaccination status, including the dates of vaccination;

3. a copy of all results of examinations, medical testing, and follow-up procedures; and
4. a copy of the information provided to the healthcare professional, including a description of the employee's duties as they relate to an exposure incident, and documentation of the routes and circumstances of an exposure.

B. Training Records

Responsible Person shall maintain training records for three years from the date of training. Records shall be kept in the De-Cal Main Office, and shall include:

1. the dates of the training sessions;
2. an outline describing the material presented;
3. the names and qualifications of persons conducting the training; and
4. the names and job titles of all persons attending the training sessions.

C. Availability of Records

Whenever an employee (or designated representative) requests access to a record, De-Cal Inc. shall provide access to said employee's records in a reasonable time, place, and manner in accordance with 29 CFR 1910.1020(e). An employee (or designated representative) will only be given access to his or her own records.

D. Transfer of Records

If De-Cal Inc. ceases to do business and there is no successor employer to receive and retain the records for the prescribed period, Steve Koralewski shall contact the Director of the National Institute for Occupational Safety and Health (NIOSH) three months prior to cessation of business for instruction on final disposition of the records.

E. Evaluation and Review

Steve Koralewski shall review this Bloodborne Exposure Control Plan for effectiveness at least annually and as needed to incorporate changes to the standard or changes in the work place.

Appendix A

Category I Job Classification/Expected Exposure List

De-Cal Inc.

At Company Name, the following job classifications are expected to incur occupational exposure to blood or other possibly infectious materials:

Job Classification	Department/Location
Pipe Fitter	
Plumber	
HVAC Technician	
Laborer	

Appendix B

Category II Job Classification/Possible Exposure List

**De-Cal Inc.
2/2/2015**

At De-Cal Inc, the following job classifications may incur occupational exposure to blood or other possibly infectious materials during certain tasks or procedures:

Job Classification	Task/Procedure	Department/Location
Pipe Fitters	Working at waste water treatment plants. Accident / Incident Exposure.	
Plumbers	Working at waste water treatment plants. Accident / Incident Exposure.	
HVAC Technicians	Working at waste water treatment plants. Accident / Incident Exposure.	
Laborers	Working at waste water treatment plants. Accident / Incident Exposure.	

Appendix F

Hepatitis B Vaccine Declination

I understand that, due to my occupational exposure to sewage or other potentially infectious materials, I may be at risk of acquiring the Hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with Hepatitis B vaccine, at no charge to me. However, I decline the Hepatitis B vaccination at this time.

I understand that by declining this vaccine, I continue to be at risk of acquiring the serious disease Hepatitis B.

If, in the future, I continue to experience occupational exposure to blood or other potentially infectious materials and I wish to be vaccinated with the Hepatitis B vaccine, I can receive the vaccination series at no charge to me.

Employee Signature

Date

Signature:

Steve Koralewski

Date

Section 29 – Fire Protection (Hot Work)

I. General

This standard shall provide guidance for persons, including outside contractors and project managers, who manage, supervise, and perform hot work. This standard shall cover the following hot work processes:

- A. Welding/Soldering
- B. Grinding
- C. Thawing pipe
- D. Similar applications producing a spark, flame, or heat

II. Definitions

Designated Area: Permanent location designed or approved for hot work operations to be performed regularly.

Hot Work: Any work involving burning, welding, or similar operations that is capable of initiating fires or explosions.

Management: All persons, including owners, contractors, and so on, who are responsible for hot work operations.

Permit: A document issued by the permit authorizing individual for the purpose of authorizing performance of a specified activity.

Permit Supervisor (PS): The individual designated by management to authorize hot work. The PAI cannot be the hot work operator.

Welding/Soldering: Includes processes such as arc welding, oxy-fuel gas welding, open-flame soldering, brazing, thermal spraying, oxygen cutting, and arc cutting.

III. Roles and Responsibilities

A. Management

Management shall be responsible for the safe operations of hot work activity and shall establish permissible areas for hot work. Management shall ensure that only approved apparatus, such as torches, manifolds, regulators or pressure reducing valves, and acetylene generators, be used. Management shall ensure that all individuals involved in the hot work operations, including contractors, are familiar with the provisions of this standard. These individuals shall be trained in the safe operation of their equipment and the safe use of the process. These individuals shall have an awareness of the inherent risks involved and understand the emergency procedures in the event of a fire.

Management shall advise all contractors about site-specific flammable materials, hazardous processes and conditions, or other potential fire hazards.

B. Permit Supervisor (PS)

In conjunction with the management, the PS shall be responsible for the safe work practices of hot work activities. The PS shall determine site-specific flammable materials, hazardous processes, or other potential fire hazards present or likely to be present in the work location. The PS shall ensure the protection of combustibles from ignition by the following means:

1. Ensure the work is moved to a location free from combustibles.
2. If the work cannot be moved, ensure the combustibles are moved to a safe distance or have the combustibles properly shielded against ignition.
3. Ensure hot work is scheduled such that operations that could expose combustibles to ignition are not started during hot work operations.

The PS shall determine that fire protection and extinguishing equipment are properly located at the site. Where a fire watch is required, the PS shall perform the fire watch at the site. The PS is responsible for the inspection of all fire-fighting equipment, and is authorized to determine if 'Hot Work' is to proceed.

The PAI shall be familiar with the facilities and procedures for sounding an alarm S the event of a fire. They shall be aware of the inherent hazards of the work site and of the hot work and ensure that safe conditions are maintained during hot work operations. The PS shall have the authority to stop the hot work operations if unsafe conditions develop.

The PS shall have fire extinguishing equipment readily available and be trained in its use. Watch for fires in all exposed areas and try to extinguish them only when the fires are obviously within the capacity of the equipment available. If the fire is not within the capacity of the equipment, sound the alarm immediately.

The PS is responsible for accomplishing a pre-task inspection and is the only person to authorize a welding or cutting operation.

C. Hot Work Operator

The hot work operator shall handle the equipment safely and use it as follows so as not to endanger lives and property.

1. The operator shall have PS approval before starting hot work operations.
2. The operator shall cease hot work operations if unsafe conditions develop and shall notify management, or the PS for reassessment of the situation. All personnel involved in arc-welding and cutting operations will be trained and

certified. All personnel will be certified with section 1910.254 (Arc Welding and Cutting) and with 1910. 252 (a) (b) and (c) (Fire Prevention and protection, protection of personnel, health protection, and ventilation procedures. Operators of all faulty equipment will stop using the equipment, tag it out of service, and report it to their supervisors immediately. All repairs will be made by authorized personnel only.

D. Fire Watch (Minimum Conditions)

A fire watch shall be required when hot work is performed in a location where other than a minor fire might develop, or where the following conditions exist:

1. Combustible materials in building construction or contents are closer than 35 ft. (11 m) to the point of operation.
2. Combustible materials are more than 35 ft. (11m) away but are easily ignited by sparks.
3. Walls, floors, ceiling, metal partitions, and / or roof openings within a 35 ft. (11m) radius expose combustible materials in adjacent areas, including concealed spaces in walls or floors.
4. Combustible materials are adjacent to the opposite side of partitions, walls, ceilings, or roofs and are likely to be ignited.
5. Combustibles that are at least 35 ft. away but are easily ignited.

Fire extinguishers will be made readily available to all fire-watch personnel.

A fire watch shall be maintained for at least ½ hour after completion of ALL hot work operations in order to detect and extinguish smoldering fires. A charged and inspected fire extinguisher that is the applicable size/class for the necessary amount of combustible/flammable material will be on hand at all times for fire watch personnel. More than one fire watch shall be required if combustible materials that could be ignited by the hot work operation cannot be directly observed by the initial fire watch.

IV. Hot Work Areas

A. Permissible Areas

Hot work shall be allowed only in areas that are or have been made fire safe. Hot work shall be performed in either designated areas or permit-required areas.

A designated area shall be a specific area designed or approved for such work, such as a maintenance shop or a detached outside location that is of noncombustible or fire-resistive construction, essentially free of combustible and flammable contents, and suitably segregated from adjacent areas.

A permit-required area shall be an area that is made fire safe by removing or protecting combustibles from ignition sources.

B. Non-permissible Areas

Hot work shall not be allowed in the following areas:

- a. In areas not authorized by management.
- b. In sprinkled buildings while such protection is impaired.
- c. In the presence of explosive atmospheres (that is, where mixtures of flammable gases, vapors, liquids, or dusts with air exist)
- d. In explosive atmospheres that can develop inside unclean or improperly prepared drums, tanks, or other containers and equipment that have previously contained such materials.
- e. In explosive atmospheres that can develop in areas with an accumulation of combustible dusts.

Hot Work (Confined space)

All hot-work taking place in a confined space will be reviewed with De-Cal Inc. Safety before the work begins. The space will be thoroughly assessed for all potential hazards and will automatically be determined a permit required space. Rescue extraction, continual air monitoring, and enhanced fire-watch are all required for burning, cutting, welding, or any open flame or spark emitting device within a confined space. If the potential of hazardous fumes, gases, or dust are involved in the hot work / confined space process, enhanced air monitoring, enhanced air moving equipment, and / or respiratory protective equipment will be implemented.

V. Hot Work Permit

Before hot work operations begin in a permit required location, a written hot work permit by the permit authorizing individual (PS) shall be required.

Before a hot work permit is issued, the following conditions shall be verified by the PS:

1. Hot work equipment to be used shall be in satisfactory operating condition.
2. Where combustible materials are on the floor, the floor shall be swept clean for a radius of 35 ft. (11m). Combustible floors shall be protected by noncombustible or fire-retardant shields.
3. All combustibles shall be relocated at least 35ft (11m) horizontally from the work site. If relocation is impractical, combustibles shall be protected with fire-retardant covers or otherwise shielded with metal or fire-retardant guards or curtains. Edges of covers at the floor shall be tight to prevent sparks from going under them, including where several covers overlap when protecting a large pile. If welding / cutting operations cannot be performed safely, the welding / cutting operations will not be performed with open-flame or spark producing devices. If welding or cutting operations cannot be moved, all moveable fire hazards must be removed. Guards must be used to contain heat, sparks, and slag from migrating to immovable fire hazards. If welding / cutting operations cannot be conducted safely, the welding / cutting will not be performed.

4. Openings or cracks in walls, floors, or ducts within 35 ft. (11m) of the site shall be tightly covered with fire-retardant or non-combustible material to prevent the passage of sparks to adjacent areas.
5. If hot work is done near wall, partitions, ceilings, or roofs of combustible construction, fire-retardant shields or guards shall be provided to prevent ignition.
6. If hot work is to be done on a wall, partition, ceiling, or roof, precautions shall be taken to prevent ignition of combustibles on the other side by relocating combustibles. If it is impractical to relocate combustibles, a fire watch on the opposite side from the work shall be provided.
7. Hot work shall not be attempted on a partition, wall, ceiling, or roof that has a combustible covering or insulation, or on walls or partitions of combustible sandwich-type panel construction.
8. Hot work that is performed on pipes or other metal that is in contact with combustible walls, partitions, ceilings, roofs, or other combustibles shall not be undertaken if the work is close enough to cause ignition by conduction.
9. Fully charge and operable fire extinguishers that are appropriate in size/class in accordance with jurisdictional requirements for the type of possible fire shall be available immediately at the work area. If existing hose lines are located within the hot work area defined by the permit, they shall be connected and ready for service, but shall not be required to be unrolled or charged.
10. If hot work is done in close proximity to a sprinkler head, a wet rag shall be laid over the head and then removed at the conclusion of the welding or cutting operation.
11. Special precautions shall be taken to avoid accidental activation of automatic fire detection or suppression systems (for example smoke detection, special extinguishing systems or sprinklers).
12. Nearby personnel shall be suitably protected against heat, sparks, slag, and so on.

VI. Changing Conditions

If environmental conditions change within the area or space where hot-work is taking place, all hot-work will be stopped, and the area will be re-assessed for additional hazards as they are presented.

VI. Training and Recordkeeping

Training For Fire-Watch Duties, Cutters, Welders, and Supervisors

All personnel involved in Hot Work duties will be trained in fire-extinguisher use, and on the general principles of fire extinguisher use before Hot Work begins, and annually thereafter. All training will take place before the initial assignment. Training will include inspections, fire-watch duties, and PASS training (hands on training in a professional setting). All personnel will be trained to recognize a fire in the incipient stage, and when to evacuate the area and call for help. All employees assigned to Fire watch duties will be trained in the use of fire extinguishing equipment. All personnel, including cutters, welders, and supervision will be trained in the fire-fighting measures and on the general principles of fire extinguisher use. All

Personnel involved in hot-work activities will be trained in first aid and have a first-aid-kit available at all times.

Personnel in charge of oxygen and / or fuel supply equipment (including piping distribution systems and generators) will be trained and Judged as competent for working with these systems before being left in charge. **All personnel assigned to operate or maintain welding and / or cutting equipment will be familiar with section 1910.254 (a) (b) & (c) (Arc-welding and Cutting) and with 1910.252 (a) (b) & (c) (Fire prevention and protection, protection of personnel & health protection and Ventilation standards. All compressed gas cylinders will be stored and transported in an up-right and secured position. Proper carts and storage cages will be used at all times. Oxygen will be stored at least 20 feet from flammable gasses and / or petroleum products. All gasses, compressed or other will be stored separately. Records will accompany all gasses and compressed products to and from the site. Training is required for all personnel involved in arc-welding and cutting operations.**

VI. Fire Fighting Equipment Maintenance

Fire extinguishers / equipment maintenance programs will include monthly visual inspections with documentation, and third party documented annual inspections. Operators of equipment that find defects or safety hazards with said equipment, will discontinue use, and contact their supervisor for repair. The equipment will be tagged out of service until repairs are made by qualified personnel. Defective equipment is not to be used.

VII. Fuel Storage

The general requirements for the handling and use of flammable and combustible liquids such as a gasoline are set forth in 29 CFR 1926.152(a):

- (1) Only approved containers and portable tanks shall be used for storage and handling of flammable and combustible liquids. **Approved safety cans** or Department of Transportation approved containers shall be used for the handling and use of flammable liquids in quantities of 5 gallons or less.
- (2) Liquid fuel will be stored in storage cages at least 20 feet from buildings. **NO SMOKING and COMBUSTABLE HAZARD SIGNAGE MUST BE POSTED.** There will be no refueling within buildings, and no fuel cans stored or left in buildings at any time.

Storage of Propane, Acetylene, Map Gas, and / or Oxygen.

- (1) All gasses will be stored and transported in the upright position, and in approved storage and transport devices,
- (2) Flammable gasses will be stored separately from oxygen.
- (3) All gasses will have gauges and hoses removed when not in use. All gasses will have protective valve caps in place when not in use.

Section 30 – Scaffold Policy

All scaffold erection and dismantling will be done by qualified persons from a professional scaffold building company. DE-CAL employees are not to erect or dismantle scaffolding.

Scaffolding is to be inspected daily by a designated competent person. This can be performed by someone from the scaffold building company or by a DE-CAL employee who has been trained as a competent person for scaffold inspection. All OSHA requirements must be fulfilled prior to scaffold use.

All DE-CAL scaffolds must have the following tag attached:


NOTICE
DO NOT USE THIS
SCAFFOLDING
WITHOUT WRITTEN
PERMISSION FROM
DE-CAL

Anyone other than a DE-CAL employee must obtain written permission from a DE-CAL supervisor prior to using a DE-CAL scaffold.

Section 31 – Observation Program

Purpose:

The purpose of the De-Cal Observation Program is to train management and workers in the process of completing and documenting meaningful observations forms. The data collected from the observations will be used to provide valuable feedback that will be used to enhance training, alter behavior, and to assess the needs for mentoring and / or coaching practices. It will be made clear to all employees that observations are continually noted, and that the information derived will be reviewed and used to enhance the De-Cal Safety and Health Program.

Discussion:

Observations provide direct, measureable information on employees work practices that identify both, safe, and unsafe work practices and procedures.

Objectives:

The objective of this program is to train to conduct meaningful observations, and to use those observations to mitigate current and future detrimental safety events.

Training:

Observation training will be reviewed with all employees at new hire orientation, and annually for the duration of their employment career with De-Cal, Inc. Training will concern the use of the De-Cal, Inc. “Worker Safety Engagement Process” form, and how to conduct an effective observation. All employees will be made aware that observations will be made concerning their work activities on a continual basis, and that the duty to complete meaningful observations belongs to everybody in the crew.

Using Observation Data:

Completed forms will be used to identify unsafe behaviors, processes, equipment, and / or procedures. All collected data will be reviewed by the De-Cal, Inc. “Management of Change Team” for direction in the need to make policy and procedural changes as necessary.

Trend Analysis:

Once the “Worker Safety Engagement Process” (Observation) forms are collected and analyzed, the information is entered, and a statistical matrix developed. Trend analysis is then reviewed; changes are prioritized, and executed. All statistical data and relevant information is disseminated throughout the company.

Action Planning:

All unsafe behaviors, procedures, and / or equipment identified as trends will be given a priority and addressed. De-Cal, Inc. Management Personnel will be identified, and a timetable for changes / results will be established. Observations will continue and changes to original, and new trending data closely monitored for measurable outcomes.



Section 32

General Environmental Waste Management Program

Purpose

This written program documents the steps De-Cal Inc. has taken to minimize General Refuse and Construction & Demolition debris resulting from various construction activities consistent with the work operations present at our construction sites. Through the use of sound waste minimization practices utilizing a, reduce, reuse and recycle approach De-Cal Inc. will strive to reduce their volume of waste.

De-Cal Management has overall responsibility for coordinating Safety, Health and Environmental programs in this company. Copies of the written program may be obtained at the job site or in the Corporate Office.

If, after reading this program, you find that improvements can be made, please contact the De-Cal Safety Department. We encourage all suggestions because we are committed to creating a safe workplace for all our employees and to the success of our Waste Management Program. We strive for clear understanding, safe behavior, and involvement with the program from every level of the company.

Responsibilities

The Program Administrator: Senior Management

These people are collectively responsible for:

- Issuing and administering this program and making sure that it satisfies all applicable federal, state and local requirements.
- Identifying waste minimization opportunities and prescribing appropriate solutions

Project Managers, Superintendents and Foreman

These people are responsible for:

- Estimation of the waste that will be generated prior to work being performed so that the need for containers and waste removal, if necessary, can be determined.

- Coordinate with the project site or owner to ensure proper disposal of wastes or construction and demolition debris.
- Training employees to the site waste management plan.
- Assign or ensure that a De-Cal employee is given the responsibility to handle the task of proper disposal, reuse or recycling of wastes or Construction & Demolition debris.
- Assuring that safe operations are maintained on the jobsite to prevent injuries to the eyes, face, head, hands and feet during handling of wastes.
- Enforcing the use of this program in the areas in which it's required or necessary.

Employees

- Using PPE when required
- Properly store and maintain all General and C&D debris

Designated Recycling Coordinator

- Steve Koralewski (De-Cal Inc. Safety Director)

Definitions

General trash/refuse: includes domestic, office and warehouse wastes, paper and other nonhazardous refuse. Waste should be free of liquids and should not include any recyclable waste, used oil, hazardous wastes or universal wastes.

Clean construction or demolition debris: also known as "clean fill", is defined as uncontaminated broken concrete without protruding metal bars, bricks, rock, stone, reclaimed asphalt pavement, or dirt or sand generated from construction or demolition activities.

General construction or demolition debris: is defined as non-hazardous, uncontaminated materials resulting from the construction, remodeling, repair, and demolition of utilities, structures, and roads, limited to the following:

- soil * wall coverings * reclaimed asphalt pavement * rock * plaster * glass * non-hazardous painted wood * drywall * plastics * non-hazardous treated wood * plumbing fixtures * electrical wiring * non-hazardous coated wood * non-asbestos insulation * bricks * wood products * roofing shingles * concrete * general roof coverings

To the extent allowed by federal law, clean construction or demolition debris shall not be considered "waste" if it is:

used as fill material outside of a setback zone if the fill is placed no higher than the highest point of elevation existing prior to the filling immediately adjacent to the fill area, and if covered by sufficient uncontaminated soil to support vegetation within 30 days of the completion of filling or if covered by a road or structure; or separated or processed and

returned to the economic mainstream in the form of raw materials or products, if it is not speculatively accumulated and, if used as a fill material, it is used in accordance with the first identical paragraph immediately above within 30 days of its generation; or

broken concrete without protruding metal bars used for erosion control; or

generated from the construction or demolition of a building, road, or other structure and used to construct, on the site where the construction or demolition has taken place, a manmade functional structure not to exceed 20 feet above the highest point of elevation of the property immediately adjacent to the new manmade functional structure as that elevation existed prior to the creation of that new structure, provided that the structure shall be covered with sufficient soil materials to sustain vegetation or by a road or structure, and further provided that no such structure shall be constructed within a home rule municipality with a population over 500,000 without the consent of the municipality.

Program Activities

C&D versus General Trash or Refuse

Construction and demolition (C&D) debris is nonhazardous, uncontaminated material resulting from construction, remodeling, repair, or demolition of utilities, structures, and roads. These materials include the following:

- Bricks, concrete, and other masonry materials
- Soil
- Rock
- Wood, including nonhazardous painted, treated, and coated wood and wood products
- Wall coverings
- Plaster
- Drywall
- Plumbing fixtures
- Non-asbestos insulation
- Roofing shingles and other roof coverings
- Reclaimed asphalt pavement
- Glass
- Plastics that do not conceal waste
- Electrical wiring and components that do not contain hazardous substances
- Piping
- Scrap alloy and non-alloy metal
- Metal materials incidental to any of the materials above

General trash includes domestic, office and warehouse wastes, paper and other nonhazardous refuse. Waste should be free of liquids and should not include any recyclable waste, used oil, hazardous wastes or universal wastes.

Accumulation and Storage

- Use appropriate PPE, such as rubber or neoprene gloves, boots and safety glasses, and a facemask or goggles.
- When handling trash, use caution to avoid splinters, cuts or other injuries.
- Trash can be accumulated in bags, drums, baskets, gondolas or dumpsters. Outdoor receptacles should be covered to prevent storm-water pollution.

Waste Management Locations

- Dumpsters should be kept within plain sight of the office if possible, to facilitate oversight of contractors or others who use it. C&D debris can be transported to a permitted facility by any hauler. The hauler is not required to have a special waste haulers permit. You should first call the disposal facility to determine if it accepts C&D debris.
- If you have lead-based paint that was removed from non-household waste (for example, paint that was removed from the substrate), the paint waste must be tested by a laboratory using the toxicity characteristic leachate procedure (TCLP) before landfilling. Currently this waste must be managed as a special waste.
- Well labeled trash barrels are to be located throughout the jobsite, covered and labeled; "General Trash".

Recycling and Disposal

- All general refuse other than office waste is currently thrown in the dumpster and hauled to the landfill. Employees will be made aware of the proper disposal of waste at their jobsites (refer to Construction Waste Management Plan for details). However; every effort should be made to recycle or reuse certain types of general refuse
- C&D debris: Three recycling methods available to contractors include the following:
- **Mixed material collection** - Recyclable materials are transported from the job site, sorted at a designated facility, and sent to processors for recycling.
- **Source separation** - Similar materials are separated from other wastes at the job site by category (such as wood, metal, and concrete) and sent to processors for recycling.
- **On-site processing** - Recyclable materials are processed on site and made ready for reuse.

Notification, Protection and Correction of hazardous material discovery or release

In the event that a suspected hazardous material (such as asbestos) is discovered, all work in the area will stop, De-Cal field personnel are trained to contact their supervisor. The area will be

immediately evacuated. Spotter personnel will be positioned to keep all others out of the area while barricades, with signage are erected and the Owner / Owner's Representatives are contacted. No one will be allowed back into the area until a professional determination made, and an "All Clear" is given. A written Report will be made by De-Cal Field Supervision, and forward to the Owner / Owner's Representative, and to the De-Cal Safety Department.

Inadvertent Hazardous Spills

Any and all inadvertent spills or discharges of potentially hazardous materials will be cleaned up immediately if possible. If the spill is too large to be cleaned, or if the discharge cannot be stopped, emergency procedures will come in to play. Special care will be taken regarding the Safety of personnel, and then to the environment. The Owner / Owner's Representative will be contacted immediately, and a containment process put into place.

CONSTRUCTION WASTE MANAGEMENT AND HAZARDOUS SPILL PLAN**Company Name:****Address:****Project Location:****Contractor:****Contact Person:****Telephone #:****Emergency Agency:****Telephone #:****Recycling Coordinators:****Designated Recycling Coordinators:**

Project Description:**Waste Management Goals:**

- This project will recycle or salvage for reuse a minimum of ____% by weight of the waste generated on-site.
- Waste reduction will be achieved through building design, and reuse and recycling efforts will be maintained throughout the construction process.

Waste Prevention Planning:

- Voluntary recycling requirements for De-Cal, Inc. project recyclables include:
 - newspaper
 - corrugated cardboard
 - white and colored office paper
 - glass bottles and jars
 - metal cans
- Compliance with state and federal EPA, i.e. no disposal of tires, appliances, yard waste, hazardous waste, batteries, fluorescent tubes, and large metal items.
- Project Construction Documents – Requirements for waste management which will be included in all work. The General Contractor will contractually require all subcontractors to comply with any client-driven mandatory recycling requirements. A copy of this Construction Waste Management Plan will accompany all Subcontractor Agreements and require subcontractor participation.
- The Construction Waste Reduction Plan shall be implemented and executed as follows, and as listed on the chart:

Salvageable materials will be diverted from disposal where feasible.

- There will be a designated area on the construction site reserved for a row of dumpsters each specifically labeled for respective materials to be received.
- Before proceeding with any removal of construction materials from the construction site, Recycling Coordinators will inspect containers for compliance with local landfill requirements.

- Wood cutting will occur in centralized locations to maximize reuse and make collection easier.
- Hazardous waste will be managed by a licensed hazardous waste vendor.

Communication & Education Plan:

- The General Contractor will conduct an on-site pre-construction meeting with subcontractors. Attendance will be required for the subcontractor's key field personnel. The purpose of the meeting is to reinforce to subcontractor's key field employees the commitments made by their companies with regard to the project goals and requirements.
- As each new subcontractor comes on site, the recycling coordinators will present him/her with a copy of the Waste Management Plan and provide a tour of the recycling areas.
- The subcontractor will be expected to make sure all their crews are trained and comply with the Waste Management Plan.
- All recycling containers will be clearly labeled. Containers shall be located in close proximity to the building(s) under construction in which recyclables/salvageable materials will be placed.
- Lists of acceptable/unacceptable materials will be posted throughout the site.
- All subcontractors will be informed in writing of the importance of non-contamination with other materials or trash.
- Recycling coordinators shall inspect the containers on a weekly basis to insure that no contamination is occurring and precautions shall also be taken to deter any contamination by the public

Evaluation Plan:

- The General Contractor will develop, update, and post at the jobsite a graph indicating the progress to date for achieving the project's waste recycling goal of XX% by weight of the total project waste stream.

Expected Project Waste, Disposal, and Handling:

The following charts identify waste materials expected on this project, their disposal method, and handling procedures:

Material	Quantity	Disposal Method	Handling Procedure
Land clearing debris		Keep separate for reuse and or wood sale	Keep separated in designated areas on site.
Clean dimensional wood and palette wood		Keep separate for reuse by on-site construction or by site employees for either heating stoves or reuse in home projects. Recycle at:	Keep separated in designated areas on site. Place in "Clean Wood" container.
Plywood, OSB, particle board		Reuse, landfill	Keep separated in designated areas on site. Place in "Trash" container.
Painted or treated wood		Reuse, landfill	Keep separated in designated areas on site. Place in "Trash" container.
Concrete		Recycle	
Concrete Masonry Units		Keep separate for re-use by on-site construction or by site employees	Keep separated in designated areas on site
Metals		Recycle at:	Keep separated in designated areas on site. Place in "Metals" container.
Gypsum drywall (unpainted)		Recycle with supplier:	Keep scraps separate for recycling – stack on pallets in provided on site. All scrap drywall will be taken back by contractor to drywall supplier

Paint		Reuse or recycle at:	Keep separated in designated areas on site
Insulation		Reuse, landfill	
Flooring		Reuse, landfill	
Carpet and pad		Reuse or recycle with	

Material	Quantity	Disposal Method	Handling Procedure
Glass		Glass Bottles: Recycle at:	Keep separated in designated areas on site. Place in "Glass/Plastic bottles/Metal Cans/Mixed Paper/Cardboard" container
Plastics		Plastic Bottles: Recycle at: Plastic bags/scrap: Reuse, landfill	Keep separated in designated areas on site. Place in "Glass/Plastic bottles/Metal Cans/Mixed Paper/Cardboard" container
Beverage		Recycle at:	Keep separated in designated areas on site. Place in "Glass/Plastic bottles/Metal Cans/Mixed Paper/Cardboard" container
Cardboard		Recycle at:	Keep separated in designated areas on site. Place in "Glass/Plastic bottles/Metal Cans/Mixed Paper/Cardboard" container
Paper and newsprint		Recycle at:	Keep separated in designated areas on site. Place in "Glass/Plastic bottles/Metal Cans/Mixed Paper/Cardboard" container

TOTAL	
--------------	--

Waste Disposal: Contractor:
Contact:

Name of landfill for disposal of non-recyclable waste:

- Transfer Stations:
- Landfills (ultimate disposal location):

Landfill tipping fee: \$XX / ton

Estimate of waste for landfill disposal:

Recycling Calculation:

If all construction waste was disposed in landfill: XX lbs = XX tons x \$XX/ton = **\$XX**

Section 33 – Fire Protection (Hot Work)

1. Purpose

The purpose of this performance standard is to provide De-Cal, Inc., a process to plan and manage changes whether temporary or permanent. This standard will provide the means to suppress and control the deterioration in safety systems, and help to identify the responsibilities and authorities for managing changes and their associated risks.

2. Scope

This standard will apply to all projects that may experience a change in personnel, equipment, and / or the processes of the De-Cal, Inc. Safety and Health system. Each project site must participate and follow this established management of change performance standard when a change in personnel, equipment, or process for the implementation and control of planned changes. De-Cal, Inc. Management will review the possible consequences of change, and take action to mitigate potentially adverse effects. The requirements apply to all De-Cal project sites as outlined in the De-Cal, Inc. Safety and Health Manual. Changes involving equipment, components, and devices must adhere to this performance standard in its entirety.

Design- build, re-build, retrofit, commissioning, de-commissioning and execution must refer to the De-Cal, Inc. Safety and Health Manual to complete the management of change requirements.

Control of chemicals, including approval, storage, use, disposal or reuse in the work place, must remain in compliance with county/local legal requirements and the owners internal standards.

De-Cal, Inc. agrees to follow this performance standard when contractual obligations with GM dictate the need to meet the requirements of this standard. De-Cal, Inc. understands their responsibility for executing Management of Change within the scope of work activities defined within contractual documents. De-Cal, Inc. also understands that we are responsible for complying with laws and regulations applicable to the work performed, as well as, defining means, methods, techniques, procedure, or equipment required to perform the work.

3. Definitions

Change – Any modification to equipment, personnel, procedures, materials, or processes.

Change Validation Checklist – A document provided with a series of safety and environmental questions to validate hazards and / or risks identified and mitigated through the review and validation process.

Exact Replacement – Replacement of a device, component, chemical, process, program, or any other item(s) noted in the contractual performance standard, which is identical in all aspects.

Hazard – A source or situation with a potential for harm in terms of injury or illness, and / or damage to property and / or processes.

Local – A site, complex, or other single facility operated by the contractual owner.

Management of Change – The practice of administering changes, which requires the use of a standard methodology for reviewing all changes, while maintaining the integrity of the management system involved.

Management of Change Review Team – A review team at each site to oversee all changes per the requirements in this performance standard.

Risk Assessment – A process of evaluating the risk that may arise from a system, sub-system, equipment, device, component, and / or human intervention. **An acceptable risk assessment format must consist of five main areas.**

1. An area to define what you are observing.
2. An area to define all hazards.
3. An area to define evolution method.
4. An area to capture impact.
5. An area to capture all action items required to either eliminate or mitigate all residual risk, or to ensure that every reasonable precaution has been taken to protect the safety of workers. (Task Hazard Analysis)

Worker Safety Engagement Process – A process used to assist workers in identifying hazards, and reduce mental slips and potential lapses.

4.0 Requirements

4.1 Planning

4.1.1 Regulatory Compliance

De-Cal, Inc. will identify and comply with all applicable regulatory requirements related to the Management of Change process while on all projects. These requirements will be one aspect of the regulatory parameters that Govern De-Cal, Inc.

4.1.2 Hazard Identification and Risk Assessment

Before work begins, hazard identification in the form of a “Task Hazard Analysis” document is completed, reviewed, and understood by all De-Cal, Inc. personnel. If changes in scope of work, personnel, equipment, or any other variances to the original plan are contemplated, a complete re-assessment of the procedures must be re-visited.

The following are the common requirements that must be an aspect of the process:

1. The Management of Change process must be initiated when hazards are being created, exposed, corrected, and / or controlled due to change in the original process.
2. A risk assessment must be conducted to determine the magnitude of the change, and the potential impact pursuant to the change. The Task hazard Analysis will be used as a tool to define, document, and disseminate the proposed changes to the process for all personnel involved in the process.

At a minimum, this process will cover the following sources of change:

1. Introducing new workers to the site.
2. New contractors or contractor activities that may impact the De-Cal work process.
3. Employee rotation.
4. Visitor safety protocol.
5. Change in equipment used.
6. Any process changes that may present a new hazards to the workplace.

4.2 Implementation

4.2.1 Documented Program

De-Cal, Inc. will implement and maintain a documented Management of Change process.

This process will include the following parameters:

1. Hazard Identification and Risk Assessment.
2. Management of Change process.
3. Roles and Responsibilities.
4. Management of Change Review Team.
5. Site Change Validation Checklist Implementation.
6. Training Requirements.
7. Program Evaluation.

4.2.2 Roles and Responsibilities

De-Cal, Inc. is Responsible For:

1. Implementation of the Management of Change Process.
2. Contacting the owner / owner's representative concerning proposed changes.
3. Documenting validations given by the owner / owner's representative.
4. To inform the owner / owner's representative of any detrimental event.
5. Attend and participate in Management of Change Review Team Meetings.

Section 34 – Process Safety Management

1. Written program: De-Cal, Inc. will review and evaluate this standard practice instruction on an annual basis, or when facility operational changes occur that require revision. Effective implementation of this program requires support from all levels of management within this company. This written program will be communicated to all personnel that are affected by it. It encompasses the total workplace, regardless of number of workers employed or the number of work shifts. It is designed to establish clear goals, and objectives.

2. General: Process safety management is the proactive identification, evaluation, mitigation and / or prevention of chemical releases that could occur as a result of failures in process, procedures or equipment. The major objective of process safety management of highly hazardous chemicals is to prevent unwanted releases of hazardous chemicals especially into locations which could expose our employees and or community to serious hazards.

2.1 This program will use a systematic approach to evaluating the process in its entirety. Each process will be evaluated as a separate entity. The various lines of defense that have been incorporated into the design and operation of the process to prevent or mitigate the release of hazardous chemicals will be evaluated and strengthened where required to assure their effectiveness at each level. The following elements will be used in the evaluation process.

2.1.1 Process design.

2.1.2 Process technology.

2.1.3 Operational and maintenance activities/procedures.

2.1.4 Non-routine tasks, activities and procedures.

2.1.5 Emergency preparedness plans and procedures.

2.1.6 Training programs.

2.1.7 Process Hazard Analysis

3. Facility planning requirements: Proper planning for emergencies is necessary to minimize employee injury and property damage. The effectiveness of response during emergencies depends on a comprehensive Process Hazard Analysis, and the related training performed. Management must show its support of plant safety programs and the importance of emergency planning. If management is not fully invested in employee safety concerns, and minimizing property loss, little can be done to promote a safe workplace. It is therefore management's responsibility to see that this program is instituted, and that it is frequently reviewed and updated. The input and support of all employees must be obtained to ensure an effective program. The emergency response plans will be dictated by the information captured within the Process Hazard Analysis, and will be developed locally. The emergency procedures will be fully comprehensive, and address all identified hazard potential.

