

Code of Safe Operating Practices

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PREFACE

This *MAINTENANCE CODE OF SAFE PRACTICES MANUAL* has been developed and issued in the interest of the safety and health of Caltrans maintenance employees. Section I of this manual, states the general code of safe practices applicable to all maintenance activities.

Individual codes for each work activity and piece of equipment are provided in Sections II and Sections III.

Each of the work activity codes given in Section II lists the potential hazards and the safe operating procedures to avoid the hazards. These must be reviewed before beginning new activities or every ten working days, whichever comes first.

District Codes of Safe Operating Practices which are developed for special operations or equipment not included in the *MAINTENANCE CODE OF SAFE PRACTICES MANUAL* may be included in Section IV of this manual. Format for District codes of safe practices shall follow the same format for safe operating procedures and equipment used in this manual (refer to Appendix F for the correct procedure for submitting new codes).

It is the responsibility of all Caltrans Maintenance Managers, Superintendents, Supervisors, and Employees to understand and follow the applicable codes of safe practices herein. In addition, all pertinent Departmental Policy and Procedure memoranda, Safety Orders, and District instructions relating to employee safety and health are to be followed.

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SECTION I

INTRODUCTION

Code of Safe Operating Practices

GENERAL OPERATING PROCEDURES

Applicable During All Maintenance Activities

These GENERAL OPERATING PROCEDURES shall be posted on all crew bulletin boards; it should be read and continuously followed by all employees. The Manual containing the individual work activity codes shall be in the crew's quarters, available to all employees.

I. RESPONSIBILITY

- A. Before beginning new planned activities, applicable safe operating procedures and safe equipment usage procedures as given in the *MAINTENANCE CODE OF SAFE OPERATING PRACTICES MANUAL*, herein referred to as the CSOP, shall be reviewed. The purpose of this review is to assure that safe practices are discussed, understood and followed.
- B. Supervisors are responsible to see that employees observe and obey all applicable safe practice rules, laws, policies or procedures necessary for the safe conduct of the work; and the Supervisor shall take corrective action if necessary to obtain compliance.
- C. Each employee shall comply with all the safe practice rules of the CSOP and any other safety laws, rules, policies, or procedures applicable to the work being done.
- D. Each employee shall be provided with and shall wear required personal protective equipment (PPE). **The standard minimum PPE includes hard hat, eye protection, and ANSI compliant garment.** Such equipment shall be worn when required by the *MAINTENANCE CSOP*, Departmental Policy, Safety Orders, and District Instructions or when, in the judgment of the Supervisor, their use would contribute to the prevention of injuries. **PLEASE NOTE:** In 2008, high visibility garment standards went into effect, requiring all employees to wear ANSI compliant Class II and III garments. One of the requirements for a compliant garment is the background material must be color fast and that can only be achieved using a polyester blend. Since polyester can melt if exposed to a heat source, many Codes of Safe Operating Practices (CSOP's) were revised to require coveralls be worn when employees are working with hot materials or working with equipment where they could be exposed to hot components. Since the 100% cotton coveralls are not compliant on their own (cotton does not give the color fast requirement for ANSI compliance), the vest is worn over the coveralls. If hot material/components came into contact with the vest and it began to melt, the employee would be protected by the coveralls. This applies to all field maintenance employees with the exception of the electricians who have their own PPE guidelines.
- E. It is each employee's responsibility to work in a safe manner and to report unsafe conditions or procedures to their Supervisor.
- F. Horseplay, scuffling, and other such activities are prohibited.

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- G. Crew tailgate safety meetings shall be held at least every 10 working days or when starting a new work activity. Meetings shall be documented and posted on the crew bulletin board until the next meeting.

II. INJURY, MEDICAL SERVICES, FIRST AID

- A. An employee who is injured on the job shall report the work injury to their immediate Supervisor as soon as possible, or at least before the end of the work shift, and before going to a doctor. If an injury requires treatment during off-hours, the employee's Supervisor shall be notified immediately and should accompany the injured employee to the doctor.
- B. All employees shall be aware of the approved physicians, clinics and hospitals available in their immediate work areas. Names, addresses and telephone numbers of approved physicians and medical facilities shall be in all trucks and supervisors' offices.
- C. At each work site at least one crewmember shall be trained in a standard first aid course equal to that of the American Red Cross Standard First Aid Course. To remain current, each employee shall be trained every three years. An approved first aid kit shall be provided and maintained in the crew's quarters.
- D. Supervisors shall provide proper equipment and prompt transportation that will avoid unnecessary delay in emergency treatment of injuries.
- E. A first aid kit must be available at the work site. All supplies must be kept and maintained in a sanitary and usable condition.