4. Employee Involvement in Process Safety Management: Section 304 of the Clean Air Act Amendments states: Employers are to consult with their employees, and / or their representatives regarding the efforts in the development and implementation of the process safety management program. Section 304 also requires training and education of employees, and to inform any affected employees as to the findings resulting from incident investigations. De-Cal, Inc. will also consult with our employees regarding efforts to develop and implement process safety management programs, and will involve our employees in the entire process when possible.

De-Cal, Inc. believes that employee involvement is essential because they are best suited to determine process safety procedures, and to offer solutions to Process Safety problems as they relate to our business. Employee and Management collaboration will be accomplished through a "Process Safety Committee". This committee will be responsible for developing process safety policy and procedures.

5. Process Safety Committee.

5.1 Composition. The company process safety committee will be comprised of members of management / supervision and hourly personnel. The make-up of the committee will consist of the following:

Process Safety Committee

<u>Title</u>	<u>Member</u>
Chairman	CEO
Vice President	Vice President of Labor
Director	Safety Director
Labor Supervisor	General Foreman
Labor Representative	Steward

5.2 Principal Responsibilities: The principal responsibilities of the company process safety committee will be as follows:

- 5.2.1 Assemble on a regular basis to conduct process safety meetings as required.
- 5.2.2 Conduct and oversee departmental process safety evaluations, inspections, and reviews.
- 5.2.3 Review accident, injury, and near-miss reports to determine potential deficiencies within the program, and to discuss corrective actions.
- 5.2.4 Direct and monitor departmental training and safety meetings.
- 5.2.5 Discuss and report on unfinished business from previous meetings.
- 5.2.6 Discuss new business.
- 5.2.7 Maintain comprehensive records of PSM activities.
- 5.2.8 The Safety Director will make notations of the meeting, and track open process safety items to conclusion. The Safety Director will also act as chairman in the absence of the designated chairman or vice chairman.

5.3 Charter: Charter for the De-Cal, Inc. Process Safety Committee. This committee will be responsible for developing process safety policy, procedure, and for the establishment of the Process Hazard Analysis. The committee will encourage process safety awareness and participation among all employees. The charter will be established to evaluate, and monitor the process safety performance concerning all evaluated processes operated by this company, perform the Process Hazard Analysis, and aid the Safety Director in administering the company process safety program.

These efforts are necessary:

- o reduce injuries and save lives by the prevention of unwanted releases of hazardous process chemicals.

- To constantly be aware of process conditions in all work areas that can produce injuries.
- To aid the company in complying with all laws pertaining to process safety.
- To place the personal safety and health of our employees, other trades, the owners employees, and the general public adjacent to this facility in a position of primary importance.
- To aid in the prevention of occupationally induced injuries and illnesses.
- To maintain a process safety program conforming to the best management practices of organizations of this type.
- To establish a program that instills the proper attitudes toward process safety not only on the part of supervisors and employees, but also between each employee and his or her co-workers.
- To ultimately achieve a process safety program maintained in the best interest of all concerned.

6. Investigation of incidents and near misses: Incident investigation will be directed by Safety Director. The investigation will be initiated as promptly as possible, but no more than 24 hours following the incident. The investigation will focus on the process of identifying the underlying causes of incidents and implementing steps to prevent similar events from occurring. Routine process safety investigations will be conducted on all company processes designated by the process safety committee. The investigation will be conducted to discover process conditions and work practices that could be determined to lead to toxic releases, accidents and industrial illnesses. Incidents will be reported to host facility immediately.

6.1 Process safety incident investigation team (PSIIT) composition: The team director will select additional personnel as required to serve on the PSIIT based on the specific process being reviewed. The core PSIIT will be comprised of the following core team members:

Process Safety Incident Investigation Team:

<u>Title</u>	<u>Member</u>
Director	Safety Director
Member	Foremen
Member	Steward

6.2 Intervals: The Safety Director will coordinate dates and times with all assigned inspection team members. The team will conduct inspections on a as needed basis or when conditions or near misses present themselves.

6.3 Hazard/Deficiency priority classification system: Hazards and / or deficiencies will be rated according to the following rating system. Where it is unclear where a hazard / deficiency should be rated, the next higher priority classification will be assumed.

6.3.1 Priority 1. The most serious type of unsafe process safety condition or unsafe work practice that could cause a toxic release resulting in loss of life, or permanent disability, or extensive loss of structure, equipment, or material.

6.3.2 Priority 2. Unsafe process safety conditions or work practice that could cause a toxic release resulting in serious injury, industrial illness, or disruptive property damage.

6.3.3 Priority 3. Unsafe process safety conditions or work practice that might cause a recordable injury, industrial illness or property damage.

6.3.4 Priority 4. Minor condition: a housekeeping item or unsafe work practice infraction with little likelihood of injury or illness other than perhaps a first-aid case.

6.4 Investigation procedures. The following elements will be visited during investigations. Investigations will be conducted on each individual processes. The investigation can and will serve as a compliance audit. The format, staffing, scheduling and verification methods will all be established prior to conducting the investigation.

The following will be used as the basis for the development of inspection criteria:

6.4.1 Sequence of events: The sequence of actions of the De-Cal, Inc. incident investigation/compliance audit program will be as follows:

- Begin the planning stage of the specific investigation
- Select the investigation staff
- Review requirements of 29 CFR 1910.119
- Review existing inspection checklists
- Conduct the investigation
- Evaluate the results
- Assign action items to individuals
- Determine estimated completion dates
- Develop a corrective action plan
- Hold an investigation review meeting
- Perform follow-up actions as required
- Document the entire process

6.4.2 Program elements: The format will be designed to provide the lead investigator with a procedure or checklist which details the requirements of each section of the process safety standard.

<u>Element</u>	<u>Criteria</u>
Employee Participation	<input type="checkbox"/> Written plan <ul style="list-style-type: none"> • Involvement in planning
Process Safety Information	<input type="checkbox"/> Hazard dissemination <ul style="list-style-type: none"> • Process technology • Process equipment
Process Hazard Analysis	<input type="checkbox"/> Percent complete
Hazardous Materials	<input type="checkbox"/> Types used in the process. <ul style="list-style-type: none"> • Reporting requirements (release)
Emergency Management	<input type="checkbox"/> Notification procedures <ul style="list-style-type: none"> • Written procedures content • Emergency containment procedures • Outside resources involvement • Spill containment procedures • Personal Protective Equipment • Drill frequency

Training Program	<input type="checkbox"/> Initial training conducted <ul style="list-style-type: none">• Refresher training conducted• Adequacy of content• Frequency of training• Effectiveness of training• Documentation• Interviews results• Written procedures content• Proper personnel trained• Frequency of training• Interview results• Test results• Documented properly
Operator Procedures	<input type="checkbox"/> Written operating procedures <ul style="list-style-type: none">• Written content• Steps in operating phases• Operating limits• Safety/Health considerations• Safety systems and function• Knowledgeable of duties• Safety procedures followed• Non-routine task procedures
Contractors	<input type="checkbox"/> Application <ul style="list-style-type: none">• Employer responsibilities• Contractor responsibilities
Pre-Start-up Review	<input type="checkbox"/> Requirements
Mechanical Integrity	<input type="checkbox"/> Written procedures <ul style="list-style-type: none">• Training for maintenance• Inspection and testing• Equipment deficiencies• Quality assurance
Hot-work permits	<input type="checkbox"/> Issue procedures <ul style="list-style-type: none">• Documentation
Management-of-Change	<input type="checkbox"/> Establishment <ul style="list-style-type: none">• Implementation• Employee awareness
Incident investigation	<input type="checkbox"/> Prompt initiation of invest. <ul style="list-style-type: none">• Procedures always followed

Trade secrets

Protected

- Hazard information obtained

6.5 Final report. De-Cal, Inc. will develop a final report detailing the results of the inspection.

The following items will be accomplished:

6.5.1 Action items: The report will indicate who is responsible for accomplishing action items generated during the investigation.

6.5.2 Estimated completion dates (ECD). Estimated completion dates will be assigned to each action item.

6.5.3 Follow-up actions. An investigation review meeting will be held before the estimated completion dates arrive to ensure action item completion is progressing smoothly. The meeting will also discuss if the ECDs are still realistic.

6.5.4 The Safety Director will develop a statistical analysis of deficiencies noted to determine jobs/areas/processes that have a high incidence of release potential. These areas will be emphasized during future inspections and meetings.

6.5.5 Documentation. After all action items have been completed and closed the investigation will be closed. The final report will be distributed and the original copy maintained in the safety office/department.

6.5.6 Distribution (key staff) the report will be distributed immediately to personnel responsible for correcting deficiencies noted during the inspection. These personnel will use the hazard classification system to prioritize deficiency correction.

6.5.7 Distribution (all others). The report will be distributed to all supervisors and key management personnel. Supervisors will filter the results to all employees under their control. Any employee requesting to be placed on the distribution list will be accommodated.

7. Process Safety Information:

7.1 Uses: De-Cal, Inc. will maintain complete and accurate written documentation concerning process chemicals, process technology, and process equipment. The compiled information will be used for the following:

7.1.1 To perform the Process Hazards Analysis

7.1.2 Develop training programs

7.1.3 Develop operating procedures

7.1.4 Aid contractors whose employees will be working with the process

7.1.5 Conduct pre-startup reviews

7.1.6 Aid local emergency preparedness planners, insurance, and enforcement officials

7.1.7 Employee awareness

7.2 Information to be maintained: The information to be compiled about the chemicals, including process intermediates, needs to be comprehensive enough for an accurate assessment of the hazards involved.

The following information as a minimum will be maintained:

7.2.1 Fire and explosion characteristics

7.2.2 Reactivity hazards

7.2.3 Safety and health hazards to workers

7.2.4 Corrosion and erosion effects on the process equipment and monitoring tools.

7.2.5 Current safety data sheets (SDS)

7.2.6 Maximum intended inventories will be documented.

7.2.7 Process chemistry information including runaway reaction and over-pressure hazards if applicable.

7.2.8 Established criteria for maximum inventory levels for process chemicals, and limits beyond which would be considered upset conditions; and a qualitative estimate of the consequences or results of deviation that could occur if operating beyond the established process limits.

7.3 Use of diagrams: Diagrams will be used where possible to show process flow information.

7.3.1 Block flow diagrams (BFD): Block flow diagrams will be used to show the major process equipment and interconnecting process flow lines and show flow rates, stream composition, temperatures, and pressures when necessary for clarity. The block flow diagram is considered a simplified flow diagram.

7.3.2 Process flow diagrams (PFD): Process flow diagrams are considered to be more complex and will be constructed where necessary to show all main flow streams including valves to enhance the understanding of the process, as well as pressures and temperatures on all feed and product lines within all major vessels, in and out of headers and heat exchangers, and points of pressure and temperature control. The process flow diagram is considered a detailed flow diagram.

- **Types of information used on PFDs:**
 - Materials of construction information
 - Pump capacities and pressure heads
 - Compressor horsepower and vessel design pressures
 - Process temperatures
 - Major components of control loops are usually shown
 - Key utilities

Note: For each process, Piping and Instrument Diagrams (P&IDs) will be reviewed to determine if there is a more appropriate type of diagram to show some of the above details, and to display the information for the piping designer and engineering staff. The P&IDs are to be used to describe the relationships between equipment and instrumentation as well as other relevant information that will enhance clarity. Computer software programs which do P&IDs or other diagrams are useful to the information package, and may be used to help meet this requirement.

7.4 Documentation of sources: The information pertaining to process equipment design will be documented. The codes and standards will be used to promote good engineering practices.

7.4.1 Older equipment/process: For existing equipment designed and constructed many years ago in accordance with the codes and standards available at that time and no longer in general use today, De-Cal, Inc. will attempt to acquire the codes and standards that were used for the design and construction along with the testing. Inspection and operation will also be reviewed to establish that the process remains suitable for the intended use. Where the process technology requires a design which departs from the applicable codes and standards, De-Cal, Inc. will document that the design and construction is suitable for the intended purpose.

8. Facility/Department Evaluation: An evaluation of current facility(s) will be conducted to identify, designate, and prioritize processes which have the potential for the release of hazardous chemicals during a systems or operational failure.

8.1 Existing processes: A process hazard analysis (PHA) will be conducted for existing processes. Existing processes where possible, will be designated and managed as a complete and separate process.

8.2 Future processes: For new processes, a process hazard analysis will be conducted. The PHA will be used to improve the design and construction of the process from a reliability and quality point of view. The safe operation of the new process will be enhanced by making use of the PHA recommendations before final installations are completed.

8.3 Process listing: Processes will be designated and evaluated.

9. Process Hazard Analysis (PHA): A PHA will be conducted in an organized and systematic effort to identify and analyze the significance of potential hazards associated with the processing or handling of highly hazardous chemicals. Information obtained from a PHA will assist in making decisions for improving safety and reducing the consequences of unwanted or unplanned releases of hazardous chemicals.

9.1 Responsibility. The company representative responsible for process hazard analysis is the Safety Director. He is solely responsible for all facets of the analysis and has full authority to make necessary decisions to ensure success of the program. He is the sole person authorized to amend these instructions and is authorized to halt any process operation of relating to De-Cal, Inc. where there is danger of chemical release or serious personal injury.

9.2 Any PHA conducted by De-Cal, Inc. will be directed toward determining the hazards and potential failure points or failure modes in a designated process by analyzing the following:

9.2.1 Potential causes and consequences of:

- Fires
- Explosions
- Releases of toxic or flammable chemicals
- Major spills of hazardous chemicals

9.2.2 The PHA will focus on:

- Equipment
- Instrumentation
- Utilities
- Human actions (routine and non-routine)
- External factors that might impact the process

9.3 Selection of a PHA methodology or technique will be influenced by many factors including:

9.3.1 The amount of existing knowledge about the process.

9.3.2 Is it a process that has been operated for a long period of time with little or no innovation and extensive experience has been generated with its use?

9.3.3 Is it a new process or one which has been changed frequently by the inclusion of innovative features?

9.3.4 The size and complexity of the process.

9.3.5 The application of a PHA to a process may involve the use of different methodologies for various parts of the process. For example, a process involving a series of unit operations of varying sizes, complexities, and ages may use different methodologies and team members for each operation. Then the conclusions can be integrated into one final study and evaluation.

9.3.6 Priority system: The below listing designates the priority for which PHAs will be conducted by this company. A preliminary or gross hazard analysis will be performed to prioritize the processes that are determined to be subject to coverage by the process safety management standard.

- **Priority considerations:** The prioritization process will consider the following in prioritizing the potential severity of a chemical release:
 - Priority will first be given to those processes with the potential of adversely affecting the largest number of employees and or people in our community.
 - The history of existing processes including the frequency of past chemical releases.
 - The current age of existing processes, and any other potentially relevant factors.

9.3.7 Designated process priority listing: The above listed factors will be used to establish a ranking order. Either a weighing factor system or a systematic ranking method will be used. The preliminary hazard analysis will be used in determining which process should be of the highest priority and thereby obtaining the greatest improvement in safety for our company.

9.4 PHA methodology considerations:

9.4.1 Checklist methodology: The checklist method however, may miss the most recent changes and consequently will be used for processes that are very stable and where no little changes occur over extended periods. Subsequently, the changes would not be evaluated.

9.4.2 Assumptions made by the team: The PHA is dependent on good judgment and the assumptions made during the study need to be documented and understood by the team and reviewer. This information will be permanently captured as historical data for future PHA's.

9.4.3 The team director will ensure that all team members understand the methodology that is going to be used.

9.4.4 Team size: The team director will make the initial size determination of the team. PHA teams can vary in size from two people to a larger number of people with varied operational and technical backgrounds. Some team members may only need to be a part of the team for a limited time. The team director will make him/her self fully knowledgeable in the proper implementation of the PHA methodology that is to be used, and should be as impartial as possible in the evaluation.

9.4.5 Team members will provide the team with expertise in areas such as:

- Process technology
- Process design
- Process Operating procedures and practices
- How the work is actually performed
- Alarms
- Emergency procedures
- Instrumentation
- Maintenance procedures
- **Routine and non-routine tasks, including:**
- How the tasks are authorized
- Procurement of parts and supplies
- Safety and health
- Other relevant subject matter as the need dictates.

10. Process Operating Procedures and Practices: De-Cal, Inc. shall develop, implement, and maintain written operating procedures (SOPs) that provide clear, accurate, and comprehensive instructions for safely conducting operations involving highly hazardous chemicals. These procedures shall reflect current process conditions and shall be reviewed and certified annually as required by OSHA 29 CFR 1910.119(f)(3).

10.1 Content:

10.1.1 Operating procedures will include specific instructions and details concerning the steps to be followed in carrying out the stated procedures.

10.1.2 Safe Operating Limits & Consequences of Deviation: Each operating procedure shall clearly define:

- Safe upper and lower operating limits
- Normal operating ranges
- Safety System functions
- Consequences of operating outside the safe limits
- Corrective actions required to return the process to safe operating condition.

These safe limits shall include, as applicable:

- Pressure limits
- Temperature ranges
- Flow rates
- Level controls
- Chemical concentrations
- Equipment design parameters
- Procedures to follow when adverse conditions occur
- Alarms and instruments
- Start-up or shut-down procedures
- Distinctions between startup and normal operations
- Other pertinent subjects as required

10.1.3 Computerized process control systems: These operating instructions need to describe the logic of the software as well as the relationship between the equipment and the control system; otherwise, it may not be apparent to the operator.

10.1.4 Accessibility of Procedures: Operating procedures must be accessible at all times to employees who operate or maintain equipment or who perform work within covered processes. To ensure availability:

-
- SOPs **shall be accessible in hard copy at the jobsite Safety Office**,
 - SOPs **shall be available digitally** through secure electronic storage, tablets, or shared drives used by De-Cal field supervision,
 - Employees shall be instructed during training on **where and how to access** procedures prior to beginning work.

10.1.5 **Bilingual procedures and instructions:** If workers are not fluent in English, then procedures and instructions need to be prepared in a second language understood by the workers.

10.1.6 **Changes in the procedures and processes:** Whenever a process change occurs through the Management of Change (MOC) procedure, all affected operating procedures:

- Shall be updated before startup,
- Shall be communicated to affected employees,
- Shall trigger refresher training as needed to ensure competence and awareness.

- **Timing:** All management-of-change actions must be coordinated and integrated with current operating procedures and operating personnel must be oriented to the changes in procedures before the change is made. When the process is shut down in order to make a change, then the operating procedures must be updated before startup of the process.

10.1.7 **Emergency and adverse conditions:** Supervisors will ensure that procedural instructions and training in how to handle adverse conditions are accomplished, as well as what operating personnel are to do in emergencies.

10.1.8 Communication between operating personnel and workers performing work within the process area, such as non-routine tasks, also must be maintained. The hazards of the tasks will be conveyed to operating personnel in accordance with established procedures and to those performing the actual tasks. When the work is completed, operating personnel will be informed to provide closure on the job.

11. Employee Training: All employees, including maintenance and contract employees, involved with highly hazardous chemicals will be provided training to fully understand the safety and health hazards of the chemicals and processes they work with, for the protection of themselves, their fellow employees, and the citizens of nearby communities. Training requirements will be clearly defined. The affected employees to be trained, and the subjects to be covered in their training will be developed based on defined requirements. Goals and objectives will be clearly defined. The learning goals or objectives will be written in clear measurable terms before the training begins. These goals and objectives will be tailored to each of the specific training modules or segments. Training plans will describe the important actions and conditions under which the employee will demonstrate competence, knowledge, as well as acceptable performance. Hands-on-training will be conducted where ever possible.

11.1 Initial training: Training shall be conducted prior to job assignment. De-Cal, Inc. shall provide training to ensure that employees understand the safety and health hazards of chemicals and processes they will be working with. **The training shall include, as a minimum the following:**

11.1.1 Training will be determined from the individual process. All employees associated with a given process will be given training concerning the hazards associated with that process.

11.1.2 Hazard communication training, will help employees to be more knowledgeable about the chemicals they work with as well as familiarize them with reading and understanding MSDS. Contractors and visitors who work closely with designated processes will have their Haz-Com training verified before being allowed access.

11.1.3 Process specific training: Process supervisors will coordinate additional training requirements with the safety officer in subjects such as operating procedures and safety work practices, emergency evacuation and response, safety procedures, routine and non-routine work authorization activities, and other areas pertinent to process safety and health not covered under the Haz-Com program.

11.1.4 Written procedures/checklists are required to be used.

11.1.5 Recognition of applicable hazards associated with the operation or work to be completed.

11.1.6 All other employees whose work operations are or may be in an area that may be affected by the process, shall be instructed to an awareness level concerning hazards associated with the process.

11.1.7 Preventative maintenance training. Appropriate training will be provided to maintenance personnel to ensure that they understand the preventive maintenance program procedures, safe practices, and the proper use and application of special equipment or unique tools that may be required.

11.1.8 Certification. This employer 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.

11.2 Refresher training: Refresher training shall take place at least every 3 years in accordance with OSHA. Careful consideration will be given to assure that employees, including maintenance and contract employees are receiving current and updated training. The training content shall be identical to initial training and include any changes in the process or scope of work. Refresher training will be conducted on an annual basis or when the following conditions are met, whichever event occurs sooner.

11.2.1 Retraining shall be provided for all authorized and affected employees whenever (and prior to) there being a change in their job assignments, a change in the process, operating procedures, or when a known hazard is added to the work environment.

11.2.2 Additional retraining shall also be conducted whenever a periodic inspection or audit reveals, or whenever this employer has reason to believe that there are deviations from, or inadequacies in the employee's knowledge of operating or safety practices.

11.2.3 The training should reestablish employee proficiency and introduce new or revised methods and procedures, as necessary. For example, if changes are made to a process, impacted employees must be trained in the changes and understand the effects of the changes on their job tasks (e.g., any new operating procedures pertinent to their tasks).

11.3 Certification. De-Cal, Inc. will certify that employee training has been completed and is being kept up to date. The certification shall contain each employee's name and dates of training. Training must be verified through testing or demonstration of competency.

11.4 Process trainers. De-Cal, Inc. will designate qualified personnel to be trainers.

11.5 Training plans. Training plans will be reviewed on as needed basis to ensure the training is current and to periodically ensure that the necessary skills, knowledge, and routines are being properly understood and implemented by trained employees.

12. Use of Contractors: Whenever contractors are used to perform work in or around processes that involve highly hazardous chemicals, they must be provided with site-specific training and hazard information to ensure their activities do not compromise the safety and health of De-Cal employees, host facility employees, or other contractors. Prior to beginning work, De-Cal will provide the contract employer with all **known process**

hazards, including chemical hazards, operational risks, safe operating limits, and emergency procedures associated with the area in which they will be working.

For contractors whose safety performance is not previously established, De-Cal will obtain and review injury and illness data, relevant experience, safety programs, and professional references to ensure they meet minimum safety expectations. De-Cal will verify that the contractor possesses the appropriate **job skills, knowledge, certifications, and training**, and shall require documentation demonstrating that all contractor employees have been trained in accordance with OSHA's Process Safety Management requirements, Hazard Communication, and any host-facility-specific safety rules.

During the course of the work, De-Cal will **periodically evaluate contractor performance**, including field audits, behavioral observations, compliance checks, and review of unsafe conditions or incidents. Any deficiencies will be communicated immediately to the contract employer for correction. Contractors must follow all applicable De-Cal and host facility safety procedures and must respect the confidentiality of any trade secret information disclosed as part of their work.

Contractor work methods and performance may be evaluated for individual tasks, specific processes, or broader safety behavior trends to ensure continued compliance and safe execution of work inside PSM-regulated areas.

12.1 Site injury and illness log. If deemed necessary, a site injury and illness log for contractors will be maintained to track and maintain current knowledge of work activities involving contract employees working on or adjacent to covered processes. Injury and illness logs of both the employer's employees and contract employees allow this employer to have full knowledge of process injury and illness experience. This log will also contain information which will be of use to those auditing process safety management compliance and those involved in incident investigations.

12.2 Contract employees must perform their work safely. Considering that contractors often perform very specialized and potentially hazardous tasks such as confined space entry activities and non-routine repair activities it is quite important that their activities be controlled while they are working on or near a covered process.

12.3 Permitting system: A permit system or work authorization system for these activities may be instituted if deemed necessary. The use of a work authorization system keeps an employer informed of contract employee activities, and as a benefit the employer will have better coordination and more management control over the work being performed in the process area. A well run and well maintained process where employee safety is fully recognized will benefit all of those who work in the facility whether they be contract employees or employees of the owner.

13. Pre-Startup safety review:

13.1 For new processes, A PHA will be conducted to improve the design and construction of the process from a reliability and quality point of view. The safe operation of the new process will be enhanced by making use of the PHA recommendations before final installations are completed. P&IDs are to be completed along with having the operating procedures in place and the operating staff trained to run the process before startup. The initial startup procedures and normal operating procedures will be fully evaluated as part of the pre-startup review to assure a safe transfer into the normal operating mode for meeting the process parameters.

13.2 For existing processes that have been shutdown for turnaround, or modification, etc., a PHA will be conducted to assure that any changes other than "replacement in kind" made to the process during shutdown go through the management-of-change procedures.

13.2.1 Impact requirements: P&IDs will need to be updated as necessary, as well as operating procedures and instructions. If the changes made to the process during shutdown are significant and impact the training program, then operating personnel as well as employees engaged in routine and non-routine work in the process area may need some refresher or additional training in light of the changes.

13.2.2 Incident investigations/audits: Any incident investigation recommendations, compliance audits or PHA recommendations need to be reviewed as well to see what impacts they may have on the process before beginning the startup.

14. Mechanical Integrity: Maintenance programs and schedules will be reviewed to see if there are areas where "breakdown" maintenance is used rather than an on-going mechanical integrity program. Equipment used to process, store, or handle highly hazardous chemicals needs to be designed, constructed, installed and maintained to minimize the risk of releases of such chemicals.

14.1 Elements of a mechanical integrity program include:

14.1.1 Identification and categorization of equipment and instrumentation.

14.1.2 Inspections and tests.

- MI inspections follow recognized and generally accepted good engineering practices (RAGAGEP) such as:
 - ASME
 - API
 - NFPA
 - ANSI
 - ISA

14.1.3 Testing and inspection frequencies.

14.1.4 Development of maintenance procedures.

14.1.5 Training of maintenance personnel.

14.1.6 Establishment of criteria for acceptable test results, documentation of test and inspection results, and documentation of manufacturer recommendations as to meantime to failure for equipment and instrumentation.

14.2 Preventing a release: The first safety priority for our processes will be to ensure that the process is operated and maintained as designed, and to keep the chemicals contained.

14.3 Controlling a release: The second safety priority will be to control release of chemicals through engineering controls such as; venting to scrubbers, flares, or to surge or overflow tanks which are designed to receive such chemicals, etc. Also included are; fixed fire protection systems, water spray, or deluge systems, monitor guns, dikes, designed drainage systems, and other systems which would control or mitigate hazardous chemicals once an unwanted release occurs.

14.4 Process equipment and instrumentation. A list of process equipment and instrumentation for inclusion in the program will be developed. This list will include pressure vessels, storage tanks, process piping, and relief and vent systems, fire protection system components, emergency shutdown systems and alarms and interlocks and pumps.

14.4.1 Prioritization: For the categorization of instrumentation and the listed equipment this equipment will be prioritized to denote which pieces of equipment require closer scrutiny than others.

14.4.2 Meantime between failure (MTBF): Meantime between failure of various instrumentation and equipment parts will be determined from the manufacturers data, company records or the experience with the parts, which will then influence the inspection and testing frequency and associated procedures. Also, applicable codes and standards such as the National Board Inspection Code, or those from the American Society for Testing and Material, American Petroleum Institute, National Fire Protection Association, American National Standards Institute, American Society of Mechanical Engineers, and other groups, will be used

to provide information to help establish an effective testing and inspection frequency, as well as appropriate methodologies.

14.5 Preventative maintenance training: Appropriate training will be provided to maintenance personnel to ensure that they understand the preventive maintenance program procedures, safe practices, and the proper use and application of special equipment or unique tools that may be required. This training will be part of the overall training program called for in 29 CFR 1910.119.

15. Hot Work Permits: Hot work performed on or near processes involving highly hazardous chemicals presents a significant risk of fire, explosion, ignition of flammable vapors, or equipment damage. To ensure safe execution of hot work activities, De-Cal, Inc. shall establish and enforce a written Hot Work Permit Program in accordance with OSHA 1910.119(k) and 1910.252.

This program applies to all hot work performed by De-Cal employees or contractors, including but not limited to:

- Welding
- Cutting
- Brazing
- Grinding
- Torch work
- Spark-producing activities
- Any activity capable of igniting vapors or combustible materials

15.1 De-Cal will maintain a written program that outlines:

- The hazards associated with performing hot work near PSM-covered processes
- Required safeguards before hot work may begin
- Roles and responsibilities for authorization, monitoring, and completion of hot work
- The full permitting process, including field verification and documentation
- Permit retention requirements

This written program shall be reviewed annually and updated when changes occur that affect hot work practices.

15.2 Hot Work Permit Issuance and Authorization

Before any hot work is performed, the following criteria shall be met:

A. A Hot Work Permit must be completed and approved.

No hot work may begin without a fully executed permit.

B. Approval Authorities

- Host Facility Operations Representative – verifies the area is safe based on process conditions, chemical hazards, and atmospheric testing.
- De-Cal Supervisor or Site Safety Representative – ensures required controls are in place and validates the scope of work.
- Fire Watch – designated and trained prior to permit approval.

Only individuals trained and authorized by De-Cal are permitted to approve or sign hot work permits.

C. Required Conditions Before Hot Work

The permit must document that:

- The area is free of combustible materials or combustibles have been shielded.
 - All process piping or equipment containing flammable/combustible materials is isolated.
 - LOTO or appropriate isolations are in place (if applicable).
 - Atmospheric testing has been conducted when required (LEL < 10%).
 - Fire extinguishers are present and accessible.
 - A fire watch is assigned and understands their responsibilities.
 - Ventilation is adequate to prevent vapor accumulation.
 - All drainage points, trenches, pits, or sumps are controlled or covered.
 - All alarms, sprinklers, or fire suppression systems are operational unless otherwise approved.
-

15.3 Responsibilities**A. Hot Work Performer**

- Follow all permit requirements.
- Cease work immediately if any unsafe condition arises.
- Verify fire watch remains in place at all times.

B. Fire Watch

- Shall remain in place during the activity and for a minimum of 30 minutes after completion (or longer as required by facility policy).
- Must have fire extinguisher access and know how to use it.
- Must continuously monitor for sparks, flame spread, or smoldering materials.

C. De-Cal Supervisor

- Ensures all controls listed on the permit are implemented.
- Performs field verification.
- Stops work if conditions become unsafe.

D. Site Safety Representative

- Reviews and validates permit completeness.
- Ensures compliance with PSM and facility rules.
- Coordinates with host facility representatives.

15.4 Hot Work Permit Retention: In accordance with OSHA 1910.119(k)(2):

- Hot work permits shall be kept on file for a minimum of 1 year.
- Permits must be maintained at the jobsite during the hot work operation.
- Permits shall document:
 - Date and time issued
 - Exact location of work
 - Equipment or piping involved
 - Hazards identified
 - Controls put in place
 - Names and signatures of all approvers

Retained permits will be used for trend analysis, audits, and PSM program evaluation

15.5 Suspension or Cancellation of Permit: The permit shall be suspended or immediately canceled if:

- Unsafe conditions develop
- Process systems change or alarms activate
- Hazardous atmospheres are detected
- The fire watch leaves the area
- Hot work extends beyond approved time limits
- Weather conditions (for outdoor work) create additional hazards

A new permit must be issued before work may resume.

15.6 Integrity With Other PSM Elements: Hot work permits shall be coordinated with:

- Non-Routine Work Authorization
- Confined Space Entry
- Lockout/Tagout
- Management of Change
- Process Hazard Analysis (if system changes occur)

No hot work may occur on equipment with unknown or unverified contents, pressures, or temperatures.

16. Quality assurance: A quality assurance system will be used to ensure that the proper materials of construction are used, that fabrication and inspection procedures are proper, and that installation procedures recognize field installation concerns. The quality assurance program is an essential part of the mechanical integrity program and will help to maintain the first and secondary lines of defense that have been designed into the process to prevent unwanted chemical releases or those which control or mitigate a release.

16.1 Drawings. All "As built" drawings, together with certifications of coded vessels and other equipment, and materials of construction will be reviewed for verification. All pertinent drawings will be retained with other quality assurance documentation.

16.2 Installation. Equipment installation jobs will be properly inspected in the field for use of proper materials and procedures and to assure that qualified workers are used to do the job. The use of appropriate gaskets, packing, bolts, valves, lubricants and welding rods will be verified. Also, procedures for installation of safety devices will be verified, such as the torque on the bolts on ruptured disc installations, uniform torque on flange bolts, proper installation of pump seals, etc.

16.3 Equipment supplier audits. If the quality of parts is in question, an audit of the respective supplier will be conducted to ensure purchases of equipment are suitable for the intended service or purpose. Any changes in equipment that may become necessary will go through the management-of-change procedures.

17. Non-routine Work Authorizations: Non-routine work conducted in process areas will be controlled by the supervisor of the area in a consistent manner. The known hazards involving the work that is to be accomplished will be communicated to those doing the work, but also to those operating personnel whose actions could affect the safety of the process.

17.1 A work authorization notice or permit will contain a procedure that describes the steps the maintenance supervisor, contractor representative, or other person needs to follow to obtain the necessary clearance to get the job started. The following requirements will be addressed:

17.1.1 Pre-start coordination. The work authorization procedures will reference and coordinate, as applicable, lockout/tag-out procedures, line breaking procedures, confined space entry procedures and hot work authorizations.

17.1.2 Non-routine work authorization permit: A standardized permit will be developed and used by this company. The permit will detail the requirements to authorize non-routine work at specific job locations.

17.1.3 Job-closure coordination. The permitting procedure will also provide clear steps to follow once the job is completed in order to provide closure for those that need to know the job is now completed and equipment and operations can be returned to normal.

17.2 Non-routine work authorization permitting system: The Safety Director will maintain work authorization permits. All requests to perform non-routine work will be requested through the employees immediate supervisor. The site safety supervisor will coordinate the authorization permit with the concerned parties and approve the work authorization.

17.2.1 Before the work is authorized, the site safety supervisor will document the completion of the following measures:

16.2.1.2 Specify acceptable work conditions (see permit).

16.2.1.3 If required isolate the work area.

16.2.1.4 Purging, inert gas flushing, or ventilating the work area as necessary to eliminate or control atmospheric hazards (see confined space instructions).

16.2.1.5 Provide pedestrian, vehicle, or other barriers as necessary to protect workers from external hazards.

16.2.1.6 Verify that conditions in the work area are acceptable for the duration of the authorized work period.

16.2.1.7 Ensure supervisors affected by the non-routine work are notified and coordinated with.

16.2.1.8 Ensure all affected workers and workers that may affect the non-routing work are notified of the task to be accomplished.

16.2.1.9 Ensure that the site safety representative shall signs the work authorization to authorize the work to begin.

16.2.1.10 The completed permit shall be made available at the time of the work begins all authorized workers and their supervisors, by posting it at the work site or by any other equally effective means, so that the workers can confirm that pre-start preparations and authorizations have been completed.

16.2.1.11 The duration of the permit may not exceed the time required to complete the assigned task or job identified on the permit.

16.2.1.12 The supervisor shall terminate the work authorization and cancel the permit when:

- The operations covered by the permit are completed.
- A condition that is not allowed under the permit arises in or near the work area.

16.2.1.13 Develop and utilize checklists based on this standard practice instruction and 29 CFR 1910.119.

17.3 Canceled permit retention: This employer shall retain each canceled permit for at least 1 year to facilitate the review of the process safety program. Any problems encountered during the work authorization period shall be noted on the pertinent permit so that appropriate revisions to the process safety program can be made.

18. Managing Change: Change, for the purposes of this standard practice instruction include; all modifications to equipment, procedures, raw materials and processing conditions other than "replacement-in-kind". These changes will to be properly managed by identifying and reviewing them prior to implementation of the change. The operator must have the flexibility to maintain safe operation within the established parameters, any operation outside of these parameters requires review and approval by a written management-of-change procedure.

18.1 Management-of-change covers changes in process technology and changes to equipment and instrumentation. These changes may be the result of changes in production rates, raw materials usage, experimentation, equipment availability, new equipment, new product development, change in catalyst and changes in operating conditions to improve yield or quality.

18.2 De-Cal, Inc. will establish means and methods to detect both technical and mechanical changes.

18.2.1 Temporary change: Time limits for temporary changes will be established and monitored since, without control, these changes may tend to become permanent. Temporary changes are subject to the management-of-change provisions. In addition, the management-of-change procedures are used to insure that the equipment and procedures are returned to their original or designed conditions at the end of the temporary change. Proper documentation and review of these changes is invaluable in ensuring that the safety and health considerations are being incorporated into the operating procedures and the process.

- **Management-of-change authorization permit:** A standardized permit will be

developed and used by this company. The permit will detail the requirements to authorize management-of-change actions. **The permit will include as a minimum the following items/actions:**

- Description and the purpose of the change
- Technical basis for the change
- Safety and health considerations
- Changes required to operating procedures
- Maintenance procedures
- Inspection and testing change requirements
- Piping and instrument diagrams (P&IDs) changes
- Electrical classification changes
- Training and communications changes
- Pre-startup inspection requirements
- Duration if a temporary change
- Approvals and authorization

- Management-of-change authorization checklist. Where the impact of the change is minor and well understood, a check list reviewed by the site safety representative with proper communication to all employees concerned will be sufficient.

- Complex or significant design changes. For a more complex or significant design change, a process hazard audit with approvals by operations, maintenance, and the safety officer will be conducted and used. Changes in documents such as P&IDs, raw materials, operating procedures, mechanical integrity programs, electrical classifications, etc., will be noted so that these revisions can be made permanent when the drawings and procedure manuals are updated. Copies of process changes will to be kept in a designated location on the job site to ensure that design changes are available to operating personnel as well as to PHA team members when a PHA is being done or one is being updated.

19. Compliance Audits: To ensure that the Process Safety Management (PSM) program is effectively implemented and maintained, De-Cal, Inc. shall conduct regular compliance audits of all processes covered by OSHA's Process Safety Management standard. These audits will systematically evaluate the adequacy of the PSM program and ensure ongoing compliance with regulatory requirements and best practices.

19.1 Frequency of Audits: De-Cal, Inc. will perform a comprehensive PSM Compliance Audit at least once every three years. Audits may be performed frequently when:

- Significant process changes occur
- Major incidents or near-misses indicate deficiencies
- New processes or facilities are added that fall under PSM requirements

19.2 Audit Team Requirements: To comply with 1910.119(o)(2), the audit must be conducted by a team knowledgeable in the process, including at least:

- One member with expertise in the PSM-covered process being audited
- A De-Cal Safety Director or designee
- A representative from host facility operations (when applicable)
- Additional subject matter experts as required (maintenance, engineering, operations, contractors)

The team must be impartial and objective.

19.3 Audit Scope: Each audit shall evaluate the performance, implementation, and documentation of all PSM elements, including but not limited to:

- Employee Participation
- Process Safety Information (PSI)
- Process Hazard Analysis (PHA)
- Operating Procedures
- Training
- Contractors
- Pre-Startup Safety Review (PSSR)
- Mechanical Integrity (MI)
- Hot Work Permits
- Management of Change (MOC)
- Incident Investigation
- Emergency Planning and Response
- Trade Secret

19.4 Audit Findings & Certification: Upon completion of the audit, the audit findings shall be documented in a written compliance audit report. The audit report shall include: Areas in full compliance, deficiencies and noncompliance details, recommended corrective actions, responsible personnel, required completion dates, evidence to support findings.

As required by OSHA 1920.119(o)(3) De-Cal shall certify that the audit was conducted and that the findings are accurate and complete

19.5 Corrective Actions: De-Cal shall:

- Promptly address all audit findings
- Assign responsible personnel to each corrective action
- Establish realistic due dates
- Track the status of corrective actions to completion
- Verify effectiveness after implementation

Corrective action closure will be documented and included in the audit file.

19.6 Record Retention: Audits and all associated documentation shall be retained for at least two completed audit cycles, or a minimum of six years

19.7 Communication of Audit Results: Audit results shall be shared with affected employees, reviewed during safety meetings and PSM updates, communicated to host facility representatives upon request.

20. Emergency Preparedness.

20.1 Emergency action plan: De-Cal, Inc. will develop and implement an emergency action plan for all facilities which we are performing work. The EAP will facilitate the prompt evacuation of employees due to highly hazardous or IDLH situations.

20.1.1 Alarm system: This employer will have a plan that will be activated by an alarm system to alert employees when to evacuate and will ensure that, employees who are physically impaired, will have the necessary support and assistance to get them to the safe zone. The intent of these actions will be to alert and move employees to a safe zone quickly. Delaying alarms or confusing alarms will be avoided. Each site in accordance with local jurisdictions will have their own unique set of alarms and notifications distinctive to the emergency scenario (e.g. Fire, Chemical Release, Tornado, Active Shooter, Lightning, etc.)

20.1.2 Evacuation/relocation: If an alarm is sounded and the decision to evacuate the area, is made then the emergency action plan will be activated. For any outdoor process where wind direction is important for selecting the safe route to a refuge area, a wind sock or pennant will be placed at the highest point that can be seen throughout the process area. Employees can then move in the direction of cross wind to upwind to gain safe access to the refuge area by knowing the wind direction. The designated MUSTER points will be identified and conveyed at the time of training.

20.1.3 Training: Before implementing the emergency action plan, De-Cal will train enough people to assist in the safe and orderly emergency evacuation of employees. [29 CFR

1910.38(e)] De-Cal will review the plan with each employee when the initial plan is developed and when each employee is initially assigned to the job. [29 CFR 1910.38(f)(1)] De-Cal will review the plan with each employee when his/her actions or responsibilities under the plan change or when the plan changes. [29 CFR 1910.38(f)(2) and 29 CFR 1910.38(f)(3)]

De-Cal will educate our employees about the types of emergencies that may occur and train them in the proper course of action. De-Cal will assure that all employees understand the function and elements of the emergency action plan, including types of potential emergencies, reporting procedures, alarm systems, evacuation plans, and shutdown procedures. Any special hazards onsite such as flammable materials, toxic chemicals, radioactive sources, or water-reactive substances will be discussed and planned for.

Training for De-Cal employees will address the following:

- Individual roles and responsibilities.
- Threats, hazards, and protective actions.
- Notification, warning, and communications procedures.
- Means for locating family members in an emergency.
- Emergency response procedures.
- Evacuation, shelter, and accountability procedures.
- Location and use of common emergency equipment.
- Emergency shutdown procedures.

20.1.4 Roles and Responsibilities: De-Cal will clearly communicate to all employees during training in accordance with jurisdictional requirements who will be in charge during an emergency to minimize confusion.

21. Employee Participation Plan

21.1 Purpose: This Employee Participation Plan defines how De-Cal ensures employee involvement in all phases of the PSM program and specifies how employees may access PHA and PSI documentation.

21.1.1 OSHA Requirement: OSHA 29 CFR 1910.119(c) requires a written participation plan, employee consultation, and employee access to all PSM information including PHA and PSI documentation.

21.1.2 Policy Statement: De-Cal supports active employee involvement in hazard identification, PSM development, and access to PHA, PSI, and other process safety documentation without fear of retaliation.

21.1.3 Employee Access to PHA Documentation & PSI: Employees may access Process Hazard Analyses (PHAs), Process Safety Information (PSI), SDS/SDS sheets, P&IDs, operating limits, safety system descriptions, SOPs, MOC records, incident investigation reports, and PSM training requirements.

21.1.4 Methods for Accessing Documentation: Employees may request access from their supervisor, the site Safety Representative, or the Corporate Safety Director. PSM documents are maintained in the Site Safety Office, and digital copies may be provided upon request.

21.1.5 Employee Participation in PSM Activities: Employees may participate in PHA teams, incident investigations, operating procedure reviews, Management of Change evaluations, and safety committee meetings.

21.1.6 Communication Methods: De-Cal communicates PSM information through toolbox

talks, safety meetings, PTAs/JHAs, email notifications, safety board postings, and direct communication with supervision or safety personnel.

21.1.7 Protection Against Retaliation: Employees have the right to request PSM information, report hazards, or participate in safety activities without fear of retaliation.

21.1.8 Recordkeeping: De-Cal maintains records of employee participation in training, PHAs, investigations, and procedure reviews in accordance with OSHA requirements.

21.1.9 Program Review: This plan is reviewed annually and updated whenever changes to the PSM program occur.

Section 35 – Maintenance Program

Purpose:

The purpose of the De-Cal “Equipment Maintenance Program” is to provide tools and equipment that are safe to use, to avoid equipment break-downs that lead to lost productivity, and to provide quality installation services to our customers.

Objectives:

The objective of this program is to safely install a quality product as efficiently as possible.

Inventory:

An inventory list for all company equipment has been established and maintained. As new equipment is acquired, and old equipment discarded, the computer based inventory system is maintained as current at all times.

Process:

Before tools and / or equipment leave the De-Cal, Inc. warehouse, they are inspected, repaired if necessary, or properly disposed of and replaced. De-Cal Inc. employs full time mechanics that are qualified in preventative maintenance and equipment repair. All preventative maintenance and equipment repair is documented.

On Site Equipment Break-down:

If and when tools and / or equipment break-down at the project site, the equipment is tagged (Red Tag – Do Not Operate). The Field supervisor is notified, and replacement equipment is shipped from the warehouse. Damaged equipment is brought back to the warehouse, repaired or discarded.

Equipment requiring certification or re-certification:

Equipment such as Rigging Components, Chain-Falls, Come-Along, Torque-Wrenches, Laser-Levels, Back-Flow-Preventers, and Holiday-Testers are certified annually. If equipment requiring certification becomes damaged, the equipment is repaired by an authorized repair technician and re-certified before it is returned to service. A preventative maintenance and inspection schedule has been established to meet all manufacturer and legislated requirements for that piece of equipment. The De-Cal preventative maintenance schedule, has been established to meet all manufacturer requirements and industry standards.

Section 36 – Step Back Program

"STEP BACK" is an informal personal process to identify hazards associated with **ALL** tasks before, during, and after starting a job. **"STEP BACK"** is a personal planning tool used to control immediate hazards as you go about your day-to-day work

"STEP BACK"

Is based on the principle of:

ENGAGING THE MIND BEFORE THE HANDS

BY:

- STOPPING,**
- STEPPING BACK FROM THE JOB,**
- TAKE YOUR TIME TO STEP THROUGH THE JOB IN YOUR MIND AND IDENTIFY PLANS TO CONTROL HAZARDS BEFORE STARTING THE JOB,**
- LOOK AROUND, SCAN THE ENVIRONMENT FOR HAZARDS.**

The process is used continuously throughout the day's activities to help recognize when conditions or circumstances change during a job and prompt us to **STEP BACK AND THINK** through any emerging issues.

BEFORE THE JOB:

- STOP and THINK!**
- OBSERVE** the work area and surroundings.
- THINK** about what else is happening in the area or nearby.
- IDENTIFY** what else could go wrong.
- SATISFY** yourself that the hazards are controlled **BEFORE** starting the work.

DURING THE JOB:

- Be aware that when performing a routine task, it is possible to get into an automatic mode of operation.
- If it is a long routine task, take short regular breaks to re-focus on the job, work environment, and related hazards.
- Pay attention to changing conditions and additional hazards brought about by performing work with other trades or crafts working in or entering your work area.
- When a job is coming to a conclusion or a natural break (meal time), re-focus your effort on what is required to complete the task safely.

AFTER THE JOB:

- Observe the work area.
- Take action to control any hazards that may have been created by the work.
- Reflect on how well the job went, and the mental process that you used.
- Did you feel safe doing the job?
- Were others around you working safely?

Section 37 – Aerial Lift Platforms

The purposes of these guidelines are to provide De-Cal employees with industry accepted safety training that is in line with MIOSHA Standards and to provide, for all employees, any training and / or equipment necessary to do their job safely.

"Authorized Employees" are De-Cal employees that have received Aerial-Lift Training. Personnel will be trained on the machine that they will be operating.

37.1 Safety Guideline

This section shall discuss the operational rules for Scissors-Lifts and Articulating Booms Lifts.

- Test controls daily **BEFORE USING.**
- Do a "walk around" before using any lift to check for any defects before using the lift.
- Authorized operators only.
- Do not tie off to adjacent structures.
- Stand in the basket, not on it.
- Attach your body harness and lanyard system to an approved attachment point.
- Don't wear climbers.
- Insure the override controls are not operated unless conditions warrant.
- De-Cal, Inc. requires 100% tie off in all lifts, including scissors, at all times.**

37.2 Pre-Start Inspection

Prior to use of any aerial platform each day, or at the beginning of each shift, the operator shall visually inspect and/or perform a functional test of the following (please refer to the Safety Forms section for the appropriate required inspection form for the type of equipment being used/inspected):

- Operating and emergency controls
- Safety and warning devices
- Personal Protective Equipment
- Hydraulic and fuel systems leaks
- Cable and wiring harnesses
- Loose or missing parts
- Wire rope, cable, and sheaves
- Tires and wheels

- Placards on rated load capacity, operating speeds, hazard warnings and other essential information
- Outrigger and stabilizers
- Fuel, water, oil levels, battery charge
- Gauges, horns, and lights
- Vehicle damage – deformation or structural cracks or fracture

8.3 Problems and Malfunctions

The operator shall promptly report any and all problems or malfunctions on any aerial platform to the jobsite supervisor/foreman.

The jobsite supervisor/foreman will determine the effect(s) of any aerial platform problem or malfunction on the safety of operations of such equipment and the level of experience needed for repair.

If correction or repair of an unsafe item cannot be made immediately, the unit shall be tagged "***Danger - Do not Operate***" and removed from service until the corrective action has been taken.

8.4 Workplace Inspections

Prior to and during the use of any aerial platform, the operator shall check the workplace area in which the unit is used for hazards such as:

- Drop offs, holes, bumps and floor obstructions
- Materials, equipment, and debris
- Overhead obstructions and high voltage conductors
- Hazardous material locations
- inadequate surface and support to withstand all load forces imposed by the mobile equipment in all operating configurations
- Wind and weather conditions
- Presence of unauthorized persons

In the event that any of the above work area hazards exist, the operator shall take the appropriate safeguards when operating aerial platform in such areas.

8.5 General Safe Practices

- Routine maintenance, fueling or repairs must not be performed while the equipment is in use, engine running or power on
- **Keep all body parts inside and below all guardrails when driving the Aerial Lift through openings that have limited access, such as a doorway.**
- **Before and during driving while elevated, an operator of a platform shall do both of the following: (a) Look in the direction of, and keep a clear view of, the path of travel and make sure that the path is firm and level.**
- **Employees should avoid moving any elevated aerial lift more than what would be required to put a basket in position to Facilitate work while having to look over their shoulder.**
- **A spotter should be utilized when moving an aerial lift around areas that pose collision hazards.**
- **Employees should not drive a self-propelled aerial lift in the elevated or raised position as it increases the potential to contact an overhead hazard.**
- **Fall Protection is required at all times when working in Scissors-Lifts and Boom-Lifts. Retractable lanyards will be used for this application.**
- **Boom and Basket load limits specified by the manufacturer will not be exceeded.**
- 'When handling or recharging batteries or using jumper cables, a face shield must be worn
- Stunt driving or horseplay on any aerial platform is **strictly prohibited.**
- The use of planks, ladders or any other device on any aerial platform lift for the purpose of achieving additional height or reach is strictly prohibited.
- The use of safety harnesses with lanyard attached to the anchor rings on aerial platform boom lift equipment is mandatory.

***WARNING* It is unlawful to operate forklift trucks, aerial platform lifts or any other aerial platform within ten (10) feet of high voltage lines of 50,000 volts or less.**

- **All LPG fueled aerial platforms shall be equipped with a low fuel indicator light and horn.**
- Operators of LPG fueled aerial platform shall adhere to the following procedures for changing fuel cylinders:
- **Make sure before changing a propane cylinder that you have moved the aerial platform at least fifty feet (50') outside the building. If you cannot move the aerial platform outside the building then you must ensure that there is no cutting, welding, or any source of ignition within three hundred feet (300') of the aerial platform before changing the fuel cylinder. Also you must make sure your supervisor and the safety person are present before changing the cylinder in the building.**
- **All propane cylinders shall only be moved with an approved cylinder caddy and lifted by proper means.**
- **Persons changing a propane cylinder will wear safety glasses and approved safety gloves that will be provide by De-Cal, Inc. Also a leak detector will be used before and after changing the cylinder to ensure against leaks.**
- Close container valve by turning to the right (clockwise)
- Operate engine until it stops. All gas vapors should now be burned. Turn the key switch off
- Disconnect fuel line at quick-disconnect coupling. Tools should not be required to connect or disconnect coupling
- Loosen container fastener; swing and lift up container mounting; remove cylinder
- Replace with recharge cylinder by reversing the above procedure. Make sure that tank locating hole is secured over the positioning pin in the tank cover
- Open tank valve slowly to insure that the automatic safety check valve does not cut off fuel supply
- Replace empty LPG cylinder in a rack or in a lockable designated storage area to protect against possible damage that is located outside.

Operators of aerial platforms must receive training in their uses before being authorized to operate equipment.

8.6 Aerial Platform Inspections

A qualified person this is to ensure that all aerial platform are maintained in safe and proper working order in accordance with the manufacturers operating maintenance specifications and shall perform frequent inspections of all aerial platform.

8.7 Operator's Training and Authorization

Only properly trained employees shall be authorized to operate Aerial Lift Equipment. Training for each specific type of aerial platform is mandatory prior to authorization being given to the employee to operate that specific type of equipment

Training for all Aerial Lift Equipment shall include the following:

- Review of the Safety and Operations Manual for the type of aerial platform
- Viewing of a training video on safety and proper operation of the specific type of aerial lift

Upon successful completion of the training course for each type of aerial platform, the employee will sign an acknowledgement stating that they have received training and that they understand all safety and functional procedures required to operate aerial platforms.

The supervisor and/or the trainer will also sign an acknowledgement stating that the employee has successfully completed a training course for aerial platforms and is therefore authorized to operate such equipment of the job site, and will be issued an operator's card with the equipment noted.

A record of each employees training and authorization shall be maintained by De-Cal, Inc. for two (2) years after which time the employee shall be retrained unless equipment specific annual training is required.

8.8 Modifications

Modifications of Aerial-lifts is strictly prohibited unless the modification is approved by the manufacturer in writing. The addition of job-made hooks, baskets tool holders, or material holders of any kind is prohibited by De-Cal Management and the De-Cal Safety Department. Never use any device within an aerial-lift to gain additional elevation within an aerial-lift work platform.

The use of OSHA Variance Standard: 1926.451(b) is no longer a valid option as manufactured products have now been made available. Consider the use of a product called the "SHU", available through most Aerial-Lift rental agencies.

Section 38 – First Aid Procedures

The purpose of this procedure is to establish clear guidelines for incidents that cause injury at the jobsite. Prompt medical attention, first-aid services, or outside care should be used or given to treat any injury sustained on the job.

38.1 First Aid Supplies

If adequate first-aid facilities and care are not readily accessible, the Safety Director or Project Manager should establish and maintain an approved first-aid kit at the jobsite office. This kit should be weather proofed with individually sealed packages of each type of item. Emergency first-aid kits shall be maintained at each site office with multiple or remote locations.

The Project Manager shall ensure that adequate supplies are maintained. This will be done by an approved vendor visiting the jobsite weekly to take a physical inventory and re-stock the used supplies. All first aid supplies will be thoroughly inspected before being sent to the job site.

38.2 First Aid Training

The Safety Director/Project Manager shall determine whom to designate as an onsite employee(s) as a first-aid provider for treatment. Anyone who is designated as a first-aid provider must have a valid first-aid card from the American Red Cross or equivalent, as well as being certified in emergency response and first aid procedures. Any employee(s) who is designated as a first-aid provider by the supervisor will participate in the De-Cal, Inc. Blood-borne Pathogens Exposure Control Program and must be informed of and trained on the requirements of OSHA's Blood-borne Pathogen Standards. Concentra Medical Centers will be used for minor injuries. 911 or site specific emergency procedures will be used to transport critically injured or ill personnel when necessary.

38.3 Medical Record Keeping

Medical records are maintained by the Safety Director and are kept in strict confidence. Requests for information may be made by contacting the Safety Department. No information in violation of any federal, state, or local law will be released.

38.4 Employee Transportation

For minor injuries (i.e., lacerations, strains, minor sprains), the injured employee will be transported by the Site Safety Coordinator or jobsite Supervisor/ Foreman in a personal vehicle (to be compensated by the current mileage reimbursement plan in effect) to a pre-determined medical service facility capable of evaluating, and treating the injury. For injuries and medical conditions that are beyond the standard capabilities of routine first aid or are considered life threatening, an ambulance will be used. All emergency services required

to handle such emergencies will be pre-determined and listed on the emergency phone number form that is posted near each phone used at the facility

38.5 Emergency Eyewash

Each jobsite will have eyewash areas located in or near the established first-aid facility. In situations where the potential for eye injuries is high or where the work location is not near the first-aid facility, the supervisor will make sure that temporary eyewash areas are in strategic locations in the work area.

Section 39 – Forklift / Power Industrial Truck Safety Program

The purpose of this program is to establish procedures for the safe operation of power industrial trucks at De-Cal, Inc. Worksites and Warehouse facilities. Construction activities are required by the OSHA Standard 1926.602 (Material Handling) to train and monitor employee operation of power industrial trucks.

This program additionally supports compliance with the Occupational Safety and Health Administration Powered Industrial Truck Standard, as found in 29 CFR 1910.178. This program applies to all De-Cal, Inc. employees, permanent or temporary, who are required to operate material-handling equipment, including forklifts, reach trucks, and powered pallet jacks.

Definitions

- *Authorized Operator:* An employee who has satisfactorily completed both classroom and operation training on material-handling equipment at the company's facilities.
- *Load Center:* The horizontal distance from the edge of the load (or the vertical face of the forks or other attachment) to the load's center of gravity.
- *Rated Capacity:* The maximum weight that the powered industrial truck is designed to lift, as determined by the manufacturer.

Responsibilities

Powered Industrial Truck Operators:

Operators are responsible for the following (and as covered under OSHA general Industry Standard 1910.178):

- Operating all powered industrial trucks in a safe manner consistent with safe rules of operation.
- Inspecting powered industrial trucks at the beginning of each work shift and completing the appropriate inspection forms.
- Reporting all equipment malfunctions and/or maintenance needs to their supervisors immediately. Park lift in safe place, remove key, tag or note problem.

Training Requirements

All personnel who operate forklifts, scissor lifts, boom lifts, and powered hand trucks, are required to have the following training.

Training shall consist of a combination of formal instruction (e.g., lecture, discussion, interactive computer learning, video tape, written material), practical training (demonstrations performed by the trainer and practical exercises performed by the trainee), and evaluation of the operator's performance in the workplace. Someone who is authorized, qualified and determined to be competent shall conduct all training.

Training Program Topics

Training shall include providing information on the following topics:

- Operating instructions, warnings, and precautions for the types of truck the operator will be authorized to operate;
- Differences between the truck and the automobile;
- Truck controls and instrumentation: where they are located, what they do, and how they work;
- Engine or motor operation;
- Steering and maneuvering;
- Visibility (including restrictions due to loading);
- Fork and attachment adaptation, operation, and use limitations;

- Vehicle capacity and stability;
- Any vehicle inspection and maintenance that the operator will be required to perform;
- Refueling and/or charging and recharging of batteries;
- Operating limitations;
- 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.
- Workplace-related topics:
 - Surface conditions where the vehicle will be operated;
 - Composition of loads to be carried and load stability;
 - Load manipulation, stacking, and unstacking;
 - Pedestrian traffic in areas where the vehicle will be operated;
 - Narrow aisles and other restricted places where the vehicle will be operated;
 - Hazardous (classified) locations where the vehicle will be operated;
 - Ramps and other sloped surfaces that could affect the vehicle's stability;
 - Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust; and
- Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation.

Refresher Training Requirements

Refresher training, including an evaluation of the effectiveness of that training, shall be conducted to ensure that the operator has the knowledge and skills needed to operate the powered industrial truck safely.

Refresher training will be conducted when:

- The operator has been observed to operate the vehicle in an unsafe manner;
- The operator has been involved in an accident or near-miss incident;
- The operator has received an evaluation that reveals that the operator is not operating the truck safely;
- The operator is assigned to drive a different type of truck; or
- A condition in the workplace changes in a manner that could affect safe operation of the truck.

An evaluation of each powered industrial truck operator's performance shall be conducted at least once every three years. Employee training records shall be maintained for 5 years.

Program Activities

Equipment Inspection and Maintenance

- Each powered industrial truck will be inspected before each shift.
- A file will be maintained that lists the shift inspections of equipment. This file will be kept at the De-Cal, Inc Administration Offices.
- A maintenance log will be kept that identifies repair needs and corrective actions taken for each powered industrial truck. This log will be kept at the Maintenance Administration Offices.
- If repairs are needed on a powered industrial truck such that it cannot be safely operated, it will; be taken out of service until the repairs have been made.
- After repairs have been completed, the powered industrial truck will be given a performance test to ensure that the equipment is safe to operate.

- Powered industrial trucks will be kept in clean condition, free of dirt, excess oil and grease.

Changing and Charging Batteries

- Equipment will be provided to safely flush and neutralize spilled battery acid and electrolyte.
- Smoking will be prohibited in all battery-charging areas.
- Eyewash equipment will be maintained in all charging areas.
- Precautions will be taken to prevent open flames, sparks and electric arcs in charging areas.
- Employees who change and service batteries and handle corrosive liquids will wear the proper Personal Protective Equipment (PPE).

Safe Work Practices

General Safe Work Practices

- Only authorized, trained personnel shall operate lift trucks.
- Before start of shift, a visual inspection must be conducted. Employees shall not operate an unsafe forklift at any time.
- Fill fuel tanks out of doors while engine is off.
- Operators shall drive with both hands on the steering wheel. Horseplay is prohibited. Do not drive with wet or greasy hands.
- No person shall ride as a passenger on a forklift or on the load being carried.
- A forklift will not be used to elevate a platform or pallet with persons on it, except work platforms especially designed for this purpose. Work platforms must have standard guard rails, and must be securely fastened to the forks.
- No person shall stand or walk under elevated forks.
- Operators should avoid making jerky starts, quick turns, or sudden stops. The operator will not use reverse as a brake.
- Slow down on wet and slippery surfaces and at cross aisles or locations where vision is obstructed.
- Operators entering a building or nearing a blind corner shall make their approach at reduced speed. Sound horn and proceed carefully.
- Operators shall give pedestrians the right-of-way at all times.
- Operators shall not drive toward any person who is in front of a fixed object or wall.
- Operators shall not overtake and pass another forklift traveling in the same direction, at intersections, blind spots, or hazardous locations.
- Operators should not put their fingers, arms, or legs between the uprights of the mast, or beyond the contour of the forklift.
- Forks should always be placed under the load as far as possible. Do not lift a load with one fork.
- No load should be moved unless it is absolutely safe and secure.
- Use extra care when handling long lengths of bar stock, pipe, or other materials.
- Avoid sharp or fast end-swing.
- Compressed gas cylinders shall be moved only in special pallets designed for this purpose.
- When unloading trucks or trailers, the brakes on the vehicle will be set (locked) and the wheels chocked.
- Forklifts must be safely parked when not in use. The controls shall be neutralized, power shut off, brakes set, key removed, and the forks left in a down position flat on the surface, and not obstructing walkways or aisles.
- A forklift shall not be left on an incline unless it is safely parked and the wheels blocked.
- Only stable and safely arranged loads will be handled.
- Only loads within the rated capacity of the powered industrial truck will be handled.

Traveling

- All project speed limits will be observed, and under all travel conditions, a powered industrial truck will be operated at speeds that will permit it to be brought to a stop in as safe manner.
- Three truck lengths (or two seconds) will be maintained between powered industrial trucks in operation.
- The powered industrial truck will be kept under control at all times.
- When vision is obscured, the operator will slow down and sound the horn.
- If the load blocks the operator's view, the powered industrial truck will be driven in the direction that provides the best visibility.
- The powered industrial truck will cross railroad tracks at a diagonal.
- The powered industrial truck will be parked 8 feet or further from the center line of the railroad tracks.
- The operator will keep a clear view of the path of travel.
- The loaded powered industrial truck will be driven with the load upgrade when driving on ascending or descending grades greater than 10%.
- Dock boards and bridge plates will be properly secured before they are driven over.
- When the forklift is not carrying a load, the operator shall travel with the forks as low as possible (maximum of 3 inches on paved surfaces). When carrying a load, it should be carried as low as possible (consistent with safe operation, 2 to 6 inches above the surface.)
- The forks should not be operated while the forklift is traveling.
- On a downgrade, the load shall be last, and the forks raised only enough to clear the surface.
- On an upgrade, the load shall be first, and the forks raised only enough to clear the surface.

Section 40 - ASBESTOS

Asbestos Exposure Control

General

OSHA regulates exposure to asbestos in great detail. De-Cal, Inc. is not equipped to perform asbestos installation or abatement work. The OSHA regulations are found at 29 CFR 1926.1101. There may be additional federal, state and local regulations as well.

Whenever asbestos is encountered or even suspected in areas where we are working, the Safety Department should be contacted immediately for assistance. Special licensing and certification are required to perform asbestos-related work and De-Cal, Inc. is not qualified. Under no circumstances are De-Cal, Inc. employees to remove or disturb any asbestos containing material (ACM).

There may be times, however, when we encounter asbestos, either during demolition work or in the midst of work by other contractors on site. The following information is provided to acquaint our personnel with the basics of asbestos and the hazards associated with it, in order to recognize and control potential exposures.

What Is Asbestos and Where Is it Used?

- Asbestos is a combination of minerals (chrysotile, amosite and crocidolite, and the asbestos forms of tremolite, actinolite and anthophyllite) obtained from mines. Its ability to separate into thin, strong particles makes it highly suitable for use as a noncombustible, nonconducting and chemically resistant material. In its natural state, asbestos is a fluffy, fibrous material.
- Asbestos was first used in the 1880s as installation for steam pipes (pipe covering). Currently, the construction industry uses about 70% of all asbestos for cement products, roofing, plastics, insulation and floor tiling. Asbestos is also used for fireproof clothing, fire-resistant curtains, automotive undercoating, brake and clutch linings, and nose cones of space vehicles.
- Asbestos cannot be recognized by ordinary observation; a sample must be tested in a laboratory using polarized light microscopy (PLM) or an electron microscope.
- Asbestos may be found in wallboard, drywall tape compounds, pipe coverings, plaster, cement products, transite, cement pipe, roofing materials, laboratory cabinet liners, heating duct insulation and other areas.

Multiemployer Work Sites

On multiemployer worksites, an employer performing work that involves asbestos is required to inform all other employers that asbestos is on site, as well as the requirements pertaining to regulated areas. The contractor is also required to notify other employers, including De-Cal, Inc. of measures taken to assure that other companies' employees are not exposed to asbestos.

Our employees who are potentially exposed to asbestos are required to comply with applicable protective measures. We may choose to remove our employees from the area until the hazards no longer exist.

All workers who may be exposed to asbestos are required to complete training applicable to the authority having jurisdiction and comply with applicable protective measures. This training will be repeated annually or if any changes are made. This training will be for all employees who have a potential to an exposure at or over the PEL. Training will stress all health effects associated with exposure to Asbestos. This will also include information on the relationship between smoking and exposure to asbestos and how it relates to lung cancer. All training will be documented, and records kept accordingly.

If we are working near another contractor or owner who is performing asbestos-related work, we are required to “take steps on a daily basis to ascertain the integrity of the other employer’s enclosure and/or the effectiveness of the control method relied on by the asbestos contractor.” (OSHA Standard 1926.1101(d).) This measure ensures that our employees are not exposed to friable asbestos as the result of another contractor’s failure to perform its duty to contain asbestos fibers.

Training

□ **ALL CLASS I WORK**

The training shall be 32 hours in length, equivalent to the Environmental Protection Agency (EPA) Model Accreditation Plan (MAP) asbestos workers training, and be provided by an EPA or Michigan approved training course provider. NOTE: The Asbestos Program has interpreted glued-on style ceiling tiles as meeting the definition of a “surfacing material.” Therefore, the removal of glued-on style ceiling tiles would require the 32-hour worker training.

□ **CLASS II WORK WHERE CRITICAL BARRIERS (OR EQUIVALENT ISOLATION METHOD) AND/OR NEGATIVE PRESSURE ENCLOSURES ARE REQUIRED TO BE UTILIZED**

The same as Class I requirements.

□ **CLASS II WORK INVOLVING ROOFING MATERIALS, FLOORING MATERIALS, SIDING MATERIALS, LAY-IN STYLE CEILING TILES OR TRANSITE PANELS**

The training shall include, at a minimum, all elements of paragraph (k)(9)(viii) and the specific work practices and engineering controls set forth in paragraph (g) which specifically relate to the category of the material being removed. The training shall be at least eight hours in length and include “hands-on” training. The training shall be provided by “a knowledgeable person (such as a person who qualifies as a ‘competent person’ for the particular type of asbestos work addressed in the training).” It is recommended that this training be provided by an EPA or Michigan approved training provider. NOTE: Federal OSHA, pursuant to the Roofing Industry Settlement Agreement and subsequent revisions to the standard, has stated that the roofing materials covered by Class II does not include flashing which contain asbestos fibers encapsulated or coated by bituminous or resinous compounds. These roofing materials are referred to as “incidental roofing materials.” Under the agreement, when intact “incidental roofing materials” are the only asbestos-containing materials present on a roof, the job is no longer considered a Class II job. Instead, “incidental roofing materials” are regulated under paragraph (g)(11) and the training provisions specified by paragraph (g) (11)(ii) apply. Paragraph (g)(11)(ii) requires that all of the topics in paragraph (k)(9)(viii) be covered during the training, however, there is no minimum length of training specified. Additionally, there are no “hands-on” training requirements and no refresher training requirements pursuant to paragraph (k)(9)(viii). The required training shall be provided by “a knowledgeable person (such as a person who qualifies as a ‘competent person’ for the particular type of asbestos work addressed in the training).” It is recommended that this training be provided by an EPA or Michigan approved training provider. As a result of the settlement agreement, the Class II roofing material designation is now limited to situations in which the main asbestos-containing roofing material being removed is either built-up roofing or shingles (transite or asphalt style), or where the “incidental roofing materials” are no longer intact.

□ **CLASS II WORK INVOLVING MORE THAN ONE OF THE CATEGORIES OF THE MATERIALS SPECIFIED IN PARAGRAPH (k)(9)(iv)(A)**

The training shall cover, at a minimum, the specific work practices applicable for each category of material being removed and each removal method utilized. The training shall be greater than eight hours in length with additional time given to each other specific asbestos-containing building material being removed. This training shall include “hands-on” training for each category of material being removed and be provided by “a knowledgeable person (such as a person who qualifies as a ‘competent person’ for the particular type of asbestos work addressed in the training).” It is recommended that this training be provided by an EPA or Michigan approved training provider.

□ **CLASS II WORK NOT INVOLVING THE CATEGORIES OF BUILDING MATERIALS SPECIFIED IN PARAGRAPH (K)(9)(IV)(A)**

The number of training hours is not specified, however, pursuant to preamble clarifications, the training shall include, at a minimum, all elements included in paragraph (k)(9)(viii) and the specific work practices and engineering controls in paragraph (g) which specifically related to the type of material being removed and each removal method utilized. The preamble also states that this training shall include “hands-on” training. Furthermore, the training course would likely require at least four hours to cover the required topics, removal methods and the “hands-on” training. This training shall be provided by “a knowledgeable person (such as a person who qualifies as a ‘competent person’ for the particular type of asbestos work addressed in the training).” It is recommended that this training be provided by an EPA or Michigan approved training provider.