III. VEHICLE OPERATION

- A. All drivers shall perform a pre-operational (pre-op) check of their vehicles, including rental equipment before leaving the yard. Be familiar with operator's manual. No vehicles or equipment are to be operated when in an unsafe condition.
- B. All employees who are drivers or passengers of state vehicles, rental vehicles or private vehicles on state business shall wear seat belts and/or harnesses.
- C. All employees operating equipment with rollover protective structures shall wear seat belts.
- D. All employees expected to operate vehicles or equipment, covered by the Equipment Qualification Program, shall be trained and qualified on each type of vehicle/equipment that the employee will operate on state business *before operating the vehicle/equipment unsupervised*.
- E. Use proper mounting/dismounting techniques when climbing into and from vehicles/equipment. Face the equipment, use the hand and foot holds provided and do not jump off equipment.
- F. Do not work under vehicles supported by jacks or chain hoists without adequate protective blocking or jack stands.
- G. Vehicles/equipment are to be kept clean of any objects or materials, which could fall off. Cabs are to be kept clean and orderly.

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- H. Do not work under a vehicle unless steps have been taken to prevent it from rolling. Use chock blocks or otherwise secure the vehicle to prevent movement; **do not** rely on the parking brake.
- I. If vehicle is equipped with a backup camera, it is only to be used as a supplemental device; operators are still required to follow the backing policy and guidelines.

IV. CHAPTERS 7 & 8

- A. Traffic control, shoulder closures and work area protection requirements shall be in accordance with Chapters 7 & 8 of the Maintenance Manual. When planning a lane or shoulder closure, everyone concerned must know what their job is and what is expected of them before going out on the road.
- B. Whenever possible, avoid parking close to a highway, even for a short period of time. If a vehicle is not being used for the work or to protect workers, it should be parked where it will have no influence on passing traffic or block potential escape routes for workers on foot.
- C. When vehicles are parked alongside the traveled way, enter and exit vehicles on the off-traffic side whenever possible, even though it may be inconvenient.
- D. Do not walk around in an area where equipment is being operated until you let the person operating equipment know that you are there and that you are seen by them.
- E. Unless there is a clear reason for doing otherwise, workers on the pavement or on an unprotected roadside, or landscaped areas, shall, insofar as is practical, continually face toward oncoming traffic. **This is the personal responsibility of every individual working on or near the highway.** If facing oncoming traffic is impractical, you should use a lookout.
- F. Supervisors should plan work activities so as to minimize or eliminate the need for backing of equipment.

V. HAND TOOLS, POWER TOOLS, GUNPOWDER-ACTIVATED TOOLS.

- A. Workers shall not handle or tamper with any electrical equipment, machinery, or air or water lines in a manner not within the scope of their duties, unless they have received proper instructions to do so from their Supervisor.
- B. Machinery shall not be repaired or adjusted while in operation, nor shall oiling of moving parts be attempted, except on equipment that is designed or fitted with safeguards to protect the person performing the work.
- C. When equipment, machinery or power tools are used, guards shall be in place and properly adjusted. Any deficiencies in this regard are unacceptable and use of the equipment, machinery or power tool is prohibited.
- D. Loose or frayed clothing, dangling ties, long hair, jewelry, etc., shall not be worn around moving machinery or other sources of entanglement. Only clothing and personal protective devices appropriate for the job shall be worn.

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- E. Hand tools, air tools, hydraulic tools and miscellaneous tools and equipment shall be inspected regularly to assure that they are in good operating condition. Report any deficiencies to the supervisor. Defective tools shall not be used.
- F. Employees are not permitted to use certain equipment, such as chain saws and gunpowder actuated tools without proper training, licensing and approval. Safe practice rules and requirements for using this type of equipment and performing other specialty work such as welding and cutting are found in the Equipment Index of the CSOP; and these rules and requirements must be strictly followed.