□ **CLASS III WORK**

The training shall be consistent with EPA requirements for training of maintenance and custodial staff as set forth as 40 CFR 763.92(a)(2). The training shall be 16 hours in length, include “hands-on” training, and be provided by “a knowledgeable person (such as a person who qualifies as a ‘competent person’ for the particular type of asbestos work addressed in the training).” It is recommended that this training be provided by an EPA or Michigan approved training provider. EXCEPTION: If a well trained competent person determines that the 16-hour EPA training does not adequately cover all topics needed to perform a specific type of Class III work, the competent person may authorize an alternative training program. This has been clarified in the preamble to mean that the competent person can require training topics to be added to the 16-hour training course if the competent person believes the course does not adequately cover all of the necessary work practices and engineering controls needed to perform the specific task at hand. On the other hand, should the competent person deem the training too extensive for a specific type of Class III work, the competent person may require fewer than the 16 hours of training by specifically designing a training course which covers the limited type of Class III work to be performed. In either situation, the training shall include, at a minimum, all elements of Paragraph (k)(9)(viii) and the work practices and engineering controls in paragraph (g), which specifically relate to the category of material being removed and the removal method utilized. Additionally, “hands-on” training is required for these modified training courses.

□ **CLASS IV WORK**

The training shall be a minimum of two hours in length and be consistent with the EPA training requirements set forth at 40 CFR 763.92(a)(1). Class IV training does not require “hands-on” training. •

□ **TRAINING FOR EMPLOYEES WHO ARE LIKELY TO BE EXPOSED IN EXCESS OF THE PEL AND WHO ARE NOT OTHERWISE REQUIRED TO BE TRAINED UNDER PARAGRAPHS (k)(9)(iii) THROUGH (vi)**

The employees shall be trained pursuant to paragraph (k)(9)(viii). All training must be provided prior to or at the time of initial assignment and at least annually thereafter (i.e., refresher training). Each training curriculum has specific refresher training requirements: 1. Refresher training for Class I workers, Class I competent person and Class II workers requiring the full 32-hour initial training, shall be eight hours in duration and equivalent to the refresher training provisions set forth at 40 CFR Part 763, Subpart C, Appendix C. 2. For all others trained under the standard [except for those involved in 29 CFR 1926.1101(g)(11) activities, (i.e., certain roofing and pipeline coating materials)], an annual refresher is required; however, the duration is not specified. Pursuant to preamble clarifications, OSHA believes that “hands-on” training is essential for both initial and refresher training. To cover all of the essential health information and the “hands-on” training, the duration of the refresher training for Class II and III

worker is expected to be a minimum of two hours in length. Finally, although refresher training is required for Class IV work, the duration of this refresher training is not specified, and “hands-on” training is not a mandatory component of the training.

Regulated Areas

All asbestos-related work must be performed in “regulated areas.” Regulated areas are required to be identified by signs and have warnings posted. We are not to enter any regulated areas because that may expose our employee to asbestos fibers.

Work Practices and Engineering Controls

The following control measures will introduce engineering controls, administrative controls and work practices to reduce/maintain exposure below applicable limits.

- **Engineering Controls** - Over an eight-hour shift, workers must not be exposed to more than an average of one-tenth of a fiber of asbestos longer than five micrometers in a cubic centimeter of air (0.1 f/cc). In addition, employers must ensure that workers are not exposed to more than one (1) f/cc of airborne asbestos averaged over a thirty-minute period.
In order that the standard is adhered to, the employer must use engineering controls such as isolation, enclosure, local exhaust ventilation systems, and dust collection. The employer (and involved workers) should make sure that the local exhaust ventilation system(s) is/are operating properly. If the system(s) is/are deficient, this should be reported immediately. Until the necessary repairs are made, the worker(s) must be supplied with an appropriate respirator.
- **Work Practices and Procedures** - In order that asbestos exposure is minimized/eliminated, the employer must develop and use appropriate, protective work practices and procedures. Issues of concern would include housekeeping procedures, wet-cleaning and vacuuming asbestos-containing waste and debris, and disposal of asbestos waste. Adherence to protective work practices and procedures is extremely important and necessary. (See the Environmental Protection Agency’s (EPA) asbestos regulations for detailed asbestos clean-up and disposal procedures).
- **Monitoring** - The employer must conduct air monitoring sampling or tests to determine levels of airborne asbestos in all workplaces that contain either asbestos-containing products or presumed asbestos-containing products. In addition, the employer must notify the affected workers in writing or by posting the monitoring results in an appropriate and accessible location (e.g., an employee bulletin board) within fifteen days of receipt of the results. Workers must be allowed access to any record concerning their exposure to asbestos. The employer must keep records of asbestos exposures for at least 30 years.
- **Personal Protective Equipment** - When airborne asbestos exceeds the OSHA standard or excursion limit, the employer must provide workers with personal protective equipment such as clothing, gloves, gauntlets, boots, head and foot coverings, and, where necessary, air-supplied respirators. The employer is also responsible for cleaning, maintaining, and disposing of all personal protective equipment.
CWA members who regularly work at a single location where they are exposed to excessive amounts of asbestos must be provided with change rooms. These must have two separated lockers or containers - - one for street clothes and one for protective clothes - - for each worker. Shower facilities must also be provided. Workers should shower at the end of each shift.

Competent Persons

A Competent Person must be designated for all worksites covered by 29 CFR 1926.1101 and in addition to having the qualifications and authority required by 29 CFR 1926.32(f), must be capable of identifying existing asbestos hazards in the workplace, selecting the appropriate control strategy for asbestos exposure, and have the authority to take prompt corrective measures to eliminate them.

In reference to asbestos projects, additional duties and training for the Competent Person includes:

- Asbestos Supervisor level training for Class I and II asbestos work, or Operations and Maintenance level training for Class III and IV asbestos work.
- Note: Training required for Class I and II Competent Persons also satisfies the requirements for Class III and IV.
- Making frequent and regular inspections of the job site, materials, and equipment being used.
- For Class I jobs - at least once during each work shift and at any time an employee requests.
- For Class II and III jobs - made frequently enough to assess whether conditions have changed, or at a reasonable time an employee requests.
- Performing or supervising the following activities:
 - Setting up the regulated area, enclosure, glovebag, or other containment,
 - Ensuring (by onsite inspection) the integrity of the enclosure or containment,
 - Setting up procedures to control entry to and exit from the enclosure and/or area,
 - Supervising all employee exposure monitoring,
 - Ensuring that employees working within the enclosure and/or using glove bags wear personal protective equipment,
 - Ensuring through onsite supervision, that employees set up and remove engineering controls, use work practices, and personal protective equipment in compliance with all requirements,
 - Ensuring that employees use the hygiene facilities and observe the decontamination procedures,
 - Ensuring through onsite inspection that engineering controls are functioning properly and employers are using proper work practices, and
 - Ensuring that notification requirements are met.

Initial Exposure Assessment

If asbestos is suspected in our work area, we should request the owner to provide evidence the area is free of asbestos containing materials. If we still have concerns, samples should be taken and analyzed by a recognized laboratory before we start work in the area. The De-Cal Safety Department can help determine if asbestos exists.

The air quality shall be monitored to ensure that no employee is exposed to an airborne concentration of asbestos in excess of 1.0 fiber per cubic centimeter of air (1 f/cc) in 30 minutes. Samples shall be representative of the 8 hour TWA and 30 min. short-term exposure. All measurements shall be documented.

If testing shows the TWA being exceeded a written program shall be introduced to reduce employee's exposure potential.

All employers performing asbestos-related work are required to perform an initial exposure assessment when work begins and to perform periodic monitoring as the work progresses. If we are working in the same general area where asbestos-related work is underway or planned, we should request a copy of the protocol for their exposure assessments and the results of the required air sampling. This information should be forwarded to the Safety Department for evaluation. If asbestos levels exceed the Permissible Exposure Limit (PEL), we will discontinue work until we are assured there is no exposure to our employees.

If asbestos is found to be present, regulated areas shall be established. The limits shall comply with that of the TWA and/or an excursion limit. The procedures shall indicate that the access is limited to regulated areas. All

regulated areas shall have proper signage (per OSHA regulations) identifying them as such. Regulated areas shall apply to all employees, even those performing housekeeping after work is performed.

Engineering controls and work practices shall be designed to reduce /maintain the exposure below the TWA. This will include but not be limited to exhaust systems for hand tools, wet methods, clean-up procedures, etc... Respirators, if required, shall be provided to the employees at no cost to them. De-Cal, Inc. shall ensure that proper respirator procedures shall be followed. All employees shall receive medical testing and fit tests before using respirators.

Proper PPE shall be used when dealing with asbestos. Proper PPE includes but is not limited to, coveralls, gloves, head coverings, foot coverings, face shields, respirators, and vented goggles. All employees shall receive training in the use and limitations of the PPE required before they use it.

Subcontracting Asbestos-Related Work

There may be instances where we encounter asbestos in our work when owners, or other contractors, request we subcontract the loading, transportation, removal or abatement of asbestos-containing material after it is removed from a building. Should this occur, the Risk Management or Safety Department should be contacted before any agreement is made. Generally, we will not perform any type of work related to asbestos, but we will review each instance on its merits.

Checklist

The checklist on the following pages can be used as a reminder of items to confirm if we are working in or near an area where asbestos work is underway.

DAILY CHECKLIST FOR ASBESTOS PROJECTS

Job Name: _____ Job No. _____

Superintendent: _____ Date: _____

DID ASBESTOS ACTIVITIES OCCUR ON THIS DATE? YES NO

1. REGULATED AREA ESTABLISHED	YES	NO
Barrier Tape Around Area	<input type="checkbox"/>	<input type="checkbox"/>
Warning Signs Posted at Entrances	<input type="checkbox"/>	<input type="checkbox"/>
2. WORKSITE BARRIER (Containment)		
Area Heating/Ventilation System Off	<input type="checkbox"/>	<input type="checkbox"/>
Floor Covered (Where applicable)	<input type="checkbox"/>	<input type="checkbox"/>
Wall Covered	<input type="checkbox"/>	<input type="checkbox"/>
All Edges Sealed	<input type="checkbox"/>	<input type="checkbox"/>
Penetrations Sealed	<input type="checkbox"/>	<input type="checkbox"/>
Entry Curtains Erect and Operable	<input type="checkbox"/>	<input type="checkbox"/>
3. DIFFERENTIAL PRESSURE CONTAINMENT		
Air Filtering Devices in Constant Operation	<input type="checkbox"/>	<input type="checkbox"/>
Differential Pressure Achieved	<input type="checkbox"/>	<input type="checkbox"/>
Recording Manometer in Operation	<input type="checkbox"/>	<input type="checkbox"/>
4. MECHANICAL		
All processes locked-out	<input type="checkbox"/>	<input type="checkbox"/>
Workers Protected Against stored energy	<input type="checkbox"/>	<input type="checkbox"/>
Locks, tags, blanks, blocks in place	<input type="checkbox"/>	<input type="checkbox"/>
5. WORK PRACTICES		
Asbestos Material Worked Wet	<input type="checkbox"/>	<input type="checkbox"/>
Removed Material Promptly Bagged	<input type="checkbox"/>	<input type="checkbox"/>
Bags Properly Labeled and Goose-neck Sealed	<input type="checkbox"/>	<input type="checkbox"/>
HEPA Vacuum Used	<input type="checkbox"/>	<input type="checkbox"/>
Work Area Cleaned at End of Shift	<input type="checkbox"/>	<input type="checkbox"/>
Workers Decontaminated at each Departure	<input type="checkbox"/>	<input type="checkbox"/>
No Smoking, Eating, or Drinking in Containment	<input type="checkbox"/>	<input type="checkbox"/>
6. PERSONNEL PROTECTION		
Medical Examination and Training Conducted	<input type="checkbox"/>	<input type="checkbox"/>
Air Sampling Conducted and Posted	<input type="checkbox"/>	<input type="checkbox"/>
Disposable Clothing Worn Correctly	<input type="checkbox"/>	<input type="checkbox"/>
Torn Disposable Clothing Replaced Promptly	<input type="checkbox"/>	<input type="checkbox"/>
Appropriate NIOSH-approved Respirators in Use	<input type="checkbox"/>	<input type="checkbox"/>
Respirators Inspected and Cleaned Daily	<input type="checkbox"/>	<input type="checkbox"/>
Hard Hats Work Correctly (Where applicable)	<input type="checkbox"/>	<input type="checkbox"/>
Safety Harnesses Worn Correctly (Where applicable)	<input type="checkbox"/>	<input type="checkbox"/>
7. DECONTAMINATION	YES	NO
Showers On Site and Functioning Properly	<input type="checkbox"/>	<input type="checkbox"/>
Adequate Soap and Towels Available	<input type="checkbox"/>	<input type="checkbox"/>
All Workers Showering Correctly	<input type="checkbox"/>	<input type="checkbox"/>
Water Filtration System in Operation	<input type="checkbox"/>	<input type="checkbox"/>

Section 41 – OVERHEAD / GANTRY CRANES - RIGGING

De-Cal Mechanical personnel are not trained to operate overhead / Gantry cranes, and are instructed not to do so. Overhead / Gantry cranes are, however present at some construction sites. These cranes are generally operated by in-house personnel, and may be used by such personnel to facilitate the movement of De-Cal material and / or equipment on request. Awareness of functions, travel paths, and passage signals (horns) should be familiar to all personnel working in close proximity to these lifting devices. Awareness to proximity to power-lines should also be noted. **Do not** attempt to use such machinery without permission from the operator or controlling entity. **Only designated personnel shall be allowed to operate this equipment (cranes). The designated operator will be trained and certified in safe work standards regarding cranes.** As with all cranes, the crane's rated load capacity should be marked on an area of the crane visible to personnel responsible for the operation of the crane.

41.1 Inspection and Maintenance

Inspections and inspection records should be maintained, load-testing and critical item inspections should be maintained, rope inspections should be performed and documented. All crane functions should be isolated and locked out before maintenance is performed. There should also be a mechanism for rope inspection on ropes that have been in storage or made idle during shutdown. **Crane ropes that have not been used during shut-down or ropes that have been in storage for longer than one month will be given a thorough inspection before use.** A preventative maintenance program should be in place for all crane maintenance management.

41.2 Fire Extinguishers

Inspection of fire extinguishers must be performed and documented monthly. **An inspected ABC type fire extinguisher must be will be stored and secured in the crane cab, and will be immediately accessible to the crane operator and support personnel.**

41.3 Crane operation near energized power-lines and / or energized conductors

All over-head power-lines and electrical conductors must be surveyed, identified, de-energized and / or insulated before crane assembly or operations begin. All crane operations will have a safety zone of at least 20 feet from over-head powerlines. A pre-Task Analysis and Crane Action Plan will be performed to identify any potential exposure that may lead to the accidental contact of power-lines or energized conductors.

41.4 Rigging Requirements

1. General

- All rigging equipment shall be inspected prior to each shift and as necessary during the shift to ensure safety. Damaged or defective slings shall be immediately removed from service.
- All rigging devices, including slings, shall have permanently affixed identification stating size, grade, rated capacity and manufacturer.
- Rigging not in use shall be removed from the immediate work area and be properly

- stowed.
- Rigging, including slings, shall be hung on a rigging frame so that bends and kinks do not set in.
 - Wire rope slings shall be lubricated as necessary during use. Slings shall be lubricated no less than every four months when in storage.
 - “Shop-made” grabs, hooks, clamps or other lifting devices shall not be used unless proof-tested to 125% of their rated load by an approved testing agency. Approved devices shall have the capacity and Identification tag permanently affixed.
 - Slings shall not be left lying on the ground or otherwise exposed to dirt and the elements.
 - Eyes in wire-rope bridles, slings or bull wires shall not be formed by wire clips or knots.
 - Protruding ends of strands in splices on slings or bridles shall be covered or blunted.
 - All rigging equipment in use shall have a safety factor of five.

41.5 Crane Repairs

- Before crane repairs are attempted, the lock-out of all non-essential functions will be applied. All related departments / personnel will be notified. Danger / Warning signage will be posted in locations visible to all related personnel.

41.6 Safe Operating Practices

- Slings in use shall not be shortened by knots, bolts or other makeshift devices
- Wire rope sling shall be padded or softeners used to protect from damage resulting from sharp comers
- Slings used in a basket hitch shall have the loads balanced to prevent slippage
- Loads handled by slings shall be landed on cribbing or dunnage so that slings need not be pulled from under or be crushed by the load
- Slings subjected to shock loading shall be immediately removed from use and destroyed
- U-Bolts and/or wire rope clips are not permitted for use on slings. Only manufactured slings that are properly tagged are to be used.
- Rigging will not be subject to a load over its rated capacity.
- Tag lines will be used when necessary
- All employees shall stay out from underneath all suspended loads

41.7 Inspection and Record-keeping

- All hooks will be inspected monthly and be certified. Records will be maintained and will note deformation and cracks when necessary. Hooks that do not pass inspection will be taken out of service and destroyed. All certification records will include the date of inspection, Serial number on the hook, and the signature of the person performing the inspection.
- All hoist chains and related connections will be inspected monthly and be certified. Records will be maintained and will note excessive wear, twists, distorted links that may interfere with proper function, and stretch beyond manufactures

recommendations. Hoist chains and all related components that do not pass inspection will be taken out of service and destroyed. All certification records will include the date of inspection, Serial number on the chain tag, and the signature of the person performing the inspection.

- All running ropes will be inspected monthly and be certified. Records will be maintained and will note excessive wear, twists, distorted strands that may interfere with proper function, and stretch beyond manufactures recommendations. Running ropes and other wire-rope rigging including all related components that do not pass inspection will be taken out of service and destroyed. All certification records will include the date of inspection, Serial number on the rope tag, and the signature of the person performing the inspection.
- Alloy steel chains shall be removed from service and repaired or replaced when:
 - Master links, coupling links or other components are cracked or deformed
 - Sling hooks have opened more than 15% of the normal throat opening or twisted more than 10 degrees off center
 - Stretch exceeds 5% of the original reach
 - They have been exposed to temperatures in excess of 600 degrees
- Only the manufacturers or an equivalent entity shall repair or recondition slings covered in this section
- Mechanical coupling links or "cold sheets," bolts or clevis pins shall not be used for chain repairs
- Any chains used for hoisting must be grade eight or higher
- Wire rope slings shall be removed from service when:
 - There are two randomly distributed broken wires in one rope lay or five broken wires in one strand on one rope lay
 - There is wear or scraping of one-third the original diameter of outside individual wires
 - Kinking, crushing, bird-caging or similar damage results in distribution
 - End attachments are cracked, deformed or worn
 - Exposed to temperatures exceeding 200 degrees Fahrenheit (fiber-core) or 400 degrees Fahrenheit (non-fiber core)
 - Corrosion of the rope or end attachments occurs
- Natural and synthetic fiber rope slings shall be removed from service when:
 - Abnormal wear is observed
 - Powdered fibers are found between strands
 - Fibers are out or broken
 - There are variations in the size or roundness of strands
 - There is discoloration or rotting
 - There is distortion of sling hardware
 - Exposed to temperatures exceeding 180 degrees Fahrenheit
- Synthetic web slings shall be removed from service when:
 - Subjected to acid or caustic burns
 - Melting or charring of any part of the sling surface occurs
 - Snags, punctures, tears or cuts are observed
 - Stitches are worn or broken

- Fittings are distorted
- Exposed to temperatures in excess of 180 degrees Fahrenheit (synthetic web) or 200 degrees Fahrenheit (polypropylene web)

Section 42 – Working Alone Program

Purpose

To provide for measures to protect the health and safety of, and minimize risk to:

1. Any worker working at a workplace alone.
2. A person that is the only worker at that work-place.
3. A worker that will be in a circumstance where assistance is not readily available to the worker in the event of an injury, ill health, or emergency.

Strict adherence to this policy will help to meet health and safety legal requirements and demonstrate due diligence in work alone situations.

Application

This policy applies to all employees who are working alone.

Definition

Working Alone means a worker working at a workplace who is the only worker of De-Cal Mechanical at that workplace, in circumstances where assistance is not readily available to the worker in the event of injury, ill health or emergency.

Policy

The De-Cal Safety Department is responsible for ensuring a procedure for assessing working alone situations, and to assure that a working alone plan is developed, implemented, communicated to all workers that are made to work alone.

Department Heads shall review each worksite under their control to identify employees who work alone.

Department Heads will consult with the De-Cal Safety Department and with the employee who will be working alone to assess the conditions under which the employee is working, A Task Hazard Analysis will be used to determine potential hazards and ways to mitigate them, establish a means and schedule for communication, and specify a means for providing assistance in an emergency situation. The activities the employee will be involved in will determine their level of risk; higher risk activities require shorter times between communications with the contact person. The result will be a written plan for working alone.

The working alone plan will be signed and dated by both De-Cal Management, and the employee who is required to work alone.

De-Cal Management will give a copy of the plan to De-Cal department heads, and to every employee who is required to work alone.

De-Cal department heads and all employees shall comply with the “Working Alone Procedure” as written below.

Working Alone Procedure

- **The work process will be reviewed for hazards. A “Task Hazard Analysis” will be discussed to identify the potential hazards. Two persons will be sent to jobs that have been deemed too hazardous to work alone.**
- **Assure that you have the “PANIC BUTTON” device activated and on your person at all times during your workday.**
- Inform your supervisor on where you will be starting your workday if that has not been established.
- Inform the owner or host employer (that is and will remain on site for the duration of your work) that you will be working on site alone, and that you will check in with them before you leave as a safety precaution.
- Check in with your supervisor at regular intervals throughout your workday.
- Inform your supervisor when you are finished with the work and safe in your vehicle.
- **Confined Spaces will never be entered while working alone.**

Working Alone Plan

Worker's Name: _____

Worker's Phone (Cell): _____

Worker's Job Title: _____

Supervisor: _____

Supervisor's Phone (Cell): _____

Contact Person: _____

Contact Person's Phone #(s): _____

Department: _____

Worksite (Name, Address, Location): _____

It is the responsibility of the supervisor to identify any hazardous agents or activities which arise from the conditions and circumstances of the worker's work.

IT IS STRONGLY RECOMMENDED THAT HANDLING OF HAZARDOUS SUBSTANCES OR PERFORMING HAZARDOUS ACTIVITIES BE PROHIBITED WHEN A WORKER IS WORKING ALONE. WORK INVOLVING ENTRY INTO CONFINED SPACES MUST NEVER BE CONDUCTED ALONE.

What are the conditions or circumstances under which the employee is required to work alone:

Task Hazard Analysis:

PROJECT STEP	POTENTIAL HAZARD	CONTROL MEASURES

Identify hazardous activities the worker may perform while working alone:

- Working With Hazardous Substances
- Heavy Physical Labor
- Working With Heavy Machinery
- Use Ladders, Scaffolding
- Working Within Electrical Panels
- Working With Power Tools
- Work At isolated Areas
- Work With Equipment Under Pressure or Vacuum “

Other Activities Not Listed Above:

Personal protective equipment required:

Is the employee trained in the proper use of appropriate personal protective equipment and work procedures? YES - NO

Schedule for contacting the employee: _____

Means of communication: _____

Plan to assist the employee in case of an emergency:

The working alone plan must be reviewed with, and agreed upon by both, De-Cal Management and the Employee.

Signature and date of De-Cal Management

Signature

Date

Signature and date of De-Cal Employee

Signature

Date

Section 43 – Hand and Power Tools

Introduction

It is the policy of De-Cal, Inc. is to take precautions to eliminate hazards associated with the use of hand and portable power tools; and to ensure employees are properly trained to utilize these tools in a safe manner to minimize injuries related to their use. This Hand & Portable Power Tool Safety Program prescribes the duty to maintain tools and equipment; use hand and portable power tools in a safe manner; and to minimize injury and/or accidents associated with their use.

Purpose

The purpose of this program is to outline the requirements to minimize / eliminate hand and portable power tool related injuries. This program is developed in accordance with the following Occupational Safety and Health Administration (OSHA) regulations: 29 CFR 1910 Subpart P, “Hand and Portable Powered Tools and Other Hand-Held Equipment”

Scope

This Hand & Portable Power Tools Safety Program establishes and outlines the De-Cal, Inc. Environmental Health & Safety Manual in the identification of safety hazards and control measures; and training, inspection and recordkeeping for De-Cal, Inc. owned hand and portable power tools. The program applies to all De-Cal, Inc. employees whose work duties require them to utilize hand and portable power tools. All hand and portable powered tools and other hand-held equipment utilized for construction, alteration, repair, demolition, plumbing, fitting, HVAC, and general purposes are covered by this policy.

Responsibilities

Environmental Health & Safety

The De-Cal Health & Safety Department provides program oversight, training, and provides recommendations for safety procedures to supervisors, employees and departments. De-Cal Supervision are responsible where hand and portable power tools are utilized.

Supervisors are responsible for the following:

- Ensure the applicable components of the Hand and Portable Power Tool Safety Program are available to employees.
- Provide or arrange training for employees expected to utilize hand and portable power tools as part of their job duties.
- Ensure hand and portable power tools are properly maintained and any equipment deficiencies are addressed to ensure employee safety.

Supervisors

De-Cal, Inc. employees who supervise personnel responsible to work with hand and portable power tools must be informed of the contents of this program; identify authorized personnel to utilize equipment; address safety hazards in a timely manner; and ensure appropriate training is provided to all employees.

Authorized Person

All De-Cal Employees working with hand and portable power tools must be fully trained to ensure all applicable elements of the De-Cal, Inc. Hand and Portable Power Tool Safety Program are followed. In addition, employees are responsible for completing adequate training, reporting equipment deficiencies; and assure the safe use of hand and portable power tools at all times.

General Safety Requirements

All hand and portable power tools must be maintained in a useable condition. The following applies to all hand and portable power tool maintenance and use to minimize hazards associated with their use.

Maintain all tools in useable condition through following manufacturer recommendations for service; storing tools in the appropriate manner to minimize exposure to excessive temperatures, humidity, and corrosive materials; and reporting defects or deficiencies associated with tools to lead supervisors upon discovery.

Use the Appropriate Tool for the Job

Hand and portable power tools are designed and manufactured for specific uses. Employees must use tools and equipment in the manner intended by the manufacturer. To prevent miss-use of existing equipment and to prevent injuries, the supervisor shall ensure the proper tools are available to complete a job; if a task is required to be completed by an employee where an appropriate tool is not present, the supervisor shall ensure the job is not completed until the appropriate tool is available.

Inspection of Tools

Prior to use, tools and equipment should be inspected by the user to ensure they are in proper working order with no defects or deficiencies, which may result in unsafe use or injury to the user. Damaged tools and equipment must be removed from service and tagged to ensure unauthorized use does not take place.

Always operate tools and portable power equipment according to the manufacturer's specifications. Failure to do so may result in injury to the user.

Machine Guards & Safety Switches

Many tools and equipment protect exposed moving parts through various machine guarding techniques. Belts, gears, shafts, pulleys, sprockets, spindles, drums, flywheels, chains, or other reciprocating, rotating, or moving parts are typically guarded with safety shields or switches.

Machine guards must be provided to protect the user from the following:

- Point of operation hazards
- In-running nip points
- Rotating parts
- Flying particles and sparks

Machine guards directly cover a hazardous area of a tool or piece of equipment to prevent contact by the user. An example of a machine guard is the retractable cover on a circular saw, which exposes only the area of the blade performing the cutting action.

Safety switches are incorporated into many portable power tools to prevent unintended activation of the equipment. An example of a safety switch is a constant pressure switch, which requires the user to place pressure on the activation switch and releasing of the switch results in the tool shutting off or stopping.

Machine guards, safety switches, and any other safety elements of a tool or power tool, must not be removed, manipulated or tampered with in any way.

Body positioning, ergonomics and repetitive motions

To minimize the risk of injuries related to body positioning, ergonomics, and repetitive motion while using hand and portable power tools, the following guidelines should be followed:

Proper Body Positioning

- Employees should be trained in ergonomic principles and encouraged to maintain correct body positioning while using hand and portable power tools.
- Maintain a neutral and balanced body posture, avoiding excessive bending, twisting, or reaching.
- Use appropriate workbenches, tool stands, or supports to ensure the work is at a comfortable height and reduces strain on the body.
- Take regular breaks and stretch to relieve muscle tension and fatigue.

Ergonomics and Tool Design

- Use tools with ergonomic features such as non-slip handles, vibration damping, and adjustable grips whenever possible.
- Select tools that are lightweight and properly balanced to reduce strain on muscles and joints.
- Ensure that tool grips are comfortable and provide sufficient support to minimize hand and wrist fatigue.
- Consider using power tools with built-in vibration reduction mechanisms to minimize the risk of hand-arm vibration syndrome (HAVS).

Repetitive Motion

- Avoid excessive repetition and minimize prolonged use of hand and portable power tools without adequate breaks.
- Rotate tasks or job functions to reduce the continuous use of the same tools and repetitive motions.

- Implement job rotation or job enrichment strategies to vary the tasks performed by employees.
- Provide training on proper tool handling techniques and encourage employees to use the appropriate grips and techniques to reduce strain.

Personal Protective Equipment (PPE)

De-Cal Employees who use hand and portable power tools and are exposed hazards, such as noise, vibration, particulate, sparks/chips, abrasive, splashing objects, harmful dusts, fumes, mists, vapors and/or gases must be provided with the appropriate personal protective equipment (PPE).

The following considerations should be evaluated, at a minimum, in the selection and use of PPE when utilizing hand and portable power tools.

Eye protection - Safety glasses or goggles must be worn at all times when using hand and portable power tools.

A face shield may be necessary in addition to safety glasses or goggles to protect the face and neck.

Foot protection – Appropriate foot protection, which may include steel-toed boots, must be worn when working with hand and portable power tools.

Hearing protection – If the tool or equipment being utilized generates excessive noise, the use of hearing protection is mandatory. Follow the manufacturer's recommendations for hearing protection and contact the De-Cal Health & Safety Department to conduct personal noise dosimetry to determine if employees should be enrolled in the hearing conservation program.

Hearing protection is recommended during the use of certain hand tools and all portable power tools.

Respiratory protection – Tools and equipment, which generate excessive dust, may require the use of a particulate filtering respirator. Contact your supervisor or the De-Cal Safety Department to determine if the use of a respirator is required or voluntary. Refer to the De-Cal, Inc. Respiratory Protection Program for additional information on respiratory protection.

Hand protection – Whenever there are sharp objects or elevated temperatures associated with the work being conducted, adequate hand protection must be provided to the employee performing the work.

Body protection – Depending on the hazard present, appropriate clothing must be worn during the use of hand / portable power tools.

Hair Protection – Long hair must be tied back and secured during the use of power tools to prevent hair being caught in moving parts.

Hand Tool Safety

Hand tools are tools that are powered manually and do not require additional power sources such as electric, hydraulic, compressed air, etc. Examples of hand tools include hammers, pliers, punches, saws, screw drivers, tin snips, and wrenches.

Hazards associated with hand tools are typically associated with misuse of the equipment and / or improper maintenance of the tools.

To prevent injury when utilizing hand tools, the following precautions should be taken:

- Use hand tools only for their intended purposes. For example, using a screwdriver as a chisel may result in the tip of the screw driver breaking and becoming a flying particle hazard.
- Inspect hand tools for damage prior to use.
- Maintain hand tools in good working condition and free from damage. Handles of tools should be maintained free from grease and oil to prevent slipping and deterioration of the materials of construction. Damaged hand tools must be removed from service and repaired or replaced.
- When using tools, such as knives, saws, or other cutting devices, always direct the tool away from the worker and any other personnel in the area.
- Maintain cutting tools so that the cutting edges are sharp. Dull cutting edges may present additional hazards.
- Cracked cutting blades must be removed from service and replaced.
- Wrenches must be used to prevent slippage, to prevent injury to the user.
- Impact tools, such as chisels, drift pins, and wedges must be kept free from mushroomed heads.
- Iron or steel hand tools may produce sparks when struck. Ensure the use of iron and steel tools does not occur near flammable or combustible materials. If flammable or combustible materials are present, ensure the use of non-sparking hand tools.
- Maintain both the work area and tools in a clean and organized manner. This will help prevent potential injuries.
- Store hand tools in a clean and dry location.
- Wear the appropriate PPE.

Portable Power Tool Safety

Portable power tools must be equipped with safety mechanisms as described in section 3.2 of this program. Portable power tools, when used improperly, can result in serious injury or death.

Types of portable power tools are determined by their power source, each of which will be addressed in this program, and include electric, pneumatic, liquid fuel, hydraulic, and powder actuated portable power tools. Pneumatic tools can be very hazardous to use because of the extreme air pressure required to activate these tools.

To reduce hazards associated with the use of portable power tools, employees should observe the following general safety practices:

- Read and understand the owner's / user manual for each portable power tool expected to be used. The manual should address the tool's proper use, limitations, proper

operation, hazards, PPE, storage and maintenance practices applicable to the equipment. Call the De-Cal Safety Department for additional training.

- Tools should not be carried or lowered from an elevated position by the power cord. Never pull a power cord or hose as a means to disconnect it from a power source.
- Ensure cords and hoses are kept clear from heat, oil and sharp edges during use.
- Ensure that electrical power tools are properly grounded during use. Use a ground fault circuit interrupter (GFCI) for corded tools.
- When not in use, before service, cleaning and during blade/bit replacement procedures; power tools should be disconnected from their power source.
- When portable power tools are in use, unauthorized personnel must be kept clear of the work area. Utilize appropriate signage to indicate when portable power tools are in use and clearly define restricted areas.
- **It may be necessary to secure the work area with a vice or clamps to allow for proper use of equipment when two hands are required to be on the power tool during use.**
- To avoid accidental start-up of power tools, do not hold fingers on the triggers during transportation of equipment.
- Maintain tools in a clean manner free from oil and grease.
- Maintain cutting surfaces in a sharp manner. Dull cutting edges present additional hazards.
- When operating power tools, ensure adequate footing and maintain good balance while in use.
- Wear appropriate PPE during the use of power tools including hand, head, eye, foot, hearing, respiratory and body protection. Loose clothing, long hair, ties, or jewelry can become caught in moving parts; therefore ensure employees are appropriately dressed to perform the necessary work with portable power tools.
- Work areas should be well lighted.
- Ensure cords associated with the use of power tools do not present excessive trip hazards.
- Electrical power tools should be inspected prior to use. Any defects in the tool or wiring must result in the tool being taken out of service and marked "DO NOT USE" or similar to prevent unauthorized use.
- Unplug / disconnect all power tools from the power source before changing bits or blades.

Electric Saws – portable or semi-portable electric power saws can include circular, table, saber, radial arm, miter, and band saws. The following outlines the safety precautions to take when working with these types of saws.

Circular Saw – A portable saw using a toothed metal cutting disc / blade used for cutting wood, metal and concrete depending on the blade being used. Portable circular saws with blades greater than 2 inches in diameter must be equipped at all times with guards. An upper guard must cover the entire blade of the saw. A retractable lower guard must cover the teeth of the saw, except where it makes contact with the work material.

The lower guard must automatically return to the covering position when the tool is withdrawn from the material being cut.

Table Saw – portable / semi-portable cutting tables with a fixed, toothed blade used for cutting longer lengths of wood and ensuring flush cuts.

- The blade on a table saw must be adjustable in height to allow the user to adjust the blade no more than 1/8 inch above the material to be cut.
- Ensure the material set to be cut does not contact the blade when starting or stopping the saw.
- Keep the body away from the saw.
- Use a push stick to keep hands and fingers away from the cutting blade.
- Guards covering the blade at all times should operate freely when the material to be cut is introduced to the saw blade.
- When not in use, lower the blade fully below the tabletop to prevent inadvertent contact.

Saber Saw – a portable reciprocating saw used to make custom cuts in wood or metal.

- Always select the blade appropriate for the material being cut.
- Ensure the blade is sharp. Dull blades can present additional hazards.
- Do not turn on the saw when the blade is in contact with the material to be cut. This may cause the tool to “jump” or chip the material to be cut.
- Ensure the material to be cut is secure to prevent movement during cutting.
- Keep hands and other objects free from the cutting area at all times.

Radial Arm Saw – a semi portable saw equipped with a cutting table where the saw blade is above the table and moved along a rod to allow for flush cutting.

- The material to be cut should be placed firmly against the saw’s back guide.
- The blade should rotate downward.
- Pull the saw with one hand and hold the wood with the other, ensuring it is clear from the cutting area.
- Never reach across the line of a cut.
- Return the saw to the rear position after completing a cut.

- Radial arm saws should be equipped with blade guards, which operate freely when contacting materials being cut.

Miter Saw – portable/semi-portable saw used to cut flush angles on materials with a pull down blade.

- Miter saws use a downward cutting motion; therefore, keep hands and fingers well outside the cutting area.
- Miter saws must be equipped with a blade guard, which must operate freely when the blade contacts the material to be cut.
- Only use the manufacturer specified blade sizes and rpm ratings.
- When changing saw blades ensure all bolts are adequately tightened and secured to the saw.

Band Saw – a portable/semi-portable saw used for precision cuts on wood and metal with a rotating belt blade.

- Set the blade evenly and with the correct tension before cutting.
- Push the cutting item through the blade with both hands on either side of the blade ensuring hands and fingers are clear of the cutting area.
- Ensure guards are in place.

Drills – electric power drills are typically used to put holes in various materials including wood, metal, concrete and brick; and can be equipped with a hammer function.

- When operating a drill, use the proper size and type of bit for the job. Ensure the bit is sharp and not damaged.
- Ensure the chuck is secured to the spindle. Tighten the bit securely as outlined in the owner's manual. Remove the chuck key prior to starting the drill.
- Ensure that all adjunct handles are securely attached.
- When drilling, brace the drill to prevent torque on the hands/wrists.
- Never force a drill. Forcing a drill can cause the motor to overheat and damage the bit. Apply the appropriate pressure for the job. If the drill slows, relieve the pressure.

Portable Abrasive Wheel Tools – portable tools used to grind, cut, polish, buff, etc. through a rotating wheel attached to the tool body, which typically generate large amounts of dust and particulates during cutting operations.

- Abrasive wheel tools must be equipped with guards that cover the spindle end, nut and flange projections; maintain proper alignment with the wheel; and do not exceed the strength of the fastenings.
- Inspect wheels before use. Any damage or defects must be addressed prior to use. To ensure cutting wheels are not cracked, tap with a non-metallic instrument. If the wheel sounds cracked or “dead” it could disintegrate during use and must not be used. A stable and undamaged wheel, when tapped, will give a clear metallic tone or “ring”.

- Abrasive wheels must fit freely on the spindle. If a wheel is installed too tightly it may crack during use. Always follow the manufacturer's instructions on wheel replacement.
- Allow the wheel to reach optimal operating speed before conducting cutting, grinding, buffing, etc. operations.
- Stand clear of flying particles coming from the tool during use if possible.
- Always utilize the appropriate PPE when using powered abrasive cutting tools including, but not limited to, eye / face, hand and body protection. A Full-Face-Shield is required when using a high-speed-grinder.
- Turn off and unplug abrasive grinding tools when not in use.
- Never clamp a grinding tool in a vise or to a surface to perform a function.

Pneumatic Power Tools

- Pneumatic tools are powered by compressed air and include chippers, drills, hammers, sanders, nail-guns etc. Hazards associated with pneumatic power tools include noise, vibration, fatigue, and struck by.
- ANSI approved eye protection is required anytime employees are working with pneumatic tools. A significant hazard of using pneumatic power tools is being struck by one of the tool's attachments or by a fastener used with the tool.
- Ensure the air hose is securely attached to the tool being used prior to activating the tool to minimize the potential for the hose disconnecting during use.
- Air hoses must be equipped with a safety excess flow valve to shut off the air automatically in case the hose breaks.
- All pneumatic tools should be equipped with safety clips or other safety elements to prevent the release of tool parts during use. Safety features of pneumatic tools must not be tampered with or altered in any way.
- Pneumatic tools, which shoot nails, rivets, staples, or similar fasteners and operate at pressures above 100 psi, must be equipped with a muzzle safety feature to prevent fasteners from firing unless the muzzle is pressed against the materials to be fastened.
- Never pull the muzzle safety switch back manually to fire fasteners for any reason.
- Pneumatic paint spray equipment must be equipped with safety switches to prevent accidental discharge of paint.
- When using pneumatic power tools, ensure the work area is isolated to prevent unauthorized access.
- Compressed air should not be used for cleaning purposes.

Liquid Fuel Powered Tools

Fuel powered tools are typically powered by gasoline or gasoline/oil mixtures. Common hazards associated with gas powered equipment are handling flammable liquids / vapors and exposure to exhaust fumes.

Fuel (fuel / oil mixtures) must be handled, stored and transported only in approved containers designed for flammable liquids.

When a fuel powered tool is used in an enclosed area, effective ventilation and / or appropriate respiratory protection must be provided to avoid exposure to carbon monoxide.

Additional safety precautions for using liquid fuel powered tools include:

- Utilize only the manufacturer specified fuel when powering the equipment.
- When refueling a tool or piece of equipment, ensure the motor is shut down and the engine is cool before refueling. All refueling will be done outdoors.
- Fire extinguishers should be available wherever fuel powered tools are in use.
- Cutting tools, such as chain saws or concrete saws, must be equipped with guards and/or safety switches to ensure safe use. Do not tamper with, or modify, safety features of fuel powered tools.

Hydraulic Power Tools

Hydraulic power tools utilize pressurized lines filled with hydraulic fluid to provide the pressure. The fluid within hydraulic power tools must be an approved fire-resistant fluid and must retain its operating characteristics at the most extreme temperatures to which it will be exposed.

Follow the manufacturer's recommendations for safe operating pressures for hoses, valves, pipes, filters, and other fittings at all times.

Hand-held power tools, powered by hydraulic lines must be equipped with a constant-pressure switch, or a control that shuts off the power when pressure is released.

This includes drills, tappers, fastener drivers, angle grinders (with wheels greater than 2 inches in diameter), disc sanders (with discs greater than 2 inches in diameter), belt sanders, reciprocating saws, saber saws, scroll saws, jig saws and other similar tools.

Hydraulic jacks, including lever, ratchet, and screw jacks, must have a stop indicator, and the stop limit must not be exceeded.

Load limits must be determined by the manufacturer and be marked on the jack. Load limits must not be exceeded.

A jack should be used to raise a load, but not fully support a lifted load. Once raised, blocking should be placed firmly under the base of the load.

To set up a jack:

- Place the base of the jack on a firm, level surface.
- Center the jack correctly on the load.

- Place the jack head against a level surface.
- Apply the lifting force evenly.
- Jacks should be lubricated regularly.

Jack inspection – All jacks must be inspected regularly according to the following:

- Jacks used regularly: inspect at least once every 6 months.
- Jacks sent out for special work: inspect when sent out and returned.
- Jacks subjected to abnormal loads/shock: Inspect before and after use.

Powder-Actuated Power Tools

Powder actuated tools require specific user training. All De-Cal personnel will be trained before being allowed to use Powder Actuated Tools.

Training Requirements

Employees expected to utilize hand and portable power tools as part of their job duties must be adequately trained prior to using such tools.

Employees should be trained in the following areas:

- Be able to recognize hazards associated with different types of tools and equipment; and the safety precautions necessary for use.
- The PPE required to be worn during the use of tools.
- The proper use of hand and power tools and other hand-held equipment.
- Be able to recognize defects in tools, which may render them out of service.
- When applicable, provide access to the manufacturer specifications and manual's for specific equipment to be used.
- Retraining may be necessary to maintain employee knowledge of working with tools or if a near-miss or injury has occurred.

Section 44 – Trenching – Shoring - Excavation

44.1 Purpose

The purpose of this section is to provide the employees of De-Cal, Inc. and other companies' employees with a safe place to work during excavations and to assure we take all necessary precautions to prevent damage to underground utilities and/or other underground obstructions. Excavation work is particularly dangerous and has been the source of many fatalities and serious injuries. OSHA and state regulations, although a good source of information, are considered minimal requirements on De-Cal, Inc. project sites.

44.2 Definitions

Aluminum Hydraulic Shoring A pre-engineered shoring system composed of aluminum hydraulic cylinders (cross-braces) used in conjunction with vertical rails (uprights) or horizontal rails (wafers). Such system is designed specifically to support the sidewalls of an excavation and prevent cave-ins.

Bank A mass of soil rising above a digging level.

Bell-bottom Pier Hole A type of shaft or footing excavation, the bottom of which is made larger than the cross section above to form a bell shape.

Benching (Benching system) A method of protecting employees from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near-vertical surfaces between levels.

Cave-In The separation of a mass of soil or rock material from the side of an excavation, or the loss of soil from under a trench shield or support system, and its sudden movement into the excavation, either by failing or sliding, in sufficient quantity so that it could entrap, bury or otherwise injure and immobilize a person.

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

Crossbraces The horizontal members of a shoring system installed perpendicular to the sides of the excavation, the ends of which bear against either uprights or walls.

Excavation Any man-made cut, cavity, trench or depression in an earth surface formed by earth removal.

Exploration Shaft A shaft created and used for the purpose of obtaining subsurface data.

Faces or sides The vertical or inclined earth surfaces formed as a result of excavation work.

Failure The breakage, displacement or permanent deformation of a structural member or connection so as to reduce its structural integrity and its supportive capabilities.

Hard Compact All earth material not classified as running soil.

Hazardous Atmosphere An atmosphere that by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen-deficient, toxic or otherwise harmful may cause death, illness or injury.

Kick-out The accidental release or failure of a cross-brace.

Legging Boards that are joined, side-by-side, lining an excavation.

Protective System A method of protecting employees from cave-ins, from material that could fall or roll from an excavation face or into an excavation, or from the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield systems and other systems that provide the necessary protection.

Ramp An Inclined walking or working surface that is used to gain access to one point from another, and is constructed from earth or from structural materials such as steel or wood.

Registered Professional Engineer A person who is registered as a professional engineer in the state where the work is to be performed. A professional engineer registered in any state is deemed to be a "registered professional engineer," however, within the meaning of this standard when approving designs for "manufactured protective systems" or "tabulated data" to be used in interstate commerce.

Running Soil Earth material where the angle of repose is approximately zero, as in the case of soil in a nearly liquid state, or dry, unpacked sand that flows freely under slight pressure. Running material also includes loose or disturbed earth that can only be contained with solid sheeting.

Shaft An excavation under the earth's surface in which the depth is much greater than its cross-sectional dimensions, such as those formed to serve as wells, cesspools, certain foundation footings, and under streets, railroads, buildings and so forth.

Sheeting The member of a shoring system that retains the earth in position and in turn is supported by other members of the shoring system.

Shield (Shield System) A structure that is able to withstand the forces imposed on it by a cave-in and thereby protects employees within the structure. Shields can be permanent structures or can be designed to be portable and moved along as work progresses.

Shields used in trenches are usually referred to as "trench boxes" or "trench shields."

Shoring (Shoring System) A structure such as a metal hydraulic, mechanical or timber shoring system that supports the sides of an excavation and that is designed to prevent cave-ins.

Sloping (Sloping System) A method of protecting employees by excavating to form sides that are Inclined away from the excavation, thus preventing cave-ins. The angle of incline required to prevent a cave-in varies with differences in such factors as soil type, environmental conditions of exposure and application of surcharge loads.

Stable Rock Natural solid mineral material that can be excavated with vertical sides and will remain Intact while exposed. Unstable rock Is considered to be stable when the rock material on the side or sides of the excavation Is secured against caving-in or movement by rock bolts or by another protective system that has been designed by a registered professional engineer.

Structural Ramp 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 A structure such as underpinning, bracing or shoring that provides support to an adjacent structure, underground Installation or the sides of an excavation.

Tabulated Data Tables and charts approved by a registered professional engineer and used to design and construct a protective system.

Trench (Trench Excavation) A narrow excavation (relative to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 16 feet. If forms or other structures are Installed or constructed in an excavation so as to reduce the dimension measured from the forms or structure to the side of the excavation to 15 feet or less (measured at the bottom of the excavation), the excavation is also considered to be a trench.

Trench Box See "Shield."

Trench Shield See "Shield."

Uprights 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 "shooting."

Wales Horizontal members of a shoring system placed parallel to the excavation face whose sides bear against the vertical members of the shoring system or earth.

44.3 EXCAVATING AND TRENCHING

1. Introduction

This procedure has been developed to help ensure that no employee of De-Cal, Inc. or our subcontractors will be exposed to hazards or unsafe conditions in trenches or excavations.

NO DE-CAL, INC. EMPLOYEE OR SUBCONTRACTOR EMPLOYEE WILL BE PERMITTED TO ENTER ANY TRENCH OR EXCAVATION UNTIL THE APPROPRIATE SECTIONS OF THIS PROGRAM HAVE BEEN FOLLOWED TO THE LETTER. FAILURE TO COMPLY COULD CAUSE SERIOUS INJURY OR DEATH.

2. Planning for Safety

Before any work begins, the Contractor or Subcontractor must appoint a "Competent Person," as defined in the "Definitions" section of this procedure. Duties of the competent person include:

- Daily inspections of the excavation for evidence of situations that could result in cave-ins, indications of failure of the protective systems, hazardous atmospheres and other hazardous conditions.
- Instructing employees to not enter the excavation when hazardous conditions exist.
- Instruct employees to stay away and out from underneath digging equipment.
- Identifying any changes in conditions that makes the excavation hazardous.

Other considerations include:

- Traffic
- Nearness of structures and their condition
- Soil
- Surface and ground water
- The water table
- Overhead and underground utilities
- Weather
- Availability of equipment required
- Protection of the excavation while it is open
- Training for employees, if required.

Underground installations - sewer, telephone, water, fuel and electric lines - that may be encountered in the digging must be located and verified before work begins. If underground installations are uncovered, they must be properly protected and supported. The utility companies involved must be contacted and informed of the proposed work before starting the trench or excavation. If utility companies cannot be reached within 24 hours or they cannot establish exact locations work may proceed with

caution and using additional detection equipment or other acceptable means to locate utilities.

3. Requirements for Excavations

Every employee entering an excavation shall be protected from cave-ins by an adequate protective system designed in accordance with OSHA Standard 29CFR 1926.652. The Project Manager will assure compliance with this requirement.

The only exception to this requirement is:

- Excavation is entirely in solid rock
- Excavations are less than 5 feet in depth (1.52 m) and examination by a competent person provides no indication of a potential cave-in

THE DE-CAL, INC. EXCAVATION PROCEDURE REQUIRES THAT ALL COMPACTED OR SOFT AND UNSTABLE SOIL BE SLOPED, SHORED, SHEETED, BRACED OR OTHERWISE SUPPORTED AND THAT SUCH SOIL BE EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND MOVEMENT CAN BE EXPECTED.

- In case of emergency, workers must be able to leave the trench quickly. When employees are required to be in trenches four feet deep or more, adequate means of exit, such as a ladder or steps, shall be provided and located so as to require no more than 25 feet of lateral travel. The ladder or ramp should reach the top of the excavation and extend at least three feet above to top of the excavation.
- The excavation must be inspected on a daily basis by a competent person prior to entry by any personnel. The results of this inspection must be entered into the superintendent's daily log. An entry on the back of daily time sheets may be used instead.
- Where shoring systems are provided, those systems must be inspected daily by a competent person. This inspection must also be documented.
- Inspections shall be performed after rainstorms or any change in conditions that can increase the possibility of cave-in or slide. If dangerous ground movements are apparent, such as subsidence or tension cracks, no work in the excavation shall be permitted until the problem has been corrected.

4. Compliance Methods

- One method of ensuring the safety and health of workers in an excavation is to slope the sides to an angle no steeper than one and one-half horizontal to one vertical (34 degrees measured from the horizontal). These slopes must be

excavated to form configurations that are in accordance with those for Type C soil. A slope of this gradation or less is considered safe for any type of soil.

“Benching” shall not be used unless the contractor has evaluated soil and classified it as Type B cohesive or Type A. Where such classifications have been made; “benching” will conform to applicable OSHA regulations. (See item 5 of this section.)

- A second method of protection is shoring-sheeting, which can be tightly placed timber shores, bracing, trench jacks, piles or other materials installed in a manner strong enough to resist the pressures surrounding the excavation.
- A third method is to use a trench shield (a prefabricated frame). Timber, aluminum or other suitable construction may also be used, but it must be either designed or approved by a registered professional engineer. OSHA standards permit the use of a trench shield as long as the protection it provides is equal to or greater than the protection that would be provided by the appropriate shoring system.

5. **Designing Adequate Protection (Sloping, Sheeting, Bracing)**

De-Cal, Inc. or its subcontractor(s) shall take the following conditions into consideration when designing and building a protective system of any type:

- **Soil Classification**

The type(s) of soil must be identified to determine proper protective measures. Excavations in wet soil, sandy soil or areas that have been backfilled are relatively unstable and must have strong support. Even hard rock sometimes can be hazardous; faults in the strata can make it unstable when cut. OSHA has classified soil into three types:

- Type A means cohesive soils with an unconfined compressive strength of 1.5 ton per square foot (tsf) (144 kPa) or greater. Examples of cohesive soils are clay, silty clay, sandy clay, clay loam and, in some cases, silty clay loam and sandy clay loam. Cemented soils such as caliche and hardpan are also considered Type A. No soil is Type A, however, if:
 - a. The soil is fissured.
 - b. The soil is subject to vibration from heavy traffic, pile driving or similar effects.
 - c. The soil has been previously disturbed.
 - d. The soil is part of a sloped, layered system where the layers dip into the excavation on a slope of four horizontal to one vertical (4H : 1V) or greater.

- e. The material is subjected to other factors that would require it to be classified as a less stable material.
- Type B means:
 - a. Cohesive soil with an unconfined compressive strength greater than 0.5 tsf (48 kPa) but less than 1.5 tsf (144 kPa).
 - b. Granular cohesionless soils including angular gravel (similar to crushed rock), silt, silt loam, sandy loam and, in some cases, silty clay loam and sandy clay loam.
 - c. Previously disturbed soils except those that would otherwise be classed as Type C soil.
 - d. Soil that meets the unconfined compressive strength or cementation requirements for Type A but is fissured or subjected to vibration.
 - e. Dry rock that is not stable.
 - f. Material that is part of a sloped, layered system where the layers dip into the excavation of a slope less steep than four horizontal to one vertical (4H : IV), but only if the material would otherwise be classified as Type B.
- Type C means:
 - a. Cohesive soil with an unconfined compressive strength of 0.5 tsf (48 kPa) or less.
 - b. Granular soils including gravel, sand and loamy sand.
 - c. Submerged soil or soil from which water is freely seeping.
 - d. Submerged rock that is not stable.
 - e. Material in a sloped, layered system where the layers dip into the excavation on a slope of four horizontal to one vertical (4H : IV) or steeper.

- **Weather Conditions**

Changing weather conditions and climate also greatly affect how strong a shoring system must be. Excess water from rain or melting snow loosens the soil, drastically increasing the pressure on the shoring system. A rainstorm can turn a stable trench side that requires only a light bracing into a mass of loose soil, posing an immediate threat to the employees working within. Even excessively dry conditions can reduce the cohesiveness of the soil.

- **Superimposed Loads**

Superimposed loads in the vicinity of a trench or excavation increase the pressure on excavation faces. Heavy equipment and materials shall be kept as far back from the excavation as possible. When heavy loads must be located near an excavation, the walls shall be braced, sheet-piled or shored to safely support the extra weight.

Buildings, curbs, trees, utility poles, and other structures adjoining the excavation area also can place more stress on a trench side than it can safely accommodate. In these instances, shoring, bracing or underpinning shall be provided as necessary by the Contractor.

Spoil (the excavated material) can exert great pressure on the excavation walls. Spoil shall be stored two feet or more from the edge of the excavation and be retained in an effective manner.

- **Vibrations**

Vibrations or sudden shock from passing vehicles or railways, blasting, equipment such as trucks or pile drivers, and some tools can contribute to cave-ins by loosening the soil.

- **Other Considerations**

Besides the four items above, the Contractor shall also take into account the following:

- Depth of cut
- Water content of soil
- Other operations in the vicinity

- **Hazardous Atmospheres**

The Contractor shall test the atmosphere in excavations greater than 5 feet in depth where oxygen deficiency or a hazardous atmosphere exists or could reasonably be expected to exist before any employee enters the excavation. If hazardous conditions exist, entry into the excavation will not be permitted until the condition is corrected.

- **Special Precautions**

OSHA standards require that diversion dikes and ditches or other suitable means be used to prevent surface water from entering an excavation and to provide adequate drainage of the area adjacent to the excavation. Water causes soil erosion and softening and shall not be allowed to accumulate in a trench or excavation.

6. **Responsibility and Authority**

The Contractor shall ensure that there is coordination and communication between work groups and individuals so that a complete understanding of planned work activities is known by each individual.

OSHA regulations for trenching and excavation work leave no room for risk-taking; they require that safe working conditions be provided for all employees working in excavations. De-Cal, Inc. agrees with this requirement.

De-Cal, Inc. will maintain constant awareness of employees working in trenches or excavations and will account for **all** personnel entering/leaving these areas. Concurrent with this policy, the responsibility of De-Cal, Inc. is to assure that all requirements are implemented and followed.

7. **Employee Training**

Safety Director will ensure that all existing and new employees are properly trained as to these excavation/trenching requirements. Training shall be documented and include date and names of participants. Re-training will be required annually, when conditions change, or after incidents.

8. **Vehicular Traffic**

If employees are exposed to vehicular traffic—either public traffic or traffic on the project site—they must be provided and required to wear, warning vests or other suitable garments made of highly visible material. If employees are required to act as flaggers, they should be trained in traffic control and provided with communication equipment, as needed.

9. **Emergency Rescue Equipment**

Emergency rescue equipment, such as breathing apparatus, safety harness and lanyard, and other equipment should be readily available when hazardous atmospheres may occur suddenly. Employees entering bell-bottom pier holes and other confined spaces will comply with the confined space section of this manual.

Before entering excavations that have unique hazards, the local fire department or rescue service should be contacted to determine its response time and equipment it can provide for a rescue. Your good judgment is required here. Contact the Safety Department if you have any questions.

10. Fall Protection

Anytime employees are exposed to falls while working in excavations, the same fall protection requirements apply as if the work were performed any other place. Examples of the need for fall protection include working on platforms in the excavation, installation of a large diameter pipe, placement of concrete in forms, and so forth.

When employees are required to cross over excavations four feet or more in depth, walkways or bridges with proper guardrails are required

Section 18 – NFPA 70E

The purpose of this procedure is to prevent injury from electrical shock by defining basic requirements to be followed by De-Cal, Inc. employees when working with or around electrical energy sources.

18.1 General

All electrical work, installation, and wire capacities shall be in accordance with the provisions of the National Electrical Code, NFPA 70E - 2009, unless a special provision of an OSHA standard is provided for specific equipment. **De-Cal, Inc. will inform the host employer of any unique hazards that may be introduced into the workplace because of the work being done. Unanticipated hazards and / or any measures taken to correct hazards will be addressed as they arise, or as they are reported to De-Cal, Inc. by the host employer.**

Only qualified personnel that are familiar with the construction and operation of the equipment and the hazards involved shall be allowed to perform electrical work. Verification of such qualification is required before an employee is allowed to begin such work.

18.2 Safety Related Work Practices

18.2.1 Unqualified Persons

Unqualified personnel working around electrical power sources will adhere to the following work practices.

Work shall not be permitted around an electrical power circuit where contact is possible unless de-energizing, grounding, or guarding by insulation provides protection against electrical shock. **Unqualified / untrained employees will remain outside the minimal approach distance that would be accessible to qualified personnel only.**

All employees shall be trained on De-Cal, Inc.'s Lockout/Tag-out Program
An unqualified person working on the ground near overhead lines may not bring a conductive object closer to unguarded, energized overhead lines than the following distances:

Table 1 Unqualified Personnel Distances

Voltage Range (phase to phase)	Minimum Approach Distance
751 V to 2kV	1 ft. - 6 in.
3kV to 15kV	2 ft.
16kV to 37kV	3 ft.
38kV to 87.5kV	3 ft. - 6 in.
87.6 kV to 121 kV	4 ft.
122 kV to 140 kV	4 ft. - 6 in.

Risk Assessment Procedures

- In work areas where the exact location of underground power lines is unknown, ground probing will be conducted. If ground probing is not possible, employees using hand tools (jackhammers, bars, etc.) that may contact a power line will be given insulated protective gloves
- The supervisor is responsible for knowing if any part of an energized electrical circuit exposed or concealed, is so located that the performance of the work may bring any person, tool, or machine into physical or electrical contact with the electrical power circuit.
- Warning signs shall be posted where these circuits exist, and all employees shall be advised of the location of such lines, hazard involved, and the protective measures to be taken.
- Barriers or other means of guarding shall ensure that workspaces for electrical equipment will not be used as passageways when energized parts are exposed.
- Workspaces, walkways, and similar locations shall be kept clear of cords to prevent hazardous conditions.
- Spaces that contain exposed energized parts shall be illuminated prior to employees entering the space.
- Protective shields, protective barriers, or insulating material shall protect against inadvertent contact with exposed energized parts prior to entering confined space.
- Employees shall use only portable ladders constructed of nonconductive material.
- When employees are working in locations where there is the potential of contacting exposed energized parts, they may not wear conductive articles such as watchbands, bracelets, rings, key chains; or necklaces.
- The user will visually inspect all electrically powered tools each day. Worn or frayed electric cords or cables shall not be used.
- Extension cords shall not be fastened with staples, hung from nails, or suspended by wire.
- Only double insulated extension cords are to be used.
- When an unqualified person is working in an elevated position near overhead lines, the location shall be such that the person and the longest conductive object being carried cannot come closer to any unguarded, energized overhead line than the following distances:

Table 2 Unqualified Personnel Distances

Minimum Nominal Voltage (kV)	Minimum Required Clearance (feet)
0 to 50	10
51 to 75	11
76 to 100	12
101 to 125	13
126 to 200	15
201 to 300	19
301 to 400	22
401 to 500	25
501 to 700	32
701 to 1000	34

18.2.2 Qualified Persons

Each site will determine, designate, and document employees who, through documented training work experience, or both; are qualified to work, On the following voltages:

Low voltage – up to 120V

Medium Voltage – 121 to 599V

High Voltage – 600V and above

Additional training requirements are necessary for employees to work within the limited approach boundaries. Qualified persons shall be knowledgeable of the Electrical Safety Work Practices for their specific sites. They should have the necessary skills and techniques to distinguish exposed live parts from other parts of electrical equipment and to determine the nominal voltage of exposed live parts. When fuses are installed or removed with one or both terminals energized, specific tools insulated for that voltage should be used.

18.3 Personal Protective Equipment (PPE)

All employees will be alerted through meetings and Task Hazard Reviews of the potential hazards that may exist before work begins.

PPE will be in compliance with all applicable laws and regulations. Conductive articles of jewelry and clothing (such as watchbands, bracelets, rings, key chains, necklaces, metal

headgear, or metal frame glasses) shall not be worn where they present an electrical contact hazard with exposed electrically energized parts.

Personal protective equipment used for electrical work must have insulation rated for the voltage of the electrical equipment and be able to insulate the Qualified Person from accidental or purposeful contact with electrical energy. Reference Appendix 2.

PPE shall be tested before issue, inspected before each use, and tested at the following intervals (or less): Rubber Gloves: 6 months **PPE and other equipment will be inspected prior to each days use, and immediately after any incident.**

18.4 Safety Equipment

Protective shields, protective barriers, or insulating materials shall be used to protect each employee from shock, burns, or other electrically related injuries while that employee is working near exposed, energized parts which might be accidentally contacted or where dangerous electric heating or arcing might occur.

Tools used for electrical work must have insulation rated for the voltage of the electrical equipment with which it will be used in order to maintain safe clearances and insulate the Qualified Person from accidental or purposeful contact with electrical energy.

Safety equipment shall be inspected before each use and tested at the following intervals (or less): Mats & Blankets: 12 months

Voltage rated, insulated tools shall be used when working on or near exposed energized circuits and shall be inspected before each use and properly rated for the circuits and / or equipment to be tested. All voltage testing equipment will be tested as working properly on known live and dead circuits.

18.5 Working on Energized Electrical Equipment

Work on energized equipment is not permitted **without an Energized Electrical Work Permit.** It is recognized that tests must be performed frequently on energized equipment in order to diagnose a problem.

In such cases where work on energized equipment necessary, the following be observed,

NOTE: Low voltage means up to 120 volts; Medium voltage means between 121 and 599 volts; High Voltage means 600 volts and above

If work is required on or near equipment that may come in contact with medium or high voltage that cannot be de-energized and made safe, the General Foreman, De-Cal, Inc. safety representative, along with the customer manager, shall review the job to determine if the equipment cannot be de-energized. As well as review making sure appropriate safety precautions have taken place.

Work on energized electrical equipment shall proceed only if De-Cal, Inc. and customer manager agree that the work must proceed at that time, that the equipment cannot be de-energized, and that the safety procedure includes obtaining an electrical hot work permit from the safety dept, the use of the properly-rated Arc Flash Clothing including but not limited to FR rated clothing rubber gloves (20kV), rubber boots, rubber blankets, test equipment, etc. **Proper illumination must be maintained around exposed energized parts.**

18.6 Temporary Wiring Requirements

The following standards shall be adhered to regarding temporary wiring requirements.

- Temporary wiring shall be guarded or isolated by elevation to prevent accidental contact with workers or equipment.
- Vertical clearance above walkways shall be greater than 7 ft. for circuits carrying 600V or less.
- For temporary wiring over 600V, fencing, barriers, or other effective means shall be provided to prevent access of unauthorized and unqualified personnel.
- Wires shall be insulated from their supports.
- Electrical cords shall not suspend temporary lights unless cords and lights are designated for this means of suspension.
- All lamps for general illumination shall be protected from accidental contact or breakage, and metal-case sockets shall be grounded.
- Temporary lighting strings shall be made up with cords having lamp sockets and connections protected by insulating coverings.
- Flexible Cords and cables shall be protected from damage, sharp corners and projections shall be avoided.
- Flexible cords and cables may pass through doorways or other pinch points if protection is provided.
- Extension cord sets used with portable electric tools and appliances shall be three-wire type and shall be designed for heavy industrial usage. Receptacles shall be of the grounding type.

- Portable electric lighting used in wet and/or other conductive locations (i.e., drums, tanks, and vessels) shall be operated at 12V or less. However 120V lights may be used if protected by a ground fault circuit interrupter. (GFCI)

18.7 Ground Fault Protection

Either ground fault circuit interrupters (GFCI) and/or an Assured Equipment Grounding Conductor Program shall provide employee protection on construction sites. Some customers may require the use of both GFCI and the program. Additionally, each project shall designate a competent person who is responsible for implementing the program. A written copy of the program shall be available on the job site for inspection or review.

GFCI's must be used with all portable electrical equipment and temporary circuits used in 120V service.

Ground fault protection may be provided in three ways:

1. Portable GFCI's (pig tails):
 - must be tested (tripped) and re-set before each use.
2. GFCI Ground Fault Receptacles:
 - shall be tested with a GFCI circuit tester when first installed.
 - must be tested per manufacturer's instructions.
3. Lighting Panel GFCI Breakers:
 - individual receptacles shall be identified with GFCI labels.
 - shall be tested with a GFCI circuit tester when first installed.

 - must be tested per manufacturer's instructions.

18.8 Installations

All 120V, single phase, 15 and 20-ampere receptacles shall be grounded by connection to the equipment-grounding conductor of the circuit supplying the receptacles In accordance with the requirements of the National Electric Code.

All 120V flexible cord sets (extension cords) shall have an equipment-grounding conductor that shall be connected to the grounding contact of the connector on each end of the cord.

The exposed non-current-carrying metal parts of the 120V cord and plug-connected tools and equipment that are likely to become energized shall be grounded in accordance with the requirements of the National Electric Code.

18.9 Visual Inspection and the Testing of Assured Grounding Program

All employees shall be instructed that each cord set and any equipment connected by cord and plug, except cord sets and receptacles that are not exposed to damage, shall be visually inspected daily for defects by the user.

Damaged equipment shall be removed from service and "tagged out" with a "DANGER - DO NOT USE" tag.

All 120V, single phase, 15 and 20-ampere receptacles, 120V flexible cord sets, and 120V equipment connected by cord and plug that are not part of the permanent wiring of the building or structure shall be tested to assure that electrical continuity is maintained. These tests shall be conducted as follows:

- All equipment-grounding conductors shall be electrically continuous and shall be tested for continuity.
- Each receptacle, attachment cap, and plug and receptacle of cord sets shall be tested for correct attachment of the equipment-grounding conductor. The equipment-grounding conductor shall be connected to its proper terminal.

18.10 Testing Intervals

Tests shall be performed at the following intervals:

- Before the first use
- Before equipment is returned to service following any repairs
- Before equipment is used after an incident that can be reasonably suspected to have caused damage (i.e., cord set is run over)
- Every three months - except cord sets and receptacles that are fixed and not exposed to damage shall be tested at intervals not to exceed six months.

Equipment shall not be used if it has not passed the required tests.

18.11 Equipment Testing Verification

All test instruments, equipment, accessories, and PPE will be rated for the circuits, voltages, equipment, and circumstances that are identified in the risk assessment. All test instruments, equipment, and their accessories will be rated for circuits and equipment to which they will be connected. All test equipment will be verified to be in proper working order before and after an absence of voltage testing is performed.

Color coding with electrical color tape is the recommended method of verifying that testing is current and that all receptacles, portable cords, and tools have been inspected and tested as required

Table 3 Color Code Scheme

Quarterly	
First Quarter (Jan to Mar)	Red
Second Quarter (Apr to Jun)	Blue
Third Quarter (July to Sept)	Green
Fourth Quarter (Oct to Dec)	Yellow
Six Month Interval	
First Half (Jan to Jun)	White
Second Half (July to Dec)	Orange

Records shall be kept that identify each receptacle. Cord sets, and cord and plug connected equipment inspected. As well as indicate the latest date or the interval for which it was tested.

18.12 Training

Electrical safety awareness training shall be conducted annually to all job site employees. Each Qualified Person must be trained to safely accomplish the tasks required by the work of his or her respective job assignment.

Training will include classroom and / or on-the-job training. Basic training categories covered will be:

1. The skills and techniques necessary to distinguish exposed energized circuits and/or parts from other parts of electric equipment.
2. The skills and techniques necessary to determine the nominal voltage of exposed energized circuits and/or parts.
3. The “arc flash” and “shock hazard” safety approach distances.
4. The decision-making process necessary to determine the degree and extent of the hazard and the personal protective equipment and job planning necessary to perform the task safely.
5. The safety-related work practices required by 29 CFR 1910.301, Subpart S; and 29 CFR 1926.400, Subpart K.
6. Procedures for locking out and tagging energized electrical circuits and equipment safely.
7. Energized Electrical Work Permit procedures.
8. **Re-training will take place when an employee displays a lack of understanding by non-compliance issues, or when the work situation changes. Re-Training will also take place every three years under normal circumstances.**

18.13 Records

Employee Training records shall be maintained for the duration of their employment.

18.14 References

OSHA CFR 1910, Subpart S (Electrical)

OSHA CFR 1910.137 (Electrical Protective Devices)

ASTM (Standards For Rubber Insulating Equipment)

NFPA 70E (Electrical Safety Requirements For Employee Workplaces)

NFPA 70 (NEC National Electric Code)

De-Cal Hot Work Permit

Appendix 1: Electrical Safety Matrix

	Troubleshooting	Working Near Or Working Hot (50V < V < 600V)
	_____	_____
Qualified Person.....	Required	Required
Client Approval / Permission.....	Required	See Note 4
Safety Watch.....	Not Required	See Note 1
Safety Review	See Note 2	See Note 2
Electrical Hot Work Permit, in a general purpose area.....	Required – See Note 3	Required
Electrical Hot Work Permit, in a classified area.....	Required – See Note 3	Required
PPE required.....	See Appendix 2	See Appendix 2

Note 1. A safety watch is not required when work is on or near an exposed hazard of 120V nominal or less.

Note 2. Required, unless the Hazard/Risk Category is 1 or less OR a procedure exists for the task. Ref: Appendix 2.