VI. HAZARDOUS MATERIALS

- A. All employees assigned to operations involving the use of chemicals shall have access to Safety Data Sheets (SDS), proper training in handling procedures and be provided the necessary protective devices as required by the Departmental Safety Manual.
- B. All employees shall be trained in the Caltrans Hazardous Material Communication Program.
- C. Employees shall be trained in hazardous spill awareness. Drug lab paraphernalia, used hypodermic needles, medical waste, bombs or other explosive devices and other hazardous substances are occasionally discarded within the right of way. If any of these items are found, the Supervisor should be notified immediately and the proper steps taken to insure that employees are not exposed. Unknown materials should be considered hazardous until identified by trained personnel.
- D. Wash thoroughly after handling chemical pesticides or other hazardous substances, and before eating, smoking, or using the restroom. Follow all special instructions on product labels, Pest Control Advisor recommendations, Safety Data Sheets and from other authorized sources.
- E. When new products/ chemicals are introduced, supervisor shall ensure that the SDS are reviewed and understood by all affected employees before any work with the product/ chemical is done.

VII. SPECIAL INJURY PREVENTION

- A. Learn to recognize and when possible, avoid poison oak. Whenever it is necessary to work around suspected poison oak areas, wear long sleeve shirts and gloves, and wash with water and soap after any suspected exposure.

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- B. A significant number of lost time injuries involve the back. Be careful when lifting. Get help or use equipment, if necessary. When lifting heavy objects, lift properly:
 - 1. Get a firm footing. Keep feet apart (shoulder width) for a stable base, point toes out.
 - 2. Bend your knees.
 - 3. Tighten stomach muscles.
 - 4. Lift with your legs.
 - 5. Keep load close.
 - 6. Keep your back straight.
- C. Certain insects and snakes pose hazards. Learn to recognize their habitat and avoid them. If you must work in those areas, wear the proper protective equipment: long sleeve shirts, high top work boots, and gloves.
- D. Do not operate vehicles, tools or equipment if your abilities are impaired in any way due to fatigue, the effects of prescription or over-the-counter medication(s), controlled substances, or the complications of illness or injury. Working in this condition may limit the ability to perform your work in a safe manner. Notify your supervisor if you are taking any medication that could hinder your performance.
- E. Hearing protection is required for any noise exposure above 90 decibels.
- F. During routine Maintenance operations (i.e. sweeping, debris removal, drain cleaning) on freeways, expressways and highways, it is sometimes impractical or it creates a greater hazard to use conventional fall protection systems at specific areas or for specific tasks (Title 8 section 1671.1). Being tethered to a fixed object would impede the employees' ability to get out of the way of an errant motorist. The following hazard reviews and safe operating procedures identify that a slip/trip/fall hazard may exist in locations where standard guardrails may not be in place, such as bridge decks. Employees are instructed to use caution when approaching the leading edge of a bridge deck; the bridge rails may not be at the standard height to guard against accidental falls. Do not stand on, lean against or over bridge rails. A qualified, competent person shall review these hazards and methods for accomplishing operations where a fall hazard exists. This responsibility is usually assigned to the designated Supervisor and is defined as one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them. Refer to Appendix G of this Manual for Fall Protection requirements.

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SECTION II

HAZARD REVIEW & SAFE OPERATING PROCEDURES

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CRACK SEALING

HAZARD REVIEW

Moving Traffic
Moving Equipment
Hot Materials
Flying Particles

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Wear standard PPE and adequate clothing to protect from burns. 100% cotton coveralls and gloves are required. Gauntlet style gloves are recommended when using the wand. Hearing protection may be required. Face shields are recommended for the activity and are required when loading material into the kettle.
6. When using a fired kettle, keep a 20-pound BC rated fire extinguisher available at all times.
7. Employees should avoid adjusting burners while kettle is in motion.
8. Employees should avoid direct contact with hot sealing materials. Keep wand close to the ground when applying to avoid slinging hot material onto others. Turn wand off prior to raising above waist level. If you must work on the wand, place in suction mode for a minimum of 2-3 minutes and turn off application valve.
9. Avoid splashing when loading material into kettle. Never open kettle door when material is extremely hot as flash may occur.
10. Have 5 gallons of fresh water available to use for purposes of cooling down any burns that might occur.
11. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
12. Be aware of slip/trip/fall hazards when working near bridge rails.

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CHIP AND SAND SEAL

HAZARD REVIEW

Moving Traffic
Moving Equipment
Flying Particles
Wheel Rolling
Dust

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use standard personal protective equipment. Coveralls are recommended. **Review SDS for product prior to use. Some products may require 100% cotton coveralls.** Use dust protection where necessary during sweeping operations.
6. Employees shall stand clear of trucks spreading cover material.
7. Employees shall stand clear during wheel rolling.
8. When using a fired kettle, keep a fire extinguisher available at all times.
9. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
10. Be aware of slip/trip/fall hazards when working near bridge rails.

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MACHINE PLACED SURFACING

HAZARD REVIEW

Moving Traffic
Moving Equipment
Hot Asphalt
Overcrowding of Workers
Noise

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use standard personal protective equipment. In addition, hearing protection may be required. 100% cotton coveralls and gloves are required when working with hot asphalt.
6. Employees should avoid direct contact with hot paving material.
7. Employees on foot should stay out of the way of operating equipment until the area is clear for handwork. Special care should be taken when trucks are dumping or backing in to paver.
8. Spotters shall be used when trucks are dumping into paver.
9. Employees should stay within the protected work area and avoid working immediately adjacent to traffic.
10. Stay clear of the roller during rolling operation.
11. Allow ample space for each employee to work safely.
12. Be alert when working with others who are not part of your crew (vendor trucks). Their safety procedures may differ from ours.
13. Vendor provided trucks shall be equipped with automatic audible backup alarms.
14. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
15. Be aware of slip/trip/fall hazards when working near bridge rails.

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POTHOLING/MANUAL SURFACING AND/OR BASE REPAIR

HAZARD REVIEW

Moving Traffic
Moving Equipment
Overcrowding of Workers
Hot Asphalt
Wheel Rolling

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use standard personal protective equipment. 100% cotton coveralls and gloves are required when working with hot asphalt.
6. A minimum of one shadow vehicle and one mix truck shall be utilized on freeways and expressways. Other vehicles such as additional shadow vehicle, barrier vehicles, or changeable message signs (CMS) should be considered for enhanced protection. A barrier vehicle could be used to block traffic from a city street to a highway on-ramp.
7. When working on two-lane roads, a lookout shall be utilized.
8. Work in inclement/adverse weather conditions requires heightened awareness and prudent judgment on the part of both the employees and supervisor/management as to what constitutes a hazard and how it will be addressed.
9. If visual contact between the shadow vehicle and mix vehicle cannot be continuous due to curves, structures, etc., then an additional shadow vehicle or CHP assistance must be considered to enhance work zone protection.
10. Employees should use caution when installing or removing the shoveling apron. Use proper lifting techniques.
11. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
12. Be aware of slip/trip/fall hazards when working near bridge rails.

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MACHINE BASE REPAIR

HAZARD REVIEW

Moving Traffic
Moving Equipment
Excavation Drop Off
Broken Pavement and Other Loose Material
Overcrowding of Workers
Noise

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use standard personal protective equipment. In addition, hearing protection may be required.
6. Employees on foot should stay out of the way of operating equipment until the area is clear for hand work.
7. Be especially alert when working around others not part of your crew, i.e., contractors, utilities, city crews, county crews, etc. Their safety procedures may differ from ours.
8. Stay clear of vehicles involved in wheel rolling. Use a spotter if employees are on foot.
9. Watch for tripping hazards and uneven ground.
10. Allow ample space for each employee to work safely.
11. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
12. Be aware of slip/trip/fall hazards when working near bridge rails.