Note 3. An Electrical Hot Work Permit is required in general purpose as well as classified areas

Note 4. Client approval / permission is not required for Hazard/Risk Category of 1 or less

Appendix 2: NFPA Hazard Risk Classification and PPE matrix

NFPA 70E TABLE 130.7 (C) (9) – HAZARD RISK CATEGORY CLASSIFICATIONS AND USE OF RUBBER GLOVES, INSULATED AND INSULATING HAND TOOLS

Tasks Performed on Energized Equipment	Hazard/Risk Category	Rubber Insulating Gloves	Insulated & Insulating Hand Tools
Panelboards or Other Equipment Rated 240 V and Below -- Note 1			
Perform infrared thermography & other non-contact inspections outside the restricted approach boundary	0	N	N
Circuit breaker (CB) or fused switch operation with covers on	0	N	N
CB or fused switch operation with covers off	0	N	N
Work on energized electrical conductors and circuit parts, including voltage testing	1	Y	Y
Remove/install CBs or fused switches	1	Y	Y
Removal of bolted covers (to expose bare, energized electrical conductors and circuit parts)	1	N	N
Opening hinged covers (to expose bare, energized electrical conductors and circuit parts)	0	N	N
Work on energized electrical conductors and circuit parts of utilization equipment fed directly by a branch circuit of the panel board	1	Y	Y
Panelboards or Switchboards Rated > 240 V and up to 600 V (with molded case of insulated circuit breakers) -- Note 1			
Perform infrared thermography & other non-contact inspections outside the restricted approach boundary	1	N	N
Circuit breaker (CB) or fused switch operation with covers on	0	N	N
CB or fused switch operation with covers off	1	Y	N
Work on energized electrical conductors and circuit parts, including voltage testing	2*	Y	Y
Work on energized electrical conductors and circuit parts of utilization equipment fed directly by a branch circuit of the panel board	2*	Y	Y

APPENDIX 2 - (CONTINUED)

Tasks Performed on Energized Equipment	Hazard/Risk Category	Rubber Insulating Gloves	Insulated & Insulating Hand Tools
600 V Class Motor Control Centers (MCCs) - Note 2 (except as indicated)			
Perform infrared thermography & other non-contact inspections outside the restricted approach boundary	1	N	N
CB or fused switch or starter operation with enclosure doors closed	0	N	N
Reading a panel meter while operating a meter switch	0	N	N
CB or fused switch or starter operation with enclosure doors open	1	N	N
Work on energized electrical conductors and circuit parts, including voltage testing	2*	Y	Y
Work on control circuits with energized electrical conductors and circuit parts 120 V or below, exposed	0	Y	Y
Work on control circuits with energized electrical conductors and circuit parts > 120 V, exposed	2*	Y	Y
Insertion or removal of individual starter "buckets" from MCC -- Note 3	4	Y	N
Application of safety grounds, after voltage test	2*	Y	N
Removal of bolted covers (to expose bare, energized electrical conductors and circuit parts) -- Note 3	4	N	N
Opening hinged covers (to expose bare, energized electrical conductors and circuit parts) -- Note 3	1	N	N
Work on energized electrical conductors and circuit parts of utilization equipment fed directly by a branch circuit of the motor control center	2*	Y	Y

© NFPA ELECTRICAL SAFETY IN THE WORKPLACE 2009 EDITION

APPENDIX 2 - (CONTINUED)

Tasks Performed on Energized Equipment	Hazard/Risk Category	Rubber Insulating Gloves	Insulated & Insulating Hand Tools
600 V Class Switchgear (with power circuit breakers of fused switches) -- Note 4			
Perform infrared thermography & other non-contact inspections outside the restricted approach boundary	2	N	N
CB or fused switch operation with enclosure doors closed	0	N	N
Reading a panel meter while operating a meter switch	0	N	N
CB or fused switch operation with enclosure doors open	1	N	N
Work on energized electrical conductors and circuit parts, including voltage testing	2*	Y	Y
Work on control circuits with energized electrical conductors and circuit parts 120 V or below, exposed	0	Y	Y
Work on control circuits with energized electrical conductors and circuit parts > 120 V, exposed	2*	Y	Y
Insertion or removal (racking) of CBs from cubicles, doors open or closed	4	N	N
Application of safety grounds, after voltage test	2	Y	N
Removal of bolted covers (to expose bare, energized electrical conductors and circuit parts)	4	N	N
Opening hinged covers (to expose bare, energized electrical conductors and circuit parts)	2	N	N
Other 600 V Class (277 V thru 600 V, nominal) Equipment -- Note 2 (except as indicated)			
Lighting or small transformers (600 V, nominal)			
(i) Removal of bolted covers (to expose bare, energized electrical conductors and circuit parts)	2*	N	N
(ii) Opening hinged covers (to expose bare, energized electrical conductors and circuit parts)	1	N	N
(iii) Work on energized electrical conductors and circuit parts, including voltage testing	2*	Y	Y
(iv) Application of safety grounds, after voltage test	2*	Y	N
Revenue meters (kW-hour, at primary voltage and current) Insertion or removal	2*	Y	N
Cable trough or tray cover removal or installation	1	N	N
Miscellaneous equipment cover removal or installation	1	N	N
Work on energized electrical conductors and circuit parts, including voltage testing	2*	Y	Y
Application of safety grounds, after voltage test	2*	Y	N
Insertion or removal of plug-in devices into or from busways	2*	Y	N

© NFPA ELECTRICAL SAFETY IN THE WORKPLACE 2009 EDITION

APPENDIX 2 - (CONTINUED)

Tasks Performed on Energized Equipment	Hazard/Risk Category	Rubber Insulating Gloves	Insulated & Insulating Hand Tools
NEMA 2E (fused contactor) Motor Starters, 2.3 kV thru 7.2kV			
Perform infrared thermography & other non-contact inspections outside the restricted approach boundary	3	N	N
Contractor operation with enclosure doors closed	0	N	N
Reading a panel meter while operating a meter switch	0	N	N
Contractor operation with enclosure doors open	2*	N	N
Work on energized electrical conductors and circuit parts, including voltage testing	4	Y	Y
Work on control circuits with energized electrical conductors and circuit parts 120 V or below, exposed	0	Y	Y
Work on control circuits with energized electrical conductors and circuit parts > 120 V, exposed	3	Y	Y
Insertion or removal (racking) of starters from cubicles, doors open or closed	4	N	N
Application of safety grounds, after voltage test	3	Y	N
Removal of bolted covers (to expose bare, energized electrical conductors and circuit parts)	4	N	N
Opening hinged covers (to expose bare, energized electrical conductors and circuit parts)	3	N	N
Insertion or removal (racking) of starters from cubicles of arc-resistant construction, tested in accordance with IEEE C37.20.7, doors closed only	0	N	N

© NFPA ELECTRICAL SAFETY IN THE WORKPLACE 2009 EDITION

APPENDIX 2 - (CONTINUED)

Tasks Performed on Energized Equipment	Hazard/Risk Category	Rubber Insulating Gloves	Insulated & Insulating Hand Tools
Metal Clad Switchgear, 1kV thru 38 kV			
Perform infrared thermography & other non-contact inspections outside the restricted approach boundary	3	N	N
CB operation with enclosure doors closed	2	N	N
Reading a panel meter while operating a meter switch	0	N	N
CB operation with enclosure doors open	4	N	N
Work on energized electrical conductors and circuit parts, including voltage testing	4	Y	Y
Work on control circuits with energized electrical conductors and circuit parts 120 V or below, exposed	2	Y	Y
Work on control circuits with energized electrical conductors and circuit parts > 120 V, exposed	4	Y	Y
Insertion or removal (racking) of CBs from cubicles, doors open or closed	4	N	N
Application of safety grounds, after voltage test	4	Y	N
Removal of bolted covers (to expose bare, energized electrical conductors and circuit parts)	4	N	N
Opening hinged covers (to expose bare, energized electrical conductors and circuit parts)	3	N	N
Opening voltage transformer or control power transformer compartments	4	N	N
Arc-Resistant Switchgear Type 1 or 2 (for clearing times of <0.5 sec with a perspective fault current not to exceed the arc resistant rating of the equipment)			
CB operation with enclosure door closed	0	N	N
Insertion or removal (racking) of CBs from cubicles, doors closed	0	N	N
Insertion or removal (racking) of CBs from cubicles with door open	4	N	N
Work on control circuits with energized electrical conductors and circuit parts > 120 V, exposed	2	Y	Y
Insertion or removal (racking) of ground and test device with door closed	0	N	N
Insertion or removal (racking) of voltage transformers on or off the bus door closed	0	N	N

© NFPA ELECTRICAL SAFETY IN THE WORKPLACE 2009 EDITION

APPENDIX 2 - (CONTINUED)

Tasks Performed on Energized Equipment	Hazard/Risk Category	Rubber Insulating Gloves	Insulated & Insulating Hand Tools
Other Equipment 1kV thru 38kV			
Metal-enclosed interrupter switchgear, fused or unfused			
(a) Switch operation of arc-resistant-type construction, tested in accordance with IEEE C37.20.7, doors closed only	0	N	N
(b) Switch operation, doors closed	2	N	N
(c) Work on energized electrical conductors and circuit parts, including voltage testing	4	Y	Y
(d) Removal of bolted covers (to expose bare, energized electrical conductors and circuit parts)	4	N	N
(e) Opening hinged covers (to expose bare, energized electrical conductors and circuit parts)	3	N	N
(f) Outdoor disconnect switch operation (hookstick operated)	3	Y	Y
(g) Outdoor disconnect switch operation (gang-operated, from grade)	2	Y	N
Insulated cable examination, in manhole or other confined space	4	Y	N
Insulated cable examination, in open area	2	Y	N

© NFPA ELECTRICAL SAFETY IN THE WORKPLACE 2009 EDITION

APPENDIX 2 - (CONTINUED)

General Notes (applicable to the entire table)

(a) Rubber insulating gloves are gloves rated for the maximum line-to-line voltage upon which work will be done.

(b) Insulated and insulating hand tools are tools rated and tested for the maximum line-to-line voltage upon which work will be done, and are manufactured and tested in accordance with ASTM F 1505, *Standard Specification for Insulated and Insulating Hand Tools*.

(c) Y = yes (required), N = no (not required)

(d) For systems rated less than 1000 volts, the fault currents and upstream protective device clearing times are based on an 18 inch working space.

(e) For systems rated 1kV and greater, the Hazard/Risk Categories are based on a 36 inch working distance.

(f) For equipment protected by upstream current limiting fuses with arcing fault current in their current limiting range (1/2 cycle fault clearing time or less), the Hazard/Risk category may be reduced by one number.

Specific Notes:

1. Maximum of 25 kA short circuit current available; maximum of 0.03 second (2 cycle) fault clearing time.
2. Maximum of 65 kA short circuit current available; maximum of 0.03 second (2 cycle) fault clearing time.
3. Maximum of 42 kA short circuit current available; maximum of 0.33 second (20 cycle) fault clearing time
4. Maximum of 35 kA short circuit current available; maximum of up to 0.5 second (30 cycle) fault clearing time

© NFPA ELECTRICAL SAFETY IN THE WORKPLACE 2009 EDITION

APPENDIX 2 - (CONTINUED)**NFPA 70E 130.7(C) (10) Protective Clothing and Personal Protective Equipment Matrix**

Once the Hazard/Risk Category has been identified from Table 130.7(c)(9) (including associated notes) and the requirements of 130.7(c)(9), Table 130.7(c)(10) shall be used to determine the required PPE for the task. Table 130.7(c)(10) lists the requirements for protective clothing and other protective equipment based on Hazard/Risk Category numbers 0 thru 4. This clothing and equipment shall be used when working within the Arc Flash Protection Boundary.

Hazard/Risk Category	Protective Clothing and PPE
Hazard/Risk Category 0	
Protective Clothing, Nonmelting (according to ASTM F 1506-00) or Untreated Natural Fiber	Shirt (long Sleeve) Pants (long)
FR Protective Equipment	Safety glasses or safety goggles (SR) Hearing protection (ear canal inserts) Leather gloves (AN) (Note 2)
Hazard/Risk Category 1	
FR Clothing, Minimum Arc Rating of 4 (Note 1)	Arc-rated long-sleeve shirt (Note 3) Arc-rated pants (Note 3) Arc-rated coverall (Note 4) Arc-rated face shield or arc-flash suit hood (Note 7) Arc-rated jacket, parka, or rainwear (AN)
FR Protective Equipment	Hard hat Safety glasses or safety goggles (SR) Hearing protection (ear canal inserts) Leather gloves (Note 2) Leather work shoes
Hazard/Risk Category 2	
FR Clothing, Minimum Arc Rating of 8 (Note 1)	Arc-rated long-sleeve shirt (Note 5) Arc-rated pants (Note 5) Arc-rated coverall (Note 6) Arc-rated face shield or arc-flash suit hood (Note 7) Arc-rated jacket, parka, or rainwear (AN)
FR Protective Equipment	Hard hat Safety glasses or safety goggles (SR) Hearing protection (ear canal inserts) Leather gloves (Note 2) Leather work shoes

© NFPA ELECTRICAL SAFETY IN THE WORKPLACE 2009 EDITION

APPENDIX 2 - (CONTINUED)

Hazard/Risk Category	Protective Clothing and PPE
Hazard/Risk Category 2*	
FR Clothing, Minimum Arc Rating of 8 (Note 1)	Arc-rated long-sleeve shirt (Note 5) Arc-rated pants (Note 5) Arc-rated coverall (Note 6) Arc-rated face shield or arc-flash suit hood (Note 10) Arc-rated jacket, parka, or rainwear (AN)
FR Protective Equipment	Hard hat Safety glasses or safety goggles (SR) Hearing protection (ear canal inserts) Leather gloves (Note 2) Leather work shoes
Hazard/Risk Category 3	
FR Clothing, Minimum Arc Rating of 25 (Note 1)	Arc-rated long-sleeve shirt (AR) (Note 8) Arc-rated pants (AR) (Note 8) Arc-rated coverall (AR) (Note 8) Arc-rated flash suit jacket (AR) (Note 8) Arc-rated flash suit pants (AR) (Note 8) Arc-rated flash suit hood (Note 8) Arc-rated jacket, parka, or rainwear (AN)
FR Protective Equipment	Hard hat FR Hard hat liner (AR) Safety glasses or safety goggles (SR) Hearing protection (ear canal inserts) Leather gloves (Note 2) Leather work shoes
Hazard/Risk Category 4	
FR Clothing, Minimum Arc Rating of 40 (Note 1)	Arc-rated long-sleeve shirt (AR) (Note 9) Arc-rated pants (AR) (Note 9) Arc-rated coverall (AR) (Note 9) Arc-rated flash suit jacket (AR) (Note 9) Arc-rated flash suit pants (AR) (Note 9) Arc-rated flash suit hood (Note 9) Arc-rated jacket, parka, or rainwear (AN)
FR Protective Equipment	Hard hat FR Hard hat liner (AR) Safety glasses or safety goggles (SR) Hearing protection (ear canal inserts) Leather gloves (Note 2) Leather work shoes

© NFPA ELECTRICAL SAFETY IN THE WORKPLACE 2009 EDITION

APPENDIX 2 - (CONTINUED)

AN = As needed

AR = As required

SR = Selection required

Notes:

1. See Table 130.7(C) (11). Arc rating for a garment or system of garments is expressed in cal/cm².
2. If rubber insulating gloves with leather protectors are required by table 130.7(C) (9), additional or arc-rated gloves are not required. The combination of rubber insulating gloves with leather protectors satisfies the arc flash protection requirements.
3. The FR shirt and pants used for Hazard/Risk Category 1 shall have a minimum arc rating of 4.
4. Alternate is to use FR coveralls (minimum arc rating of 4) instead of FR shirt and FR pants.
5. FR shirt and pants used for Hazard/Risk Category 2 shall have a minimum arc rating of 8.
6. Alternate is to use FR coveralls (minimum arc rating of 8) instead of FR shirt and FR pants.
7. A face shield with a minimum arc rating of 4 for Hazard/Risk Category or a minimum arc rating of 8 for Hazard/Risk Category 2, with wrap-around guarding to protect not only the face, but also the forehead, ears, and neck (or alternatively, an arc rated arc flash suit hood), is required.
8. An alternate is to use a total FR clothing system and hood, which shall have a minimum arc rating of 25 for Hazard/Risk Category 3.
9. The total clothing system consisting of FR shirt and pants and/or FR coveralls and/or arc flash coat and pant and hood shall have a minimum arc rating of 40 for Hazard/Risk Category 4.
10. Alternate is to use a face shield with a minimum arc rating of 8 and a balaclava (sock hood) with a minimum arc rating of 8 and which covers the face, head and neck except for the eye and nose areas.

Table 130.7(C)(11) lists examples of protective clothing systems and typical characteristics, including the degree of protection, for various clothing. The protective clothing selected for the corresponding Hazard/Risk Category number determined from Table 130.7(C)(9) (including associated notes) and the requirements of 130.7(C)(9) shall have a arc rating of at least the value listed in the last column of Table 130.7(C)(11).

NFPA TABLE 130.7 (C) (11) Protective Clothing Characteristics

Hazard/Risk Category	Clothing Description	Required Minimum Arc Rating of PPE [J/cm ² (cal/cm ²)]
0	Non-melting, flammable materials (i.e., untreated cotton, wool, rayon, or silk, or blends of these materials) with a fabric weight of least 4.5 oz/yd ² (1)	N/A
1	Arc-rated FR shirt and FR pants or FR coverall	16.74 (4)
2	Arc-rated FR shirt and FR pants or FR coverall	33.47 (8)
3	Arc-rated FR shirt and FR pants or FR coverall, and arc flash suit selected so that the system arc rating meets the required minimum.	104.6 (25)
4	Arc-rated FR shirt and FR pants or FR coverall, and arc flash suit selected so that the system arc rating meets the required minimum.	167.36 (40)

Note: Arc rating is defined in NFPA 70E Article 100 and can be either ATPV or Ebt. ATPV is defined in ASTM F 1959, *Standard Test Method for Determining the Arc Thermal Performance Value of Materials for Clothing*, as the incident energy on a material or a multilayer system of materials that results in a 50% probability that sufficient heat transfer through the tested specimen is predicted to cause the onset of a second degree burn based on the Stoll curve, cal/cm². Ebt is defined in ASTM F 1959 as the incident energy on a material or a material system that results in a 50% probability of break-open. Arc rating is reported as either APTV or Ebt, whichever is the lower value.

APPENDIX 3**Job Briefing and Planning Checklist**

This annex is not a part of the requirements of this NFPA document but is included for informational purposes only

IDENTIFY

- The hazards
- The voltage levels involved
- Skills required
- Any "foreign" (secondary source) voltage source
- Any unusual work conditions
- Number of people needed to do the job
- The shock protection boundaries
- The available incident energy
- Potential for arc flash
(Conduct an arc flash-hazard analysis)
- Arc flash protection boundary

ASK

- Can the equipment be de-energized?
- Are back-feeds of the circuits to be worked on possible?
- Is a "standby person" required?

CHECK

- Job plans
- Single-line diagrams and vendor prints
- Status board
- Information on plant and vendor resources is up to date
- Safety procedures
- Vendor information
- Individuals are familiar with the facility

© NFPA ELECTRICAL SAFETY IN THE WORKPLACE 2009 EDITION

APPENDIX 3 - (CONTINUED)
Job Briefing and Planning Checklist

KNOW

- What the job is
- Who else needs to know - Communicate!
- Who is in charge

THINK

- About the unexpected event....What if?
- LOCK - TAG - TEST - TRY
- Test for voltage- FIRST
- Use the right tools and equipment, including PPE
- Install and remove grounds
- Install barriers and barricades
- What else...?

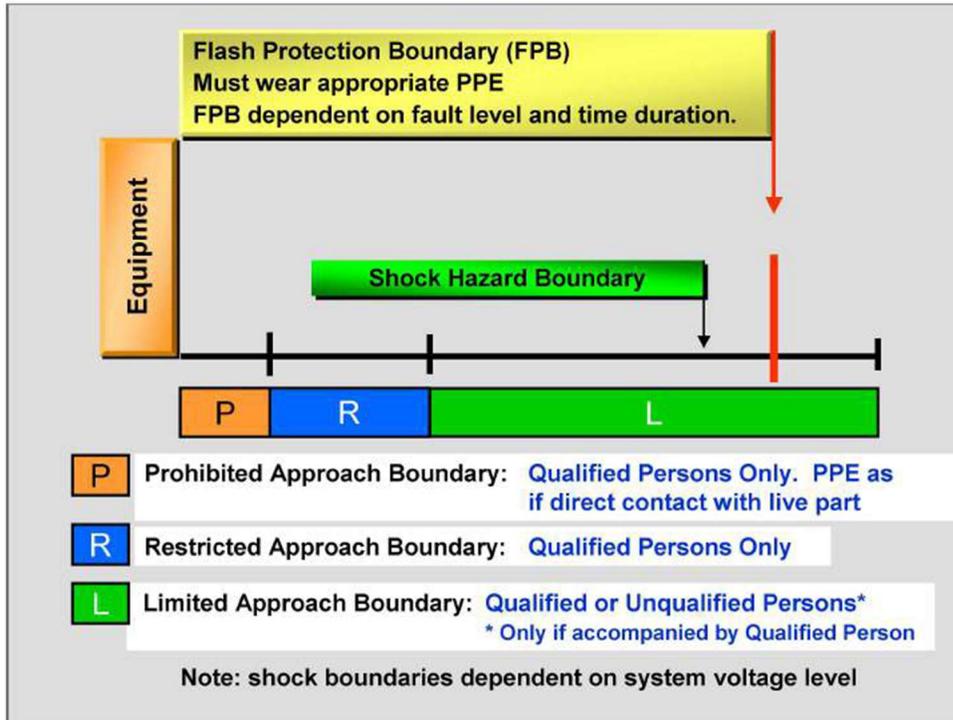
PREPARE FOR AN EMERGENCY

- Is the standby person CPR trained?
Is the required emergency equipment available? Where is it?
- Where is the nearest telephone?
- Where is the fire alarm?
- Is confined space rescue available?
- What is the exact work location?
- How is the equipment shut off in an emergency?
- Are the emergency telephone numbers known?
- Where is the fire extinguisher?
- Are radio communications available?

This is a Sample Job Briefing and Planning Checklist that needs to be considered when planning for an energized work project and/or situation.

Appendix 4: Safe Approach Boundaries / Risk Assessment

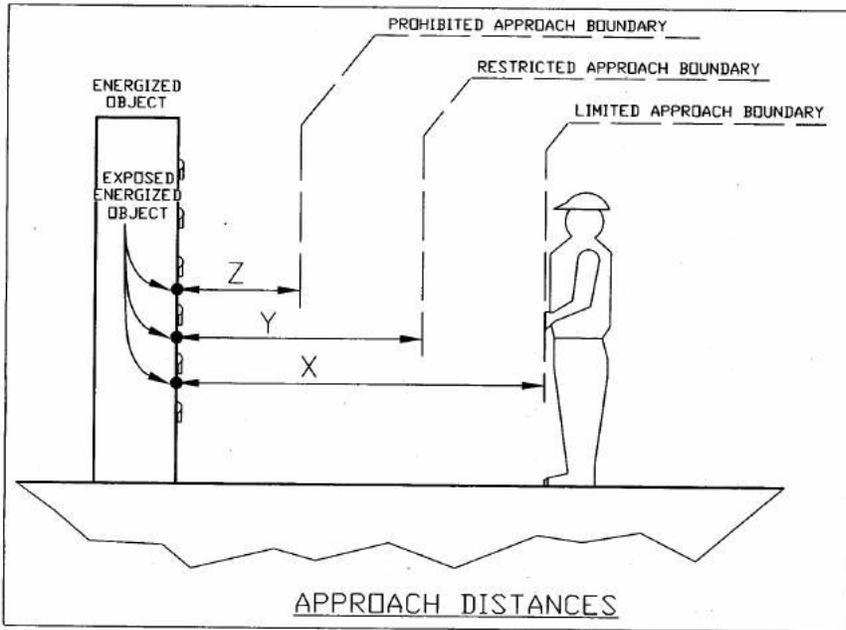
Risk Assessment Procedures will be facilitated by a Qualified Person only, and will be documented. After the risk assessment is accomplished and documented, approach boundaries as noted below will be followed. Work will not begin until after a complete risk assessment has been accomplished, documented, and reviewed with all personnel below. **Only after the Arc-Flash risk assessment is completed, work will begin.**



Approach Distances for Energized Equipment, (General)

300V and less	Avoid Contact
Over 300V, not over 750V	1 ft. 0 in.
Over 750V, not over 2 kV	1 ft. 6 in.
Over 2 kV, not over 15 kV	2 ft. 0 in.
Over 15 kV not over 37kV	3 ft. 0 in.
Over 37kV, not over 87.5kV	3 ft. 6 in.
Over 87.5 kV, not over 121kV	4 ft. 0 in.
Over 121kV, not over 140kv	4 ft. 6 in.

Appendix 4: Safe Approach Boundaries (Continued)



Approach Boundaries to Live Parts for Shock Protection (All dimensions are distance from live part to employee.)				
Dimension	X		Y	Z
	Limited approach boundary			
			Restricted approach boundary; includes inadvertant movement adder	Prohibited approach boundary
Nominal system voltage range. phase to phase	Exposed movable conductor	Exposed fixed circuit part		
0 to 50	Not specified	Not specified	Not specified	Not specified
51 to 300	10 ft. 0 in.	3 ft. 6 in.	Avoid contact	Avoid contact
301 to 750	10 ft. 0 in.	3 ft. 6 in.	1 ft. 0 in.	0 ft. 1 in.
751 to 15 kV	10 ft. 0 in.	5 ft. 0 in.	2 ft. 2 in.	0 ft. 7 in.
15.1 kV to 36 kV	10 ft. 0 in.	6 ft. 0 in.	2 ft. 7 in.	0 ft. 10 in.
36.1 kV to 46 kV	10 ft. 0 in.	8 ft. 0 in.	2 ft. 9 in.	1 ft. 5 in.
46.1 kV to 72.5 kV	10 ft. 0 in.	8 ft. 0 in.	3 ft. 3 in.	2 ft. 1 in.
72.6 kV to 121 kV	10 ft. 8 in.	8 ft. 0 in.	3 ft. 2 in.	2 ft. 8 in.
138 kV to 145 kV	11 ft. 0 in.	10 ft. 0 in.	3 ft. 7 in.	3 ft. 1 in.

Audits of all field work will be performed as necessary, or on an annual basis as a minimum.



ARSENIC AWARENESS

46.1.1 The purpose of this policy is to summarize pertinent information about inorganic / organic arsenic for workers who may need such information to conduct their work tasks safely. Recommendations may be superseded by new developments in this field. Workers are advised to regard these recommendations as general guidelines.

46.1.2 De-Cal, Inc. is not a user of inorganic / organic arsenic. This material may be found at our client's facilities. De-Cal, Inc. will request copies of any plot plan or unit map indicating the location of regulated areas.

46.2 GENERAL SAFETY

46.2.1 Arsenic is a naturally occurring metal released into the environment by natural and unnatural (industrial and commercial) processes. Arsenic compounds can be classified into three major forms: inorganic, organic and arsine gas.

46.2.2 OSHA enforces regulations for toxic substances in the workplace. These regulations are enforceable by law. OSHA regulations are based on both air monitoring and biological monitoring of the worker. Air monitoring provides data on work place conditions, guides industrial hygiene measures and serves as the basis for requiring medical / biological monitoring of workers. Biological monitoring measures the uptake of arsenic into the body, reflects actual exposure and is used to assess health risk to workers.

46.2.3 OSHA enforces regulations on inorganic / organic arsenic exposure in the workplace. Workers exposed to levels of airborne arsenic levels above the PEL for more than 30 days per year must be placed in a medical surveillance program. Biological monitoring of arsenic levels is not explicitly required by this standard.

46.2.4 OSHA is currently developing medical surveillance regulations for individuals occupationally exposed to organic arsenic compounds. Until a complete standard is promulgated, OSHA has put forth recommended guidelines for protection from the risk of illness resulting from exposure to organic arsenic. Workers cannot be exposed above the PEL for an 8 hour period. Organic arsenic can be measured in the urine.

46.2.5 The action level, as prescribed by 29 CFR 1926.1118, is 5 micrograms per cubic meter (5ug/m³) of air averaged over any eight hour period. The permissible exposure level (PEL) has been established at inorganic / organic arsenic concentrations greater than 10 micrograms per cubic meter (10ug/m³) of air, averaged over any 8 hour period.

46.2.6 De-Cal, Inc. will make readily available to all affected employees a copy of the OSHA standard and its appendices.

46.3 OCCUPATIONAL EXPOSURE

46.3.1 Arsenic exposure may occur in refining or smelting of metal ores, microelectronics, wood preservation, wood joinery shops, battery manufacturing and working in power plants that burn arsenic-rich coal.

46.3.2 Occupational exposure occurs primarily through inhalation of dust or fumes containing inorganic / organic arsenic. Ingestion and dermal exposure to inorganic / organic and organic arsenic compounds may occur in certain situations.

46.3.3 Most occupational exposure to arsine occurs following inhalation of the gas that has been accidentally generated when arsenic-containing crude ores or metals are treated with acid. Acute high-dose exposures to arsine gas can be particularly harmful.

46.3.4 It is rare for workers to be exposed to arsenic alone. Exposure usually occurs in combination with other metals.

46.4 HEALTH HAZARDS

46.4.1 Inorganic / organic arsenic compounds may cause adverse health effects following exposure via inhalation, ingestion or dermal or eye contact.

46.4.2 Inhalation, ingestion or dermal exposure of workers to inorganic / organic arsenic has caused peripheral nerve inflammation and degeneration, reduced peripheral circulation, anemia, increased mortality due to cardiovascular failure and cancers of the skin, lungs and lymphatic system.

46.4.3 Short term (acute) exposure to inorganic / organic arsenic can cause nausea, vomiting, diarrhea, weakness, loss of appetite, cough, chest pain, giddiness, headache and breathing difficulty.

46.4.4 Long term (chronic) exposure to inorganic / organic arsenic can cause weakness, nausea, vomiting, diarrhea, skin and eye irritation, hyperpigmentation, thickening of the palms and soles (hyperkeratosis), contact dermatitis, skin sensitization, warts, ulceration and perforation of the nasal septum and numbness and weakness in the legs and feet.

46.5 COMMUNICATION

46.5.1 Signs will be posted around the perimeter of the regulated area and labels will be used to identify samples, waste, contaminated clothing and equipment will be utilized.

46.5.2 Signs stating the following will be posted in and around the regulated work area: **DANGER - INORGANIC / ORGANIC ARSENIC - CANCER HAZARD AUTHORIZED PERSONNEL - RESPIRATOR REQUIRED**

46.5.3 Labels must be applied to all shipping and storage containers of inorganic / organic arsenic: **DANGER - CONTAINS INORGANIC / ORGANIC ARSENIC - CANCER HAZARD HARMFUL IF INHALED OR SWALLOWED USED ONLY WITH ADEQUATE VENTILATION OR RESPIRATORY PROTECTION**

46.5.4 Provide signs and labels clearly indicating carcinogenic hazards and the prohibition of eating or drinking in regulated areas.

46.5.4.1 Labels are not required when inorganic / organic arsenic in the product is bound in such a manner as to make unlikely the possibility of airborne exposure to inorganic / organic arsenic.

46.5.5 DE-CAL, INC. will maintain a SDS that conforms to the provision of OSHA's hazard communication standard.

46.6 REGULATED AREAS

46.6.1 Employers must identify areas where exposure to Arsenic exceeds the PEL. These areas must be clearly marked and only authorized persons allowed to enter. Eating, drinking and applying cosmetics is prohibited in regulated areas.

46.6.2 Regulated areas will be established where employee exposures are in excess of the PEL.

46.6.3 Hygiene facilities will be provided to employees working in regulated areas.

46.6.4 The regulated area must be segregated from the rest of the work place in a manner that will minimize the number of persons who will be exposed.

46.6.5 Access to the regulated area must be limited to persons authorized, trained, and designated as having access to the area.

46.6.6 Food, beverages, smoking products, chewing tobacco or other smokeless tobacco and chewing gum will not be consumed in the regulated area. Cosmetics will also not be applied. Drinking water may be consumed.

46.6.7 All persons entering a regulated area must be trained, qualified, fit tested and provided with respiratory protection in accordance with the Respiratory Protection policy. Documentation of training must be on file with the safety director.

46.7 MONITORING

46.7.1 Determinations of airborne exposure levels will be made from air samples that are representative of each employee's exposure to inorganic / organic arsenic over an eight hour period.

46.7.1.1 Employee exposure is that exposure which would occur if the employee were not using a respirator.

46.7.2 De-Cal, Inc. will collect full shift, for at least 7 continuous hours, personal samples including at least one sample for each shift for each job classification in each work area.

46.7.3 Each employer who has a workplace with possible arsenic exposure will monitor each such workplace and work operation to accurately determine the airborne concentration of inorganic / organic arsenic to which employees may be exposed.

46.7.4 If the initial monitoring reveals employee exposure to be below the action level the measurements need not be repeated except as provided in this policy.

46.7.5 If the initial monitoring or subsequent monitoring reveals employee exposure to be above the permissible exposure limit, the employer will repeat monitoring at least quarterly.

46.7.6 If initial or subsequent monitoring reveals employee exposure to be above the action level and below the PEL, monitoring will be repeated at least every six months.

46.7.7 De-Cal, Inc. will continue monitoring at the required frequency until at least two consecutive measurements, taken at least seven days apart, are below the action level at which time the employer may discontinue monitoring for that employee until such time as any of the events in this policy.

46.7.8 Whenever there has been a production, process, control or personal change which may result in new or additional exposure to inorganic / organic arsenic or whenever De-Cal, Inc. has any other reason to suspect a change which may result in new or additional exposures to inorganic / organic arsenic, additional monitoring will be conducted.

46.7.9 The employer must, within 15 working days after the receipt of the results of any monitoring, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to affected employees.

46.7.10 Whenever the results indicate that the representative employee exposure exceeds the PEL, De-Cal, Inc. will include in the written notice a statement that the PEL was exceeded and a description of the corrective action taken to reduce exposure to or below the PEL.

46.7.11 Employees are provided an opportunity to observe any monitoring of exposure to inorganic / organic arsenic.

46.7.12 Whenever observation of exposure monitoring of inorganic / organic arsenic requires entry into an area where the use of respirators, protective clothing or equipment is required, De-Cal, Inc. will provide the observer with and assure the use of such respirators, clothing and such equipment and require observer to comply with all other applicable safety and health procedures.

46.7.13 Observer is entitled to receive an explanation of the measurement procedures, observe all steps related to the monitoring of inorganic / organic arsenic performed at the place of exposure and record the results obtained or receive copies of the results when returned by the laboratory.

46.8 MEDICAL SURVEILLANCE

46.8.1 Workers with potential exposures to chemical hazards should be monitored in a systematic program of medical surveillance intended to prevent or control occupational injury and disease.

The program includes education of employers and workers about work related hazards, placement of workers in jobs that do not jeopardize their safety and health, earliest possible detection of adverse health effects and referral of workers for diagnostic confirmation and treatment. A medical surveillance program is intended to supplement, not replace, such measures.

46.8.2 De-Cal, Inc. will institute a medical surveillance program for employees who are or will be exposed above the action level, without regard to the use of respirators, at least 30 days per year and employees who have been exposed above the action level, without regard to respirator use, for 30 days or more per year for a total of 10 years or more of combined employment with the employer or predecessor employers prior to or after the effective date of this standard.

46.8.3 Exposure determination prior to the effective date of the OSHA standard will be based upon prior exposure records, comparison with the first measurements or comparison with exposure records in areas with similar processes, extent of engineering controls utilized and materials used by that employer.

46.8.4 Medical examinations and procedures are performed by or under the supervision of a licensed physician and will be provided without cost to the employee, without loss of pay and at a reasonable time and place.

46.8.5 This analysis may provide information about the relatedness of adverse health effects and occupational exposure that cannot be discerned from results in individual workers. Sensitivity, specificity and predictive values of biologic monitoring and medical screening tests should be evaluated on an industry wide basis prior to application in any given worker group. Intrinsic to a surveillance program is the dissemination of summary data to those who need to know, including employers, health professionals, potentially exposed workers, regulatory and public health agencies.

46.8.6 De-Cal, Inc. will provide each affected employee an opportunity for a medical examination, including a work history and a medical history which will include a smoking history and the presence and degree of respiratory symptoms such as breathlessness, cough, sputum production and wheezing and a medical examination which will include a standard posterior/anterior chest x-ray, a nasal and skin examination and other examinations which the physician believes appropriate because of the employees exposure to inorganic / organic arsenic or because of required respirator use.

46.8.7 Medical examinations will be provided at least annually. Whenever a covered employee has not taken medical examinations within six months preceding the termination of employment, De-Cal, Inc. will provide such examinations to the employee upon termination of employment.

46.8.8 If employee develops signs or symptoms commonly associated with exposure to inorganic / organic arsenic the employer will provide an appropriate examination and emergency medical treatment.

46.8.9 De-Cal, Inc. will provide a description of the affected employee's duties as they relate to the employee's exposure, the employee's representative exposure level or anticipated exposure level, a description of any personal protective equipment used or to be used and information from previous medical examinations of the affected employee which may not be readily available to the examining physician.

46.8.10 De-Cal, Inc. will obtain medical exam results and tests performed, physician's opinion as to whether the employee has any detected medical conditions which would place the employee at increased risk of material impairment of employee health from exposure to inorganic / organic arsenic, any recommended limitations upon employee exposure to inorganic / organic arsenic or upon the use of protective clothing or equipment such as respirators and a statement that the employee has been informed by the physician of the results of the medical examination and any medical conditions which require further explanation or treatment.

46.8.11 De-Cal, Inc. will advise physician not to reveal specific findings/diagnoses unrelated to occupational exposure in the written opinion. De-Cal, Inc. will provide a copy of the written opinion to affected employee.

46.9 CONTROLS

46.9.1 De-Cal, Inc. will use engineering and work practice controls to reduce exposures below the PEL, except to the extent that De-Cal, Inc. can establish that such controls are not feasible.

46.9.2 Where engineering and work practice controls are not sufficient to reduce exposures below the PEL, they will nonetheless be used to reduce exposures to the lowest levels achievable by these controls and supplemented by the use of respirators and other PPE in accordance with OSHA.

46.9.2.1 Employee rotation is not required as a control strategy before respirators are instituted.

46.9.3 De-Cal, Inc. has established and implemented this written program to reduce exposures to or below the PEL level of 10 µg/m³ by means of engineering controls and work practice controls. The written program will include:

46.9.3.1 A description of each operation in which inorganic / organic arsenic is emitted

46.9.3.2 Engineering plans and studies used to determine methods selected for controlling exposure to inorganic / organic arsenic

46.9.3.3 A report of the technology considered in meeting the permissible exposure limit

46.9.3.4 Monitoring data

46.9.3.5 A detailed schedule for implementation of the engineering controls and work practices that cannot be implemented immediately and for the adaption and implementation of any additional engineering and work practices necessary to meet the PEL

46.9.4 Whenever the PEL will not be achieved with engineering controls and work practices, De-Cal, Inc. will include in the compliance plan an analysis of the effectiveness of the various controls, install engineering controls and institute work practices on the quickest schedule feasible and include and implement a program to minimize the discomfort and maximize the effectiveness of respirator use.

46.9.5 Written plans will be available upon request and available at the worksite for examination and copying by the assistant secretary, director, any affected employee or employee representatives.

46.9.6 This written plan will be revised and updated annually to reflect the current status of the program.

46.9.7 De-Cal, Inc. will identify or areas as a regulated area any location where airborne concentrations of arsenic are expected to exceed the limits.

46.9.8 Workers should be provided with and required to use chemical protective clothing, coveralls or similar full body work clothing, gloves and other appropriate protective clothing necessary to prevent skin contact with inorganic / organic arsenic.

46.9.9 Protective clothing should be selected after utilizing available performance data, consulting with the manufacturer and then evaluating the clothing under actual use conditions. Protective equipment will be provided at no cost to the employee.

46.9.10 Cleaning and replacement will be provided at least once weekly in a freshly laundered, clean and dry condition. If employee is exposed over 100 ug /m³ or in an area where more frequent washing is needed to prevent skin irritation, clothing will be provided daily. Contaminated clothing and/or equipment will not be shaken out by employees or taken outside of the designated change trailer.

46.9.11 Contaminated clothing should be removed immediately and placed in sealed containers for storage until it can be discarded or until provision is made for the removal of inorganic / organic arsenic from the clothing. If the clothing is to be laundered or cleaned, the person performing the operation should be informed, in writing, of inorganic / organic arsenic's hazardous properties. Reusable clothing and equipment should be checked for residual contamination before reuse or storage.

46.9.12 Clothing will only be removed in designated change rooms and will be disposed of in containers clearly marked with the following: DANGER Clothing contaminated with inorganic / organic arsenic. Do not remove dust by blowing or shaking. Dispose of inorganic / organic arsenic contaminated wash water in accordance with applicable local, state or federal regulations.

46.9.13 Face shields or vented goggles when necessary to prevent eye irritation. Impervious clothing for employees exposed to arsenic trichloride.

46.9.14 Equipment will be repaired or replaced to maintain its effectiveness.

46.10 RESPIRATORY PROTECTION

46.10.1 The use of respirators is the least preferred method of controlling worker exposure and should not normally be used as the only means of preventing or minimizing exposure during routine operations. There are some exceptions for which respirators may be used to control exposure: when engineering and work practice controls are not technically feasible, when engineering controls are in the process of being installed or during emergencies and certain maintenance operations including, those requiring confined space entry.

46.10.2 Respiratory protection must be used if engineering and work practices cannot reduce the exposure level below the PEL. Respirators will be used in the following circumstances:

46.10.2.1 While installing or implementing feasible engineering or work practice controls.

46.10.2.2 During maintenance and repair work when the client has established that engineering controls are not feasible.

46.10.2.3 Where engineering controls and supplemental work practice controls are not sufficient to reduce the exposure below the PEL.

46.10.2.4 Emergencies

46.10.3 Respirator selection will be accomplished in accordance with the Respiratory Protection policy. In addition to respirator selection, a complete respiratory protection program should be instituted. A respiratory protection program

should include as a minimum an evaluation of the worker's ability to perform the work while wearing a respirator, the regular training of personnel, fit testing, periodic environmental monitoring, maintenance, inspection and cleaning. The implementation of an adequate respiratory protection program, including selection of the correct respirators, requires that a knowledgeable person be in charge of the program and that it is evaluated regularly.

46.10.4 De-Cal, Inc. will select and provide to employees, the appropriate respirators.

46.10.5 De-Cal, Inc. will ensure employees do not use half mask respirators for protection against arsenic trichloride because it is absorbed rapidly through the skin.

46.10.6 De-Cal, Inc. will provide HEPA filters for powered and non-powered air-purifying respirators.

46.10.7 Air-purifying respirators that have a combination HEPA filter with an appropriate gas-sorbent cartridge or canister when the employee's exposure exceeds the PEL for inorganic / organic arsenic and the relevant limit for other gases.

46.10.8 Front or back mounted gas masks equipped with HEPA filters and acid gas canisters or any full face piece supplied-air respirators when the inorganic / organic arsenic concentration is at or below 500 mg/m³; and half mask air-purifying respirators equipped with HEPA filters and acid gas cartridges when the inorganic / organic arsenic concentration is at or below 100 µg/m³.

46.10.9 Employees required to use respirators may choose and the employer must provide, a powered air-purifying respirator if it will provide proper protection. De-Cal, Inc. must provide a combination dust and acid-gas respirator to employees who are exposed to gases over the relevant exposure limits.

46.10.10 Respirators will not be issued to any employee not trained in the use, care and selection. Respirators will not be issued to any employee not fit tested in the specific respirator issued.

46.11 HOUSEKEEPING

46.11.1 All surfaces must be maintained free from accumulations of inorganic / organic arsenic.

46.11.2 Floors and other accessible surfaces contaminated with inorganic / organic arsenic may not be cleaned by the use of compressed air. Shoveling and brushing may be used only where vacuuming or other relevant methods have been tried and found not to be effective.

46.11.3 Where vacuuming methods are selected, the vacuums will be used and emptied in a manner to minimize the reentry of inorganic / organic arsenic into the workplace.

46.11.4 A written housekeeping and maintenance plan will be kept which list appropriate frequencies for carrying out housekeeping operations and for cleaning and maintaining dust collection equipment. The plan will be available for inspection by the assistant secretary.

46.11.5 A change room with showers, washing facilities and lockers that permit separation of street and work clothes will be provided.

46.11.6 Employees working in regulated areas or subject to the possibility of skin or eye irritation from inorganic / organic arsenic shower at the end of the work shift. Employees working in the regulated area or subject to the possibility of skin or eye irritation from exposure to inorganic / organic arsenic wash their hands and face prior to eating.

46.11.7 Contaminated skin should be promptly washed with soap and water.

46.11.8 Lunchrooms that have a temperature controlled positive pressure filtered air supply will be readily accessible to employees working in regulated areas.

46.12 FIRST AID

46.12.1 In the event of an emergency, remove the victim from further exposure, send for medical assistance and initiate emergency procedures.

46.12.2 Where there is any possibility of a worker's eyes being exposed to inorganic / organic arsenic, an eyewash fountain should be provided within the immediate work area for emergency use.

46.12.3 If inorganic / organic arsenic gets into the eyes, flush them immediately with large amounts of water for 15 minutes, lifting the lower and upper lids occasionally. Get medical attention as soon as possible. Contact lenses should not be worn when working with this chemical.

46.12.4 Where there is any possibility of a worker's body being exposed to inorganic / organic arsenic, facilities for quick drenching of the body will be provided within the immediate work area for emergency use.

46.12.5 If inorganic / organic arsenic gets on the skin, wash it immediately with soap and water. If inorganic / organic arsenic penetrates the clothing, remove the clothing promptly and wash the skin with soap and water. Get medical attention promptly.

46.12.6 If a worker has been incapacitated, move affected worker from the hazardous exposure. Put rescue procedures into effect and know the locations of rescue equipment before the need arises.

46.13 SPILLS AND LEAKS

46.13.1 Workers not wearing protective equipment and clothing should be restricted from areas of spills or leaks until cleanup has been completed.

46.13.2 Remove all ignition sources.

46.13.3 Ventilate area of spill.

46.13.4 For small quantities of liquids containing inorganic / organic arsenic, absorb on paper towels and place in an appropriate container.

46.13.5 Large quantities of liquids containing inorganic / organic arsenic may be absorbed in vermiculite, dry sand, earth or a similar material and placed in an appropriate container.

46.13.6 Inorganic / organic arsenic dust may be collected by vacuuming with an appropriate high efficiency filtration system. If a vacuum system is used, there should be no sources of ignition in the vicinity of the spill and flashback prevention devices should be provided.

46.13.7 EPA, DOT and/or state and local regulations will be followed to assure that removal, transport and disposal are in accordance with existing regulations.

46.14 RECORDKEEPING

46.14.1 De-Cal, Inc. will maintain an accurate record of all monitoring including:

46.14.1.1 Date, number, duration, location and results of each of the samples taken, including a description of sampling procedure used to determine employee exposure.

46.14.1.2 Description of sampling and analytical method used and evidence of their accuracy.

46.14.1.3 Type of respiratory protection worn, if any.

46.14.1.4 Name, social security number and job classification of the employees' monitored and all other employees whose exposure the samples represent.

46.14.1.5 Environmental variables that could affect the measurement of employee exposure.

46.14.1.6 Monitoring records must be retained and maintained for a period of at least 40 years or for the duration of employment plus 20 years whichever is longer.

46.14.2 De-Cal, Inc. will maintain medical records for each employee subject to medical surveillance. The record will include:

46.14.2.1 Name, social security number and description of the employee's duties

46.14.2.2 Copy of the physicians written opinions

46.14.2.3 Results of any exposure monitoring done for the employee and the representative exposure levels supplied

46.14.2.4 Any employee medical complaints related to exposure to inorganic / organic arsenic

46.14.2.5 Copy of the medical examination results including medical and work history

46.14.2.6 Description of the laboratory procedures and a copy of any standards or guidelines used to interpret the test results

46.14.2.7 Initial x-ray, x-rays for the most recent 5 years and any x-ray with a demonstrated abnormality and all subsequent x-rays

46.14.3 De-Cal, Inc. will maintain or assure that the physician maintains those medical records for at least 40 years or for the duration of employment plus 20 years whichever is longer.

46.14.4 All records will be provided to employees, designated representatives, the assistant secretary and director for examination and copying upon request.

46.14.5 Whenever the employer ceases to do business, the successor employer will receive and retain all required records.

46.15 TRAINING

46.15.1 Employees will be trained, as part of their initial site training, on the hazards of inorganic / organic arsenic exposure, signs, symptoms, protective equipment and regulated areas. Training will be provided at the time of initial assignment and at least annually for other covered employees thereafter.

46.15.2 Employees will not be allowed to perform any task which may result in exposure above the action level without training. De-Cal, Inc. will provide training for employees who are subject to exposure to inorganic / organic arsenic above the action level without regard to respirator use or for whom there is the possibility of skin or eye irritation from inorganic / organic arsenic and ensure employee participation.

Training will include:

46.15.2.1 Quantity, location, manner of use, storage, sources of exposure and the specific nature of operations which could result in exposure to inorganic / organic arsenic as well as any necessary protective steps

46.15.2.2 Purpose, proper use and limitation of respirators

46.15.2.3 Purpose and a description of the medical surveillance program

46.15.2.4 Engineering controls and work practices associated with employee job assignment

46.15.2.5 Review of OSHA arsenic standard

46.15.3 De-Cal, Inc. will provide upon request, all materials relating to the employee information and training program to the assistant secretary and director.



Cold / Heat Stress Program

When working outdoors in cold or hot weather or working in artificially cold or hot environments, such as outdoors, in refrigerated areas, or when working near hot boilers serious cold / heat-related injuries and illnesses may occur. Cold or heat related hazards can cause permanent tissue damage or even death.

How cold is too cold? / How Hot is too Hot?

When most people think of hypothermia, they think of frigid temperatures or blizzard like conditions. Actually, hypothermia occurs most often in the spring and fall, rather than winter.

Four factors contribute to cold stress: cold temperatures, high or cold wind, dampness and cold water. A cold environment forces the body to work harder to maintain its core temperature of 98.6°F. Cold air, water, and snow all draw heat from the body. So, while it is obvious that below freezing conditions combined with inadequate clothing could bring about cold stress, it is important to understand that it can also be brought about by temperatures in the 50's coupled with rain and/or wind.

Wind chill is the combination of air temperature and air movement. The higher the wind speed and the lower the temperature in the work environment, the greater the danger. If weather information is not available, the following signs may help to estimate wind speeds in the field:

- 5 mph: light flag just moves
- 10 mph: light flag is fully extended by wind
- 15 mph: raises a newspaper sheet off the ground
- 20 mph: wind capable of blowing snow

How your body reacts to cold conditions

When in a cold environment, most of your body's energy is used to keep your internal temperature warm. Over time, your body will begin to shift blood flow from your extremities (hands, feet, arms, and legs) and outer skin to the core (chest and abdomen). This allows exposed skin and the extremities to cool rapidly and increases the risk of frostbite. When the body can no longer maintain core temperature by constricting blood vessels, it shivers to increase heat production. Maximum severe shivering develops when the body temperature has fallen to 95°F. Hypothermia becomes an issue at this point.

Cold-Related Illnesses

Hypothermia

Hypothermia means "low heat" and is a potentially serious health condition. It occurs when body heat is lost from being in a cold environment faster than it can be replaced. Symptoms begin with shivering. As the body temperature continues to fall, slurred speech, lack of coordination and memory loss develop and shivering ceases. Once the body temperature falls to around 85° F, the person may become unconscious, and at 78°, the person could die.

Risk Factors

Anyone working in a cold environment may be at risk for hypothermia. However, older people may be at more risk than younger adults, since older people are not able to generate heat or regulate body temperature as quickly.

Certain medications may prevent the body from generating heat normally. These include anti-depressants, sedatives, tranquilizers and some heart medications.

Signs and symptoms

Mild hypothermia (98 - 90° F)

- shivering
- lack of coordination, stumbling, fumbling hands
- slurred speech
- pale, cold skin

Moderate hypothermia (90 - 86° F)

- shivering stops
- mental confusion or impairment
- reduced breathing and/or heartrate
- unable to walk or stand
- confused and irrational

Severe hypothermia (86 - 78° F)

- severe muscle stiffness
- very sleepy or unconscious
- extremely cold skin
- irregular or difficult to find pulse

First Aid

Proper treatment depends on the severity of the hypothermia.

Mild hypothermia

- move to warm area
- stay active
- remove wet clothes and replace with dry clothes or blankets, cover the head
- drink warm (not hot) sugary drinks such as sports drinks. Avoid caffeinated beverages and alcohol.

Moderate hypothermia

All of the above, plus

- Call 911 from a campus phone or 609-258-3333 from a cell phone for an ambulance
- Cover all extremities completely
- Place warm objects, such as hot packs or water bottles on the victim's head, neck, chest and groin

Severe hypothermia

- Call 911 from a campus phone or 609-258-3333 from a cell phone for an ambulance
- Handle the victim carefully. Sudden movement or rough handling can upset heart rhythms.
- Do not attempt to re-warm -- the victim should receive treatment in a hospital

Frostbite

Frostbite occurs when layers of skin tissue freeze. In severe cases, amputation of the frostbitten area may be required. Frostbite can be caused by exposure to severe cold or by contact with extremely cold objects. In fact, frostbite occurs more readily from touching cold metal objects because heat is rapidly transferred from skin to metal.

Frostbite typically affects the extremities, particularly the face, ears, fingers and toes. Initial symptoms vary, but typically include skin that looks waxy and feels numb. Once damaged, tissues will always be more susceptible to frostbite in the future.

Signs and symptoms

- Cold, tingling, stinging or aching feeling in the frostbitten area, followed by numbness
- Skin color turns red, then purple, then white or very pale skin, cold to the touch
- Hard or blistering skin in severe cases

First Aid

- Call Public Safety at 911 from a campus phone or 609-258-3333 from a cell phone for an ambulance
- DO NOT rub the area
- Wrap in soft cloth
- If help is delayed, immerse in warm, not hot, water. Don't pour water directly on the affected area because it will warm the tissue too fast. Warming should take about 25-40 minutes.
- Do not warm the skin if there is a chance of refreezing. Severe tissue damage can occur.

Trench foot

Trench foot or immersion foot is caused by having feet immersed in cold water for long periods of time. It is similar to frostbite, but considered less severe.

Signs and symptoms:

- Tingling, itching or burning sensation
- Blisters

What to do

- Soak feet in warm water, then wrap with dry cloth bandages
- Drink a warm, sugary drink

Preventing Cold Stress

Planning for work in cold weather is the most important defense. Wearing appropriate clothing and being aware of how your body is reacting to the cold are important to preventing cold stress. Avoiding alcohol, certain medications and smoking can also help to minimize the risk.

Protective Clothing

Wearing the right clothing is the most important way to avoid cold stress. The type of fabric also makes a difference. Cotton loses its insulation value when it becomes wet. Wool, on the other hand, retains its insulative qualities even when wet. The following are recommendations for working in cold environments:

- Wear at least three layers of clothing:
- An **outer** layer to break the wind and allow some ventilation (like Gortex® or nylon)
- A **middle** layer of down or wool to absorb sweat and provide insulation even when wet
- An **inner** layer of synthetic weave to allow ventilation
- Wear a hat. Up to 40% of body heat can be lost when the head is left exposed.
- Wear insulated boots or other footwear sized appropriately. Tight-fitting footwear restricts blood flow, as can wearing too many socks.
- Wear insulated gloves sized appropriately, especially when contacting metallic surfaces and tool handles.
- If you get hot while working, open your jacket, but keep hats and gloves on.
- Keep a change of dry clothing available in case work clothes become wet.
- Do not wear tight clothing which can restrict blood flow. Loose clothing allows better ventilation.

Work Practices

- *Drinking:* Drink plenty of liquids, avoiding caffeine and alcohol. It is easy to become dehydrated in cold weather.
- *Work Schedule:* If possible, heavy work should be scheduled during the warmer parts of the day. Take breaks out of the cold.
- *Buddy System:* Try to work in pairs to keep an eye on each other and watch for signs of cold stress. Victims of hypothermia may not recognize symptoms.

Engineering Controls

Some engineering controls are available to reduce the risk of cold stress:

- Radiant heaters may be used to warm workers
- Shield work areas from drafts or wind
- Use insulating material on equipment handles when temperatures drop below 30° F.

Training

Employees and supervisors need to be trained to be able to detect early signs of cold stress. Supervisors should watch for signs of cold stress and allow workers to interrupt their work if they are extremely uncomfortable. Supervisors should also ensure that work schedules allow appropriate rest periods and ensure liquids are available. They should use appropriate engineering controls, personal protective equipment and work practices to reduce the risk of cold stress.

Working in Hot Conditions

Four environmental factors affect the amount of stress a worker faces in a hot work area: temperature, humidity, radiant heat (such as from the sun or a furnace) and wind speed. Individuals with high blood pressure or some heart conditions and people who take diuretics (water pills) may be more sensitive to heat exposure.

The body defends itself from heat through three mechanisms: breathing, sweating, and changing the blood flow. The first reaction is to circulate blood to the skin, which increases skin temperature and allows the body to give off some heat. During heavy work, muscles need more blood flow, which reduces the amount of blood available to flow to the skin and release the heat.

Sweating also helps the body to cool off, but only when the humidity levels are low enough to allow the sweat to evaporate and if water and salts lost through sweating are replaced.

Heat Stress Disorders

When the body becomes overheated, a condition of heat stress exists. Heat stress can lead to a number of problems, including heat exhaustion, heat stroke, heat cramps, fainting, or heat rash. Many people confuse these disorders, but it is important to be able to recognize each one and know what to do when it happens. Each of these heat stress disorders is described below.

Heat Exhaustion

Although not the most serious health problem, heat exhaustion is the most common heat-related ailment at Princeton University. Heat exhaustion happens when a worker sweats a lot and does not drink enough fluids or take in enough salt or both. The simple way to describe the worker is wet, white and weak.

Signs and symptoms

- sweaty
- weak or tired, possibly giddy
- nausea
- normal or slightly higher body temperature
- pale, clammy skin (sometimes flushed)

What to do

- rest in a cool place
- drink an electrolyte solution, such as Gatorade or another sports drink. Avoid caffeinated beverages such as colas, iced tea or coffee.
- in severe cases involving vomiting or fainting, call Public Safety and have the worker taken to McCosh Health Center or Penn Medicine Princeton Medical Center, as appropriate.

Heat Stroke

Heat stroke is the most serious health problem for people working in the heat, but is not very common. It is caused by the failure of the body to regulate its core temperature. Sweating stops and the body can not get rid of excess heat. Victims will die unless they receive proper treatment promptly.

Signs and symptoms

- mental confusion, delirium, fainting, or seizures
-

- body temperature of 106°F or higher
- hot, dry skin, usually red or bluish color

What to do:

- call Public Safety at 9-1-1 immediately and request an ambulance
- move victim to a cool area
- soak the victim with cool water
- fan the victim vigorously to increase cooling

Heat Cramps

Heat cramps are painful muscle spasms. They occur when a worker drinks a lot of water, but does not replace salts lost from sweating. Tired muscles – those used for performing the work – are usually the most likely to have the cramps.

Signs and symptoms:

- cramping or spasms of muscles
- may occur during or after the work

What to do

- drink an electrolyte solution (sports drink) such as Gatorade
- If the cramps are severe or not relieved by drinking a sports drink, seek medical attention.

Fainting (heat syncope)

Fainting usually happens to someone who is not used to working in the hot environment and simply stands around. Moving around, rather than standing still, will usually reduce the likelihood of fainting.

Signs and symptoms

- brief loss of consciousness
- sweaty skin, normal body temperature
- no signs of heat stroke or heat exhaustion

What to do:

- lie down in a cool place
- seek medical attention if not recovered after brief period of lying down

Heat Rash

Heat rash, also called prickly heat, may occur in hot and humid environments where sweat cannot evaporate easily. When the rash covers a large area or if it becomes infected, it may become very uncomfortable. Heat rash may be prevented by resting in a cool place and allowing the skin to dry.

Signs and symptoms

- rash characterized by small pink or red bumps
- irritation or *prickly* sensation
- itching

What to do

- keep skin clean and dry to prevent infection
- wear loose cotton clothing
- cool baths and air conditioning are very helpful
- some over-the counter lotions may help ease pain and itching

Preventing Heat Stress

In most cases, heat stress can be prevented or, at least, the risk of developing heat stress can be reduced.

Engineering Controls

A number of engineering controls can help reduce heat exposure. These include:

- general and local exhaust ventilation in areas of high heat
- shielding of radiant heat sources, such as furnaces or hot machinery
- elimination of steam leaks
- use of cooling fans or personal cooling devices, such as cooling vests
- use of power tools to reduce manual labor

Work Practices

- *Clothing:* Wear loose-fitting, lightweight clothing, such as cotton, to allow sweat to evaporate. Light colors absorb less heat than dark colors. When working outside, wear a lightweight hat with a good brim to keep the sun off your head and face.
- *Drinking:* Drink plenty of liquids, especially if your urine is dark yellow, to replace the fluids you lose from sweating – as much as one quart per hour may be necessary. Water and/or sports drinks are

recommended. Since caffeine is a diuretic (makes you urinate more), beverage such as cola, iced tea and coffee should be avoided. Thirst is not a reliable sign that your body needs fluids. When doing heavy work, it is better to sip rather than gulp the liquids.

- *Work Schedule:* If possible, heavy work should be scheduled during the cooler parts of the day. Otherwise, alternate heavy work in the heat with lighter work or work in cooler areas. When the temperature humidity index (see next page) is between 84 and 93 (Warning Zone), try to minimize the amount of time working in the heat such that approximately half of each hour is spent doing heavy work in the heat. When the temperature humidity index is 94 or higher (Danger Zone), this should be further minimized to approximately one quarter of each hour spent doing heavy work in the extreme heat.
- *Acclimatization:* New employees and workers returning from an absence of two weeks or more should have 5 days to get used to the heat. Begin with 50 percent of the normal workload and time exposure the first day and gradually build up to 100 percent on the fifth day.
- *Body Weighing:* Workers may be at greater risk of heat stress if they lose more than 1.5% of their body weight in a single day from sweating.

Personal Protective Equipment

When work must proceed in hot conditions at Princeton, personal cooling systems may help reduce the risk of heat stress. There are several systems available through health and safety catalogs, including the following:

- *Heat reflective clothing* may alleviate the problem of radiant heat sources, such as furnaces. However, if the worker is fully covered, he or she will have trouble evaporating sweat.
- *Ice vests or cooling vests* remove heat from the skin. They are relatively inexpensive and allow freedom of movement.
- *Liquid cooling systems* also remove heat from the skin. Cool liquid flows in the suit around the body and carries the heat away.

Training

Employees and supervisors need to be trained to be able to detect early signs of heat stress. Employees must understand the need to replace fluids and salt from sweat and recognize the signs of dehydration, fainting, heat cramps, heat exhaustion, and heat stroke.

Supervisors should watch for signs of heat stress and allow workers to interrupt their work if they are extremely uncomfortable. Supervisors should also ensure that work schedules allow appropriate rest periods and ensure liquids are available. They should use appropriate engineering controls, personal protective equipment and work practices to reduce the risk of heat stress.

Section 48 – HEARING CONSERVATION PROGRAM

To ensure compliance with the Federal Occupational Safety and Health Act (OSHA) of 1970, specifically CFR 1926.52, entitled "Occupational Noise Exposure," De-Cal, Inc. will administer a continuing, effective hearing conservation program. The program will be used and protection against the effects of noise exposure shall be provided whenever noise exposure exceed those shown in Table D-2 shown below when measured on the A-scale of a standard sound level meter at slow response.

TABLE D-2 - PERMISSIBLE NOISE EXPOSURES

Duration per day, hours	Sound level dBA slow response
8.....	90
6.....	92
4.....	95
3.....	97
2.....	100
1 1/2.....	102
1.....	105
1/2.....	110
1/4 or less.....	115

The hearing conservation program implemented by De-Cal, Inc. will consist of five (5) basic components:

1. Noise Exposure Monitoring
2. Engineering and Administrative Controls
3. Audiometric Evaluation
4. Use of Hearing Protection Devices
5. Record-keeping

Noise Exposure Monitoring

Project Management will notify the Safety Department if Project Management suspects the noise levels may be near or exceed the level of 85 decibel level.

The Safety Department will develop and implement a noise level monitoring program which conforms to CFR 1926.52(d)(2)ii as depicted below.

$F(e) = (T(1) \text{ divided by } L(1)) + (T(2) \text{ divided by } L(2)) + \dots + (T(n) \text{ divided by } L(n))$ where:

$F(e)$ = The equivalent noise exposure factor.

T = The period of noise exposure at any essentially constant level.

L = The duration of the permissible noise exposure at the constant level (from Table D-2).

If the value of $F(e)$ exceeds unity (1) the exposure exceeds permissible levels.

The monitoring program will determine the level of employee exposure. If initial monitoring indicates levels are safely below the permissible exposure levels (PEL), there is no need to implement a hearing conservation program. If the noise levels are at or near the 85 dba level, the hearing conservation program must be initiated. Workers exposed at 85 dba or above will immediately be provided with, and required to wear, hearing protection until the noise levels can be reduced by engineering controls.

Monitoring will be repeated whenever there is a change in equipment, the work in progress or other conditions that may affect employees' exposure to noise.

Engineering and Administrative Controls

The use of engineering controls should be the first method used to reduce or eliminate noise exposure. To ensure results, De-Cal, Inc. will specify low noise levels when purchasing new equipment.

The equipment operators will advise the project management team and the Safety Department when they suspect noise levels are at or near the 85 dba level. Equipment operators will use the equipment in a way to keep the noise level as low as possible.

In some instances, it may be necessary to limit the number of employees in an area when the noise levels are high.

Audiometric Testing Program

De-Cal, Inc. shall establish and maintain an audiometric testing program. The program shall include baseline audiograms, annual audiograms, training, and follow up procedures. De-Cal, Inc. shall make audiometric testing available at no cost to all employees who are exposed to an action level of 85 dB or above, measured as an 8-hour TWA.

Audiometric baseline testing will be required for employees whose exposures equal or exceed the eight hour time weighted average of 85 dba. This test will be repeated at least annually, if the employee remains exposed to the noise levels. Base line testing will be performed within 6 months of the employee's initial exposure. Employees will not be exposed to workplace noise for a minimum of 14 hours prior to the baseline test. If the comparison of the annual audiogram to the baseline audiogram indicates a standard threshold shift (STS), then the employee shall be informed in writing within 21 days of the determination. If a STS is found then the use of hearing protection shall be re-evaluated and/or refitted. Further medical evaluation may be required and will be performed at no cost to the employee.

Use of Hearing Protection Devices

In the absence of feasible engineering or administrative controls, De-Cal, Inc. will provide all employees in the hearing conservation program with hearing protection devices. Each employee may react differently to the use of such devices; our program will respond to individual needs. Several different types of protectors will be made available for employees.

Employees will be trained in how to reduce their exposure to noise; how noise affects their hearing; the need for hearing protection; how to wear their hearing protectors correctly at all times; when to seek replacements; encouraging coworkers to use these devices; and communicating problems to their supervisor. Any required hearing protection devices will be provided at no cost to the employee.

When employees are exposed to noise levels of 85 decibels or above, hearing protectors are not optional. OSHA requires De-Cal, Inc. to enforce the consistent use of hearing protection by exposed employees.

Record-keeping

Records to be retained include:

- All employee exposure records, including the name of employee, date of test or exam, examiners' name, date of the last calibration of the audiometer and employee's most recent noise exposure assessment
- Noise-exposure measurement
- All audiograms

Records will be retained for the duration of employment plus two years

Safety personnel will see that the information entered into the records is accurate, legible, complete and self-explanatory. Also, they will also ensure that records are standardized, cross-referenced and properly maintained.

Employees shall have the right to inquire about their hearing status and access their records at any and all times they desire.

Section 49 - Short Service Employees (SSE)

49.1 Scope

The Short Service Employee (SSE) program is to prevent work related injuries and illnesses to new hires and temporary workers. Both supervisors and co-workers must be able to readily identify Short Service Employee participants. De-Cal, Inc. will assign experienced employees to oversee the daily activities of those assigned to the SSE program.

This program applies to:

- De-Cal, Inc. employees in shop and field operations.
- Newly hired De-Cal, Inc. employees (regardless of experience), temporary agency personnel or our independent contractors working on De-Cal or client locations/ facilities.

49.2 Requirements

1. Short Service Employee (Who is Covered Under the Short Service Employee Program) – An employee or sub-contractor employee with less than six months experience in the same job or with his/her present employer.

2. Mentor – An experienced employee, who has been assigned to help and work with a new Short Service Employee by his/her supervisor. De-Cal, Inc. conducts a post-job subcontractor evaluation that includes a safety component.

49.3 Responsibilities

De-Cal, Inc. Project Managers and Supervisors shall ensure that this program is implemented and followed. Employees shall follow the requirements of this program.

49.3.1 Monitoring of Short Service Employees at the Job Site

De-Cal, Inc. shall monitor its employees, including SSE personnel, for HES awareness. If, at the end of the six-month period, the SSE has worked safely, adhered to HES policies and has no recordable incident attributable to him/her, the SSE identifier may be removed at the discretion of the employee's supervisor. De-Cal shall evaluate any employee that does not complete the six-month period recordable free on a cases by case basis and determine if he or

she has displayed behavior and work practices which reflect a safe environment.

49.3.2 Processes for Managing Subcontractors

De-Cal, Inc. will manage its sub-contractors in alignment with this process. Any sub-contractor employee reporting to work must document his or her experience within De-Cal for the work they are performing.

49.4 Procedures

Supervisors will assure that all new, transferred and temporary employees have been through De-Cal, Inc. New Hire Safety Orientation and have a complete knowledge of the expectations for their job function. Supervisors will identify all employees and temporary personnel with less than 180 days of service, or those employees they desire to return to a mentoring status for improvement in job and/or safety performance. Any Short Service Employee experiencing an OSHA Recordable injury during the initial 180 days will repeat the mentoring program or shall be dismissed for poor performance. Managers and the Safety Department will randomly audit for process compliance. This will involve interviewing employees in the Short Service Employee program (documentation is not required).

49.4.1 Mentoring Provisions and Processes

Mentors will set the proper safety example for any Short Service Employee assigned them. De-Cal, Inc. must have in place some form of mentoring process, acceptable to the operator, designed to provide guidance and development for SSE personnel. A mentor can only be assigned one SSE per crew and the mentor must be onsite with the SSE to be able to monitor the SSE.

49.4.2 Short Service Employee Identification

Short Service Employee participants will wear an SSE decal on their hard hats to help identify them. De-Cal, Inc. shall comply with client designated identification methods if this is found to be less than adequate.

49.4.3 Crew Makeup and Restrictions

A single person crew cannot be an SSE.

49.4.4 Notification and Communication Processes

Prior to the job mobilization, De-Cal, Inc. will communicate/notify the client project coordinator, contractor contact or on-site supervisor for all jobs containing SSE personnel. The project coordinator, contractor contact or on-site supervisor will determine approval status of the crew makeup. Mentors will converse daily with those persons assigned to them, preferably at the start of the day. This will be in addition to other tailgate or daily safety meetings held in the work area.

Section 50 – Crane and Rigging Procedures

50.1 Mandatory Requirements

Each site will require compliance with local regulations for crane and rigging work and the requirements herein.

- Any conflict(s) among these regulations will be resolved by the Project Manager or designee prior to commencement of the work (i.e., engineering, procurement, subcontracting and/or field lift activities. Resolution of any conflicts shall be documented through the site-specific plan;
- Every project will be required to submit a site-specific Cranes and Rigging Plan to detail the particular requirements and controls to be used on the Project to further define details needed to augment these global requirements. The site specific plan will be issued prior to any relevant crane / rigging / heavy transport work or detailed planning / design commencing. Refer to the Approval of Project Specific Crane / Rigging Hazard Control Plan for use in documenting the approval of each Project plan.

The following items shall be considered at a minimum.