Code of Safe Operating Practices

PCC SURFACE REPAIR

HAZARD REPAIR

Moving Traffic
Moving Equipment
Hot Asphalt
Overcrowding of Workers
Evacuation Drop Off
High Pressure Hoses
Noise
Cement Products
Loose Material on Pavement

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use standard personal protective equipment. 100% cotton coveralls and gloves are required when working with hot asphalt.
6. In addition, hearing and dust protection may be required. Tools/equipment used to cut, jackhammer, grind, drill or sweep silica containing material shall be equipped with a water delivery system that continuously feeds water at flow rates sufficient to minimize release of visible dust. Follow Storm Water BMP's.
7. The following activities/equipment require respiratory protection with an assigned protection factor of 10 (APF10) when performed outdoors for more than four (4) hours:
 - a. Using a handheld power saw.
 - b. Jackhammers and handheld power chipping tools.
8. Medical surveillance is required to be provided by the employer for any employee required to wear a respirator for more than 30 days a year when exposed to respirable silica dust.
9. Employees on foot should stay out of the way of operating equipment until the area is clear for hand work.
10. Employees should avoid direct contact with hot paving materials, or cement products.

Code of Safe Operating Practices

PCC BASE REPAIR

HAZARD REVIEW

Moving Traffic
Moving Equipment
High Noise
High Pressure Hoses
Excavation Drop Off
Loose Material on Pavement
Dust

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use standard personal protective equipment. Hearing protection is required in close proximity of drilling operations. Respiratory protection (with HEPA filter) is required for auger operator and 'stacking' person. All other employees shall stand upwind of dust cloud or if impracticable must use respirator protection, such as a dust mask.
6. Tools/equipment used to cut, jackhammer, grind, drill or sweep silica containing material shall be equipped with a water delivery system that continuously feeds water at flow rates sufficient to minimize release of visible dust. Follow Storm Water BMP's.
7. The following activities/equipment require respiratory protection with an assigned protection factor of 10 (APF10) when performed outdoors for more than four (4) hours:
 - a. Using a handheld power saw.
 - b. Jackhammers and handheld power chipping tools.
8. Medical surveillance is required to be provided by the employer for any employee required to wear a respirator for more than 30 days a year when exposed to respirable silica dust.
9. Employees shall take care to stay clear of wash water while cleaning equipment. Wash water shall be captured and returned to yard for proper disposal.

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Code of Safe Operating Practices

PCC BASE REPAIR (Cont'd)

10. Employees on foot should stay out of the way of operating equipment until the area is clear for handwork. Assistant (lookout) shall be utilized while moving any equipment within the work zone to ensure all hoses and employees are clear of intended movement.
11. During mudjack operations only the employee operating the nozzle will direct the pump operator when to start/stop the pump.

Revised 5/23/2018

Code of Safe Operating Practices

UNSURFACED AREA GRADING

HAZARD REVIEW

Moving Equipment
Moving Traffic
Noise
Dust

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use standard personal protective clothing. Hearing and dust protection may be required.
6. Employees should stay within the protected work area and avoid working immediately adjacent to traffic.
7. Be careful when working with others not part of your crew (vendor, trucks, etc.). Their safety procedures may differ from ours.
8. Vendor provided trucks shall be equipped with automatic audible backing alarms.
9. Water should be used to control dust.
10. Employees shall stand clear during rolling.
11. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
12. Be aware of slip/trip/fall hazards when working near bridge rails.

Code of Safe Operating Practices

TREE TRIMMING

HAZARD REVIEW

Moving Traffic
Utility Lines
Slipping and Falling
Faulty Ropes
Brittle Trees
Dull Climbing Gaffs
Rope or Cable Blocks and Pulleys
Falling Branches
Brush Fires
Noise
Working Above Ground
Rodents, Bird, Bat Droppings
Insects, Spiders, Scorpions
Cuts and Abrasions

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work facing oncoming traffic.
5. Use standard personal protective equipment. Hearing protection is required during chainsaw and chipper operation. See Safety Manual Chapter 22 regarding Hantavirus (adult respiratory distress syndrome) and Lyme disease.
6. Keep proper clearance from overhead utility lines. Caltrans employees shall not perform tree trimming work for electrical line clearance. If working in proximity to high/low voltage lines, a ground observer with appropriate warning device must be present. See Chapter 8 in Maintenance Manual Volume 1, "Working Near Utilities".
7. Prior to beginning work the location of all electrical conductors and equipment within the work area shall be identified, in relation to the work being performed.
8. All work locations where aerial tree pruning or tree repair is to be performed, shall be under the direction of a qualified Tree Worker.

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Code of Safe Operating Practices

TREE TRIMMING (Cont'd)

9. At operations involving aerial tree trimming, a second qualified Tree Worker shall be at each work location to render immediate assistance. At operations involving tree trimming from the ground level a person shall be available to provide immediate assistance.
10. Each qualified Tree Worker shall be issued ANSI approved climbing gear. A complete set consists of tree saddle, climbing gaffs, safety strap and climbing line for their exclusive use.
11. Prior to use, all equipment, (including climbing gear) and safety devices shall be inspected and if found defective, immediately repaired or removed from service.
12. A job briefing shall be conducted before tree trimming begins. Such job briefing shall include the description of the hazards unique to the tree trimming, appropriate work procedures to be followed, work assignment and other items to ensure that the work can be accomplished safely.
13. The work area shall be cleared to permit safe working conditions and an escape route shall be planned before any cutting is started.
14. When working aloft, employees shall be required to wear Tree Workers saddles and tie-in with an approved safety strap or climbing rope.
15. Methods of verbal or visual communication shall be established and reviewed during the job briefing, prior to the start of trimming operations. The verbal or visual communication system shall use an established command and response system or pre-arranged, two-way hand signals. The communication method shall be clearly understood and used during all trimming operations. The command "stand clear" from aloft and the response "all clear" from the ground are some terms that may be used for verbal communications.
16. A drop zone shall be established prior to the start of trimming operations. Employee(s) not directly involved in the trimming operations shall stay out of the pre-established drop zone until it has been communicated by a qualified Tree Worker directly involved in the operation that it is safe to enter the drop zone. Employee(s) shall be positioned and their duties organized so that the actions of one employee will not create a hazard for any other worker.
17. Climbing ropes shall be a minimum of ½ inch first grade State approved (by a Tree Maintenance Supervisor) synthetic tree surgeon's rope with a minimum breaking strength of 5,400 lbs:
 - a. Rope made unsafe by damage, defect or any other reason shall not be used.
 - b. Climbing ropes shall never be used for lowering limbs.

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Code of Safe Operating Practices

TREE TRIMMING (Cont'd)

- c. Rope shall be stored away from all cutting edges and sharp tools. Corrosive chemicals, gas, and oil shall be kept away from rope.
 - d. Rope shall be coiled, piled or suspended so that air can circulate through the coils.
 - e. Climbing rope ends shall be dressed, melted or back spliced to prevent raveling.
 - f. Climbing and safety rope shall not be spliced to lengthen or repair.
 - g. Safety snaps may be rotated from one end of rope to other as needed and the worn end cut off.
18. Climbing gaffs shall be of the tree-climbing type and shall have gaffs of the proper type and length suitable for the tree being climbed.
19. Prior to climbing the tree, the tree shall be visually inspected to determine the safest method of entry into the tree. The location of all electrical conductors and equipment within the work area shall be identified in relation to the work being performed. Make sure the tree will support your weight.
20. See Appendix W for Palm frond removal procedures, palm trees shall not be pruned for aesthetic purposes.
21. Chainsaw and chipper operators must be trained and qualified.
22. Safety belts and lanyards are required when operating aerial equipment (see Appendix G, Fall Protection).
23. The use of cut-resistant leg protection that meets or exceeds ASTM F1414 and ASTM F1897 (chaps, leggings, pants, etc.) is required for all ground level chain saw operation.

Revised 5/26/2022

Code of Safe Operating Practices

TREE FELLING / REMOVAL

HAZARD REVIEW

Moving Traffic
Utility Lines
Slipping and Falling
Faulty Ropes
Brittle Trees
Dull Climbing Gaffs
Rope or Cable Blocks and Pulleys
Falling Branches
Brush Fires
Noise
Working Above Ground
Rodents, Bird, Bat Droppings
Insects, Spiders, Scorpions
Cuts and Abrasions

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle that does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work facing oncoming traffic.
5. Use standard personal protective equipment. Hearing protection is required during chainsaw and chipper operation. See Safety Manual Chapter 22 regarding Hantavirus (adult respiratory distress syndrome) and Lyme disease.
6. Keep proper clearance from overhead utility lines. Never fell or remove a tree if it can come into contact with high/low voltage lines. If working in proximity to high/low voltage lines, a ground observer with appropriate warning device must be present. See Chapter 8 in Maintenance Manual Volume 1, "Working Near Utilities".
7. Prior to beginning work the location of all electrical conductors and equipment within the work area shall be identified, in relation to the work being performed.
8. All work locations where aerial tree felling or removal is to be performed, shall be under the direction of a qualified Tree Worker.