- Forms designated by client or contractor to be utilized;
- Client, local regulatory, or in-country requirements;
- Authorization for contractors or others to perform roles assigned in this program;
- Approved design load requirements for lifts and rigging;
- Client/Contract permitting requirements such as permit to operate (Hot Work Permit);
- Permits that impact rigging operations;
- Client restrictions on hardware/types of equipment utilized;
- Off/Near shore lifting work;
- Meet requirements of this program to safely execute crane/rigging activities;
- Meet all the local and in-country regulations;
- Meet all legal and contractual requirements.

50.2 Operational Requirements

Work activity involving load handling equipment (including assembly and disassembly) where there is a risk of potential contact with an energized power source will require special controls to be developed and implemented (Refer to Working Near Overhead Power Lines and to Lift Categories).

All rigging drawings and working procedures shall be adequate to safely control rigging activities in accordance with the requirements of this program.

All lifts will be categorized according to the risk involved utilizing lift categories.

All load handling equipment and rigging hardware will be used in accordance with the manufacturers load limits and operating instructions.

In the absence of the manufacturer's instructions, a qualified engineer will provide direction.

Load handling equipment structural support, stability and environmental operating conditions will be in accordance with manufacturer's recommendations or per Qualified Person evaluation.

50.3 Crane Operator Requirements

Crane operators shall possess training and licenses/certifications from an external source that is recognized and approved by De-Cal Project Management.

Crane operators in possession of a license /certification from a "recognized" external source shall have a thorough understanding of safety rules and regulations pertaining to the different types of cranes, as well as an understanding of:

- Operational characteristics and capabilities;
- Basic machine operation including lever and pedal functions;
- Hand signals associated with crane operations;
- Basic engineering principles of equipment such as levers, gears, shafts, or chain drivers;
- Operation of the crane and being able to travel the crane;
- Load charts;

- Calculation of load sizes and weights;
- Proper methods of preventive maintenance and inspection of cables/lines;
- Vocabulary used in crane operation.

50.4 Mobile Cranes

The operator will test the brakes each time a load that is 90 percent or more of the maximum line pull is handled by lifting the load a few inches and applying the brakes. In duty cycle and repetitive lifts where each load is 90 percent or more of the maximum line-pull, this requirement applies to the first lift only.

Lifts will not be made in winds that exceed the manufacturer's recommendation, or in winds 30 MPH or greater. The only deviation will be if the danger from stopping the lift exceeds the danger caused by the wind. In this case, the lift can carry on with approval from the Lift Director/Operator/Designee.

The Crane Safe Operation Procedure or JSA must be developed for cranes not in use, idle, or parked under high wind speed. The site shall be prepared for cranes to boom down or be in 'scissor' position.

Hydraulic truck cranes will not be used to walk loads from one place to another unless approved by the Lift Director.

A tag or restraint line(s) will be used unless the tagline creates a greater hazard, as determined by the Qualified Rigger.

ALL crane lifts will require use of mats or outrigger pads, unless it is proven safe to do so without mats and approved by the Lift Director or a Qualified Person.

Note: Using mats should be the default required operating practice, with allowable exceptions when proven by calculations.

Use of Crane mats / outrigger pads shall be mandatory when:

- Protection of underground utilities is required as determined by a qualified person;

- Review of support/soils conditions including an event such as heavy rains has the potential to alter the soils condition; a Qualified Person determines the need for re- evaluating the load spreading requirements.

Hard Wood Timber crane mats will be sound and free of rot and pests.

For cranes with outriggers, mats or load spreaders under outrigger pads must be sized to provide at least a minimum of 400 percent more load-bearing area than the outrigger floats provide and to resist the resulting bending stresses.

Exception: If it can be determined by calculations, or demonstrated by safe and reliable means, that the bearing pressure of the crane floats acting with the load spreaders of the reduced size must not exceed the allowable bearing capacity of the ground.

Crane Jibs – A jib or fly jib on any crane will be used only if the following requirements are met:

- The Lift Director shall approve any configuration changes on cranes including use of jib /fly;
- Movement of cranes on mats will be supervised by the Lift Director or their designee;
- Cranes will move perpendicular to the mat timbers, unless specifically authorized otherwise by the Lift Director.

50.5 Assembly and Disassembly

Cranes received for use (through purchase, contract obligations, or rental) will be assembled/ disassembled in accordance with the manufacturer's instructions, recommendations, limitations, and specifications under the direction of the site Assembly / Disassembly Director.

Once the Assembly / Disassembly is complete, the Assembly / Disassembly Director shall complete the Crane Post Assembly / Disassembly Checklist. The checklist shall be filed and remain on site for the duration of the cranes stay.

The Assembly / Disassembly Director shall accept the certificate from the crane manufacturer proving that the crane has been load-tested in accordance with the manufacturer's specifications and limitations.

50.6 Crane Documentation

The following documentation (as a minimum) will be stored in the crane during operation:

- Completed pre-shift inspection;
- Most recent annual inspection;
- Operating manual;
- Load chart (printed or electronic – shall correspond with the configuration and serial number of the crane it is being applied with);
- Critical lift permit(s) and any associated rigging drawings.

This information will correspond with the configuration and serial number of the crane to which it is being applied.

The following documentation (as a minimum) will be maintained by the site and available for review:

- Most recent monthly inspection;
- Inspection Report – Crane Work Area;
- Load cell calibration certificate (if available);
- Equipment Operators Certification Record;
- Pre-mobilization Inspection Record;
- Driver's license record or local government authorized identification;
- Crane Operators Physical Examination – International;
- Crane Operators Physical Examination – US.

Labels/Placards in Cranes - Locally required signs and placards that list special hazard warnings and instructions will be posted on and visible to the operator. All of this information will be in the local language(s) and legible. If not legible, the labels/placards must be replaced.

50.7 Signal Person

Hand signals for signaling the operator are those prescribed by the recognized in country standards applicable to load handling equipment. Only one designated person will assume signal duties and no other person will signal the operator during the lift.

- Any person can give an emergency stop signal;
- When 2 or more signal persons are needed for lifts or lifting “in the blind,” it may be deemed necessary for additional Signal Persons to participate in a heavy rigging activity. One signal person will be designated as the “Lead Signal Person.” All designated subordinate signal persons will be ultimately directed and coordinated in their efforts by the designated lead signal person;
- Voice signals will be agreed upon prior to commencing work (a Signal Person will be used unless there are no obstructions in the working area of the crane).

An illustration of the hand signals to be used will be conspicuously posted at the site.

Signal Persons will be trained and tested on the signals to be used; this includes voice and telecommunications signals as well as hand signals.

50.8 Rigging Equipment and Hardware

Selection and use of all transportation, lifting, and rigging equipment will be in accordance with manufacturer’s or design engineer’s specifications. In no case will such equipment be used beyond the safe limits imposed by the manufacturer’s or other applicable safety standards, as documented in the site-specific plan. In the absence of manufacturer’s instructions, a qualified rigging engineer shall provide direction.

50.9 Slings

All new slings will have a test certificate showing that they have been proof tested prior to the initial use. Exceptions as provided by the manufacturer or other qualified personal shall require rigging engineer approval.

All wire rope slings will be identified with a permanent identification to show:

- Diameter or size and length;
- Name or trademark of manufacturer;
- Rate loads for the type(s) of hitch(es) used and the angle upon which it is based;
- Unique identification number corresponding to the test certificates.
-

If one wire rope of a set (such as crane pendant lines) requires replacement, the entire set of ropes will be replaced.

The rated capacity of a wire rope sling whose body is bent around a pin, crane hook, or any other object will be reduced in accordance with the MacWhyte Wire Rope Efficiency Chart or as directed by manufacturer's recommendations or a Qualified Person.

The rated capacity of a polyester round sling whose body is bent around pin, crane hook, or any other object will be reduced in accordance with the Web Sling and Tie-Down Association guideline WSTDA- RS-1. or as directed by manufacturer's recommendations or a Qualified Person.

Protect nylon/synthetic, wire rope, or other slings subject to damage by sharp edges during the lift.

Synthetic fiber slings (web or round) will not be used to choke or wrap around structural steel or in any other application where they could be exposed to sharp edges. A Qualified Person will approve any use of a synthetic fiber sling that requires the use of padding to protect the sling and assure manufacturer's specifications for sling protection are followed.

Exposed or unprotected carbon steel slings and rigging hardware will not be permitted to come into contact with stainless steel or nonferrous plant equipment except at the pin holes of lifting lugs.

Temporary wood softeners, or other approved alternates, will be used to protect plant equipment from damage due to concentrated bearing points and movement of rigging hardware. Finish painted surfaces are to be further protected from discoloration, scratches, gouges, and other effects of direct contact with slings and rigging hardware.

All slings will be regularly inspected in accordance with in-country standards and removed from the jobsite if they fail to meet the minimum requirements within this program.

50.10 Shackles

All shackles will be in good condition, with the capacity permanently indicated on the shackle.

Unless specified otherwise, shackle pin diameters will be at least 90 percent of the diameter of the pin hole. For pin diameters smaller than 90 percent, the lifting lug will be reviewed by the rigging engineer or Qualified Person for the effect of using a small pin.

Shackles manufactured with a 5 to 1 design factor are preferred. A qualified engineer shall review and approve the use of shackles other than aforementioned design factor.

All shackles will be regularly inspected and removed from the jobsite if they fail to meet the minimum requirements within this program.

50.10 Rigging Inspection

Rigging equipment will receive a daily pre-use inspection by the rigger. Rigging equipment will be inspected monthly, at a minimum by a Competent Person according to manufacturers' recommendations.

All rigging equipment monthly inspections will be documented using the Rigging Equipment Register, or an approved equivalent. Rigging equipment taken out of service will be destroyed and the lifting equipment register amended accordingly.

Section 51 - DISCIPLINARY PROGRAM

51.1 Purpose

The purpose of this procedure is to provide De-Cal, Inc, employees with a safe work environment. This establishes the requirements and practices to discipline employees for behaviors or actions that are in violation of any De-Cal, Inc. client / owner or regulatory agency's established safety procedures.

51.2 Scope

This procedure applies to work performed by all company and / or subcontractor personnel under the direction of De-Cal, Inc. personnel.

51.3 Definitions

Accident – An unplanned event, resulting in an injury / illness, Lost Time Accident (LTA), fatality, property/equipment damage or other emergency such as fire, explosion, etc.

Equipment Damage - Any damage to company or client assets such as process equipment, fence, gate, building structures or mobile equipment.

Front Line Supervisor -includes the titles of General Foreman & Foreman.

High Potential (HiPo) Event - Any first aid or near miss incident that is linked to the misapplication of a Life Saving Rule (LSR) or its worst-case consequence could have resulted in a fatality, Lost Time Accident (LTA), or could significantly affect De-Cal's reputation

Illness – Includes both acute and chronic illnesses such as, but not limited to, a skin disease, respiratory disorder, hearing impairment or poisoning.

Immediately - Promptly, with expedition, with reasonable haste consistent with fair business activity.

Incident – For the purpose of this procedure, the term incident is used to reference events that resulted in either an accident, HIPO event or near miss.

Investigation – Process used to determine the root cause of an incident.

Lost Time – Injury or illness resulting in one or more days away from work.

Medical Treatment - The management and care of a patient to address an occupational disease, disorder or injury. For the purposes of Part 1904, medical treatment does NOT include:

- Visits to a physician or other licensed health care professional solely for observation or counseling;
- The conduct of diagnostic procedures, such as x-rays and blood tests, including the administration of prescription medications used solely for diagnostic purposes (e.g., eye drops to dilate pupils); or
- "First aid" as defined above in this section.

Near Miss – An undesired event that, under different circumstances, could have resulted in personal harm or property damage. These are important to record and report for preventative measures or to identify problem areas or issues.

Recordable Injury Case –A work related injury or illness resulting in one or more of the following:

- Death
- Days away from work
- Restricted work or transfer to another job
- Medical treatment beyond first aid as defined in OSHA CFR 1904.4
- Loss of consciousness
- A significant injury or illness diagnosed by a physician or other licensed health care professional

Safety Representative – Any employee or subcontract employee that has been assigned by the De-Cal, Inc. Corporate Safety Director to oversee safety on a given project or assigned to audit the project periodically.

51.4 Responsibilities

51.4.1 Project Managers

- Ensure that the procedure is implemented fairly and without discrimination on their respective projects including all De-Cal, Inc. and subcontractor employees.
- Assist frontline supervision with enforcing the disciplinary procedures during site visits or investigation of incidents.

51.4.2 Frontline Supervisors

- Actively audit compliance with the safety rules and procedures as outlined in the JSAs, De-Cal, Inc. policies, client and owner's rules and procedures, and any governmental regulatory agencies.
- Ensure employees receive a De-Cal, Inc. Safety Handbook and are properly oriented to De-Cal's rules and procedures.
- Enforce the disciplinary procedures fairly and without discrimination to all De-Cal, Inc. and subcontractor employees.

51.4.3 Employees & Subcontractors

- Know and understand the rules, policies and procedures.
- Request clarification of any rule, procedure or policy in question.
- Never perform work that violates the rules, policies or procedures.
- Immediately report any person that requests or requires the employee to perform work that is unsafe or unhealthy.

51.4.4 Safety Representatives

- Be the subject matter expert as it relates to the De-Cal, Inc., client/owner, regulatory agency rules, policies and procedures.
- Assist project managers and frontline supervisors with the implementation and enforcement of the disciplinary process.
- Actively audit employees and supervisors for compliance with the policy.

51.5 Safety Disciplinary

In an effort to provide a safe working environment, De-Cal, Inc. is implementing a safety disciplinary program. This program is intended to create a greater awareness towards safety on the job site and includes all De-Cal, Inc. employees.

All employees, when hired, receive a copy of the De-Cal, Inc. Employee Handbook. In addition, all field personnel receive the necessary safety equipment required for that particular job (hard hats, safety glasses, etc...). The individual job sites have safety rules that pertain to that particular job. If there are any additional safety rules that are not covered in the safety handbook, Safety Orientation Seminars will be provided by the owner, General Contractor or De-Cal, Inc. when the job begins.

Weekly Safety Meetings and Toolbox Safety Talks will be held each week. During the course of the job, numerous safety inspections and audits will be performed by De-Cal, Inc. personnel or other designated individuals. If during an incident investigation or site inspection an employee is found to be in violation of a safety rule, the following disciplinary actions will be taken:

A. Class I: Serious or Life-threatening Offense

- A Class I offense is one that could potentially cause death, serious injury or property damage. Examples may not be all inclusive; De-Cal, Inc. will have the sole discretion in making the determination.
- The first substantiated Class I offense will result in the immediate removal from the job site and possible termination of employment. If in any case the employee is found to be in willful violation of a class I offense, their employment will be terminated immediately.
- After being cited with a Class I offense, if the employee works without another Class I offense for a period of 12 consecutive months, the employee's record will be cleared of Class I offenses.
- The second substantiated Class I offense within the same 12-month period will result in termination of employment from De-Cal, Inc.

Examples of a Class I Offense:

- Possession, selling, distributing or consumption of Drugs and/or alcohol at the workplace
- Possession, selling or distribution of weapons and/or ammunition at the workplace
- Violence or threatening behavior at the workplace.
- Failure to implement or follow a De-Cal's Life Saving Rule
- Failure to use fall protection when needed
- Failure to Lock-out equipment when necessary
- Working on HOT equipment without taking appropriate protective measures
- Removing safety guards from tools
- Gross negligence and/or continuous disregard for any or all jobsite safe practices and procedures

- Failure of a Front-Line Supervisor to enforce a safety procedure or requirement that results in any of the following incidents:
 - High Potential Near Miss
 - Property Damage
 - Injury resulting in medical treatment or loss time

B. Class II: Less Serious or Non-Life-threatening Offense

- A Class II offense is one that would not cause death, serious injury or property damage. Examples may not be all inclusive; De-Cal, Inc. will have the sole discretion in making the determination.
- The first substantiated Class II offense will result in a written warning to the employee, with a note made in the daily log of the written warning. Re-training in the safety rules will be performed.
- After being cited with a Class II offense, if the employee works without another Class II offense for a period of 12 consecutive months, the employee's record will be cleared of Class II offenses. A Class I offense will be counted for the purposes of determining Class II disciplinary action.
- The second substantiated Class II offense within the same 12-month period will result in a suspension to the employee, with duplicates sent to De-Cal's Corporate Office, the appropriate local union representative and the Safety Department. Re-training of the employee in all job site safety rules will be performed before they will be allowed to return to work.
- The third substantiated Class II offense within the same 12-month period will result in removal from the site and possible termination of employment from De-Cal, Inc.

Examples of a Class II Offense:

- Failure to wear proper PPE (i.e. Hard Hats, Safety Glasses, Side Shields, etc...)
- Failure to fill out Mobile Equipment Checklist before use of equipment
- Failure to inspect PPE, ladders, power tools, power cords, etc. before each use.
- Housekeeping

- Improper use of equipment
- Failure of a Front-Line Supervisor to enforce a safety procedure or requirement that results in any of the following incidents:
 - Property Damage
 - Injury resulting in potential medical treatment or loss time

C. Conditions

The following additional conditions are for clarification purposes only and are not meant to be all-inclusive. The final discretion in making any determination relating to safety violations will be solely De-Cal's Safety Director.

- Offenses can be observed and reported by any employee. Reports of offenses must be given to a member of De-Cal's project management staff.
- An offense does not have to be observed to be considered a recordable offense. If an offense can be substantiated by facts, it will be considered a recordable offense. As an example, if an employee falls without wearing a safety harness where one is required, it would be a recordable offense even if no one other than the employee observes the fall.
- The employee or employees who violate De-Cal's Safety Program will be charged with an offense regardless of whether their action was willful or unintended. It is the employee's obligation to know the rules and regulations. The company is to respond to the employee's request for information and/or equipment in order to work safely, but in no event is the employee to put himself or herself in an unsafe work situation.
- Any supervisory or management employee who observes an offense and does not actively attempt to rectify the offense will be judged as having also committed the offense.
- If any employee disputes the determination of an offense or how an offense is classified, the employee may appeal the determination or classification first to the Project Manager responsible for the project and then to the Safety Director Allen Oblak. All decisions of the Safety Director are final.
- These Disciplinary Procedures do not supersede or replace disciplinary actions—including termination of employment—resulting

from work rule infractions such as, but not limited to, tardiness, excessive absenteeism, insubordination, substance abuse, and related infractions.

- Existing Job Site Disciplinary programs provided by General Contractors or Owner's will have precedent over Safety Director's when necessary.
- Safety department, project manager, project superintendent and/or general foreman are responsible for enforcement of disciplinary program.

NOTICE OF DISCIPLINARY ACTION

Verbal warning Written reprimand Suspension for ___ days Discharge

Employee _____ Classification _____ Employment date _____
Supervisor _____ Title _____ Department _____

I. Disciplinary action is being taken on _____ for the following reasons (include date(s) of infraction):

II. Explanation (include dates and explanation of previous relevant discussions and/or discipline):

III. The following corrective action is expected of the employee:

IV. Future infraction(s) may result in:

TO BE COMPLETED ONLY WHEN AN EMPLOYEE IS SUSPENDED WITHOUT PAY (Check one box)
 Disciplinary suspension for ___ day(s) beginning on _____ at _____ time
 The employee is to return to work on _____ at _____ time
date _____ time _____

Union/Association representative was present. Employee waived right to have Union/
Association representative present

SIGNATURES

(Employee signature indicates receipt of form and does not necessarily indicate concurrence.)

Employee _____ Supervisor _____

Date _____ Date _____

Employer Representative/Title _____

Employee declined to sign

A copy of this form will be placed in the employee's official personnel folder.

6417 CENTER DRIVE,
STERLING HEIGHTS, MI
586.274.448812
586.274.2268 P
F
www.conticorporation.com

52. Emergency Action Plan

52.1 Emergency action plan: De-Cal, Inc. will develop and implement an emergency action plan for all facilities which we are performing work. The EAP will facilitate the prompt evacuation of employees due to highly hazardous or IDLH situations.

52.1.1 Alarm system: This employer will have a plan that will be activated by an alarm system to alert employees when to evacuate and will ensure that, employees who are physically impaired, will have the necessary support and assistance to get them to the safe zone. The intent of these actions will be to alert and move employees to a safe zone quickly. Delaying alarms or confusing alarms will be avoided. Each site in accordance with local jurisdictions will have their own unique set of alarms and notifications distinctive to the emergency scenario (e.g. Fire, Chemical Release, Tornado, Active Shooter, Lightning, etc.)

52.1.2 Evacuation/relocation: If an alarm is sounded and the decision to evacuate the area, is made then the emergency action plan will be activated. For any outdoor process where wind direction is important for selecting the safe route to a refuge area, a wind sock or pennant will be placed at the highest point that can be seen throughout the process area. Employees can then move in the direction of cross wind to upwind to gain safe access to the refuge area by knowing the wind direction. The designated MUSTER points will be identified and conveyed at the time of training.

52.1.3 Training: Before implementing the emergency action plan, De-Cal will train enough people to assist in the safe and orderly emergency evacuation of employees. [29 CFR 1910.38(e)] De-Cal will review the plan with each employee when the initial plan is developed and when each employee is initially assigned to the job. [29 CFR 1910.38(f)(1)] De-Cal will review the plan with each employee when his/her actions or responsibilities under the plan change or when the plan changes. [29 CFR 1910.38(f)(2) and 29 CFR 1910.38(f)(3)]

De-Cal will educate our employees about the types of emergencies that may occur and train them in the proper course of action. De-Cal will assure that all employees understand the function and elements of the emergency action plan, including types of potential emergencies, reporting procedures, alarm systems, evacuation plans, and shutdown procedures. Any special hazards onsite such as flammable materials, toxic chemicals, radioactive sources, or water-reactive substances will be discussed and planned for.

Training for De-Cal employees will address the following:

- Individual roles and responsibilities.
- Threats, hazards, and protective actions.
- Notification, warning, and communications procedures.
- Means for locating family members in an emergency.
- Emergency response procedures.
- Evacuation, shelter, and accountability procedures.
- Location and use of common emergency equipment.
- Emergency shutdown procedures.

52.1.4 Roles and Responsibilities: De-Cal will clearly communicate to all employees during training in accordance with jurisdictional requirements who will be in charge during an emergency to minimize confusion.

Section 53 - Ionizing Radiation Safety Program

This Ionizing Radiation Safety Program is designed to ensure the protection of employees who may be exposed to concentrations of ionizing radiation within the workplace. The program incorporates training, engineering controls, work practices, roles and responsibilities of competent persons, and the implementation of a medical surveillance program in accordance with local jurisdiction requirements.

Training

53.1 All employees who could be exposed to concentrations of ionizing radiation will receive comprehensive training before starting their duties and annually thereafter.

53.1.2 Training will cover the nature of ionizing radiation, potential hazards, health effects, applicable regulations, proper use of radiation monitoring equipment, safe work practices, emergency procedures, and the proper use of personal protective equipment (PPE).

Engineering Controls and Work Practices

53.2.1 Appropriate engineering controls will be implemented to minimize or maintain ionizing radiation exposure below applicable limits.

53.2.2 Work areas will be designed to limit radiation exposure, including shielding, containment, and ventilation systems as necessary.

53.2.3 Work practices, including time limitations and distance from radiation sources, will be established and communicated to employees.

53.2.4 Monitoring and alarm systems will be installed to detect and notify employees of any abnormal radiation levels.

53.2.5 Regular inspections, maintenance, and testing of radiation control systems and equipment will be conducted to ensure their effectiveness.

Roles and Responsibilities of Competent Persons

53.3.1 Designated competent persons will be identified and assigned specific roles and responsibilities in managing ionizing radiation safety.

53.3.2 Competent persons will have the necessary qualifications, knowledge, and training to fulfill their duties effectively.

53.3.3 The roles and responsibilities of competent persons will include, but are not limited to:

- a. Conducting regular assessments of radiation hazards and exposure risks.
- b. Implementing and overseeing the radiation safety program.

- c. Developing and maintaining procedures for radiation safety.
- d. Providing guidance and training to employees.
- e. Ensuring compliance with local jurisdiction regulations.
- f. Coordinating with health and safety personnel, management, and regulatory authorities.

Medical Surveillance Program

53.4.1 An appropriate medical surveillance program will be established to monitor the health of employees exposed to ionizing radiation.

53.4.2 The program will include pre-placement medical evaluations, periodic medical examinations, and ongoing health monitoring.

53.4.3 Medical surveillance will be conducted by qualified healthcare professionals experienced in radiation-related health issues.

53.4.4 Medical records will be maintained confidentially and in accordance with applicable privacy regulations.

Program Evaluation and Continuous Improvement

53.5.1 Regular program evaluations will be conducted to assess the effectiveness of the ionizing radiation safety program.

53.5.2 Feedback from employees, competent persons, and management will be considered to identify areas for improvement.

53.5.3 Corrective actions will be implemented promptly to address identified deficiencies.

53.5.4 The program will be reviewed and updated as needed to incorporate new regulations, technologies, and best practices.

Documentation and Recordkeeping

53.6.1 Records will be maintained documenting training, assessments, inspections, medical surveillance, and any incidents related to ionizing radiation exposure.

53.6.2 All records will be retained as per applicable regulations and stored securely.

Communication and Reporting

53.7.1 This Ionizing Radiation Safety Program will be communicated to all employees and made readily accessible.

53.7.2 Employees will be encouraged to report any concerns, incidents, or potential improvements related to ionizing radiation safety.

53.7.3 Incidents involving ionizing radiation exposure will be reported, investigated, and appropriate corrective actions will be taken.

Note: This safety program should be tailored to meet the specific requirements and regulations of the local jurisdiction. Consultation with radiation safety experts, health and safety professionals, and regulatory authorities is recommended during the development and implementation process.

Section 54 - Records Retention Program

Purpose

This Records Retention Program is designed to establish guidelines for the retention, access, and protection of records related to the Construction Safety Manual. The program defines medical records, outlines the responsible persons/roles, dictates the time frame for retaining medical records and employee exposure records, ensures employee access to their records, and addresses the removal and protection of personal identifiers in accordance with jurisdictional requirements.

Medical Records

54.1.1 Medical records refer to documentation related to employee health, medical evaluations, examinations, and any other records pertaining to their health status.

54.1.2 The Construction Safety Manual will clearly define what constitutes a medical record and the types of information that should be included.

Responsible Persons/Roles

54.2.1 Management shall designate responsible persons/roles to ensure the proper management, retention, and security of medical records.

54.2.2 These responsible persons/roles may include but are not limited to:

- a. Health and safety personnel
- b. Medical professionals
- c. Designated record custodians

Retention Timeframes for Medical Records

54.3.1 Medical records will be retained in accordance with jurisdictional requirements.

54.3.2 The Construction Safety Manual shall specify the minimum required retention timeframes for medical records.

54.3.3 Examples of typical retention timeframes include, but are not limited to:

- a. Employee lifetime + specified years (e.g., 30 years) after termination or separation from employment.
- b. Minimum retention period for occupational health records, as mandated by local jurisdictional requirements.

Retention of Employee Exposure Records

54.4.1 Employee exposure records, which include documentation of occupational exposure to hazards or substances, shall be retained in accordance with jurisdictional requirements.

54.4.2 The Construction Safety Manual will specify the minimum retention timeframes for employee exposure records, which may vary based on the nature of the hazard or substance.

Employee Access to Records

54.5.1 Employees shall have access to their own medical records within a reasonable timeframe.

54.5.2 The Construction Safety Manual will be updated to outline the process by which employees can request and access their records.

54.5.3 Procedures for record access should include appropriate verification of the employee's identity and ensure confidentiality of personal medical information.

Removal and Protection of Personal Identifiers

54.6.1 Personal identifiers within medical records, such as names, social security numbers, or other personally identifiable information, shall be removed or protected to ensure employee privacy.

54.6.2 Access and analysis of employee medical records shall be conducted in accordance with applicable privacy laws and regulations.

54.6.3 The Construction Safety Manual will specify procedures for the removal or protection of personal identifiers to safeguard employee privacy during record access and analysis.

Program Compliance and Documentation

54.7.1 Compliance with the Records Retention Program will be monitored and enforced by the responsible persons/roles.

54.7.2 The Construction Safety Manual shall include documentation outlining the procedures and processes related to record retention, access, protection of personal identifiers, and compliance monitoring.

54.7.3 Any updates or changes to the Records Retention Program shall be properly documented and communicated to relevant personnel.

Note: This Records Retention Program should be tailored to meet the specific requirements and regulations of the jurisdiction in which the construction activities take place. Consulting with legal experts and regulatory authorities is recommended to ensure compliance with applicable laws and regulations.

Section 55 - SCAFFOLD PROGRAM

Purpose

The Scaffold Safety Program is designed to establish guidelines and procedures for the safe use, inspection, maintenance, and dismantling of scaffolds. The program aims to protect employees and contractors from scaffold-related hazards and ensure compliance with applicable regulations and industry best practices.

Scaffold Selection and Design

55.1.1 Only qualified and trained personnel shall be involved in selecting and designing scaffolds suitable for the intended tasks.

55.1.2 Scaffolds shall be designed, erected, and used in accordance with relevant standards and manufacturer's instructions.

55.1.3 Scaffold components, including platforms, guardrails, and access points, shall be structurally sound and capable of supporting the intended load.

Training and Competence

55.2.1 All employees involved in scaffold-related work shall receive proper training on scaffold assembly, use, inspection, and dismantling.

55.2.2 Training shall cover topics such as scaffold hazards, fall protection, proper assembly techniques, material handling, and emergency procedures.

55.2.3 Competence assessments shall be conducted to ensure employees are knowledgeable and skilled in scaffold-related tasks.

Scaffold Assembly and Erection

55.3.1 Scaffolds shall be erected and dismantled under the supervision of a competent person(s) with expertise in scaffold assembly.

55.3.2 Scaffold assembly shall follow a documented procedure that includes proper sequencing, secure attachment to the structure, and proper bracing and stabilization.

55.3.3 A pre-assembly inspection shall be conducted to ensure all scaffold components are in good condition and meet safety requirements.

Safe Scaffold Use

55.4.1 Only trained and authorized personnel shall be permitted to work on scaffolds.

55.4.2 Employees shall utilize appropriate personal protective equipment (PPE) such as fall protection systems, hard hats, and safety footwear.

55.4.3 Safe work practices, such as maintaining a clean and clutter-free scaffold, shall be followed to minimize trip hazards.

55.4.4 Platforms shall be kept clear of excessive materials, tools, and debris to prevent overloading and maintain a safe working environment.

Scaffold Inspection and Maintenance

55.5.1 Scaffold inspections shall be conducted before each work shift and after any significant alterations or adverse weather conditions.

55.5.2 Inspections shall include checking for structural integrity, proper assembly, guardrails, access points, and other critical components.

55.5.3 Defective or damaged scaffold components shall be immediately removed from service and replaced or repaired as necessary.

55.5.4 Regular maintenance, including cleaning, lubrication, and component replacements, shall be performed to keep scaffolds in safe working condition.

Scaffold Tagging

55.6.1 Scaffold tagging system shall be implemented to provide visual indications of scaffold status and safety.

55.6.2 Three colors of scaffold tags shall be used:

- a. Green Tag: A green tag indicates that the scaffold has been inspected, is in good condition, and is safe for use.
- b. Yellow Tag: A yellow tag indicates caution and that the scaffold has been partially modified or is awaiting inspection. It should not be used until it has been verified as safe.
- c. Red Tag: A red tag indicates that the scaffold is not safe for use due to defects, damage, or other safety concerns. It must not be used until it has been repaired, re-inspected, and deemed safe.

Fall Protection and Guardrails

55.7.1 Fall protection measures, such as guardrails, safety nets, or personal fall arrest systems, shall be provided and used where required.

55.7.2 Guardrails shall be installed on all open sides and ends of scaffolds that are 10 feet or more above a lower level, unless another fall protection method is used.

55.7.3 Fall protection equipment shall be inspected, properly maintained, and used according to manufacturer instructions and relevant standards.

Program Evaluation and Improvement

55.8.1 Regular program evaluations shall be conducted to assess the effectiveness of the Scaffold Safety Program.

55.8.2 Feedback from employees, competent persons, and management shall be considered to identify areas for improvement.

55.8.3 Corrective actions shall be implemented promptly to address identified deficiencies.

55.8.4 The program shall be reviewed and updated as needed to incorporate new regulations, technologies, and industry best practices.

Section 56 - Subcontractor Management Program

Purpose

The Subcontractor Management Program is designed to establish guidelines and procedures for effectively managing subcontractors to ensure their adherence to applicable standards required by the governing jurisdiction. The program also addresses responsibilities and roles associated with supervision and direction provided to subcontractors, subcontractor orientation, meetings, training and qualification requirements, subcontractor incident/injury recordkeeping and reporting procedures, and methods for subcontractor safety performance evaluation.

Adherence to Applicable Standards

56.1 De-Cal and all of its subcontractors shall be required to adhere to applicable standards and regulations mandated by the governing jurisdiction.

56.1.2 Prior to engaging subcontractors, a thorough assessment shall be conducted to verify their compliance with the required standards.

56.1.3 Subcontractors shall be informed of their responsibilities and obligations to meet the specified safety standards.

Supervision and Direction

56.3.1 A clear delineation of responsibilities and roles associated with the supervision and direction of subcontractors shall be established.

56.3.2 De-Cal shall assign competent personnel to oversee and manage subcontractor activities, ensuring compliance with safety standards.

56.3.3 The responsibilities of supervisory personnel shall include providing guidance, clarifying safety requirements, and monitoring subcontractor performance.

Subcontractor Orientation, Meetings, Training, and Qualification Requirements

56.4.1 Subcontractors shall participate in a comprehensive orientation program before commencing work on-site.

56.4.2 Regular safety meetings shall be conducted to discuss safety expectations, hazards, incident prevention, and emergency procedures.

56.4.3 Subcontractors shall ensure that their employees receive appropriate training, qualifications, and certifications related to their work.

56.4.4 De-Cal may request documentation and verification of training and qualifications from subcontractors.

Subcontractor Incident/Injury Recordkeeping and Reporting Procedures

56.5.1 Subcontractors shall maintain records of all incidents and injuries occurring on their worksites.

56.5.2 De-Cal shall establish reporting procedures requiring subcontractors to promptly report incidents and injuries.

56.5.3 Subcontractors shall cooperate in the investigation of incidents, provide necessary documentation, and support De-Cal's reporting requirements.

Subcontractor Safety Performance Evaluation

56.6.1 De-Cal shall develop a process for evaluating subcontractor safety performance.

56.6.2 Performance evaluations may include criteria such as compliance with safety standards, incident rates, near-miss reporting, safety observations, and participation in safety initiatives.

56.6.3 Regular assessments and evaluations shall be conducted, providing feedback to subcontractors on their safety performance and identifying areas for improvement.

56.6.4 Subcontractors with consistently poor safety performance may be subject to corrective actions, additional training, or termination if necessary.

Program Evaluation and Improvement

56.7.1 Regular program evaluations shall be conducted to assess the effectiveness of the Subcontractor Management Program.

56.7.2 Feedback from subcontractors, main contractor personnel, and management shall be considered to identify areas for improvement.

56.7.3 Corrective actions shall be implemented promptly to address identified deficiencies.

56.7.4 The program shall be reviewed and updated periodically to incorporate changes in regulations, industry best practices, and lessons learned.

Documentation and Recordkeeping

56.8.1 Records shall be maintained documenting subcontractor orientation, meetings, training, qualifications, incident/injury reports, and safety performance evaluations.

56.8.2 Documentation shall include subcontractor agreements, training records, incident reports, corrective actions, and any other relevant information.

56.8.3 All records shall be retained for the duration required by applicable regulations and kept in a secure and accessible manner.

Communication and Reporting

56.9.1 The Subcontractor Management Program shall be communicated to all subcontractors engaged by De-Cal.

56.9.2 Subcontractors shall be required to report any safety concerns, incidents, or near misses promptly to De-Cal.

56.9.3 Incidents involving subcontractors shall be reported, investigated, and appropriate corrective actions shall be taken to prevent recurrence.

Note: This Subcontractor Management Program should be tailored to meet the specific requirements and regulations of the jurisdiction where the construction activities take place. Consulting with legal experts, health and safety professionals, and industry-specific authorities is recommended to ensure compliance with applicable laws and best practices.