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Code of Safe Operating Practices

TREE FELLING / REMOVAL (Cont'd)

9. At operations involving tree felling, a person shall be available to provide immediate assistance.
10. Prior to use, all equipment, and safety devices shall be inspected and if found defective, immediately repaired or removed from service.
11. A job briefing shall be conducted before each tree felling or removal has begun. Such job briefing shall include the description of the hazards unique to the tree trimming, appropriate work procedures to be followed, work assignment and other items to ensure that the work can be accomplished safely.
12. The work area shall be cleared to permit safe working conditions and an escape route shall be planned before any cutting is started.
13. Methods of verbal or visual communication shall be established and reviewed during the job briefing, prior to the start of felling or removal operations. The verbal or visual communication system shall use an established command and response system or pre-arranged, two-way hand signals. The communication method shall be clearly understood and used during all felling and removal operations. The command “stand clear” from aloft and the response “all clear” from the ground are some terms that may be used for verbal communications.
14. A drop zone shall be established prior to the start of felling or removal operations. Employee(s) not directly involved in the felling or removal operation shall stay out of the pre-established drop zone until it has been communicated by a qualified Tree Worker directly involved in the operation that it is safe to enter the drop zone. Employee(s) shall be positioned and their duties organized so that the actions of one employee will not create a hazard for any other worker.
15. Chainsaw and chipper operators must be trained and qualified.
16. Each work location where tree felling or removal is to be done shall be under the direction of a qualified Tree Worker or a district qualified Tree Feller.
17. Before beginning any felling or removal operation, the Tree Worker shall carefully consider:
 - a. The tree and the surrounding area for anything that may cause trouble when the tree falls.
 - b. The shape of the tree.
 - c. The lean of the tree.
 - d. Wind force and direction.
 - e. Decayed or other weak spots.
 - f. The location of other workers.

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Code of Safe Operating Practices

TREE FELLING / REMOVAL (Cont'd)

18. Each Tree Worker shall be instructed as to exactly what he/she is to do. All workers not involved in the operation shall be kept clear of the work area.
19. A notch or back-cut should be used in felling trees over 10 inches at chest height. No tree shall be felled by ripping or slicing cuts.
20. The depth or penetration of the notch should be about one-third the diameter of the tree.
21. The opening or height of the notch should be about 2 ½ inches for each foot of the tree's diameter.
22. The backcut shall be made higher than the point of the notch to prevent kickback.
23. Just before the tree is ready to fall, an audible warning shall be given to those in the area. All personnel in the vicinity shall be safely out of range when the tree falls.
24. Tree felling wedges (plastic) shall be on hand at all times. A single headed axe or sledgehammer will be used for driving the wedges.
25. Holding wood should not be cut completely through until tree is on the ground.
26. If there is a danger of the tree falling in the wrong direction, wedges, block and tackle rope or wire cable (except where electrical hazards exist) shall be used. All limbs shall be removed from trees to a height and width sufficient to allow the tree to fall clear of any wires and other objects in the vicinity.
27. Special precautions in roping rotten or split trees are important because they may fall in an unexpected direction even though the cut is made on the proper side.
28. Workers shall keep clear of the butt of a tree that is starting to fall.
29. The use of cut-resistant leg protection that meets or exceeds ASTM F1414 and ASTM F1897 (chaps, leggings, pants, etc.) is required for all ground level chain saw operation.

Revised 5/26/2022

Code of Safe Operating Practices

FENCE REPAIR

HAZARD REVIEW

Moving Traffic
Overcrowding of Workers
Starting Fires

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. Underground Service Alert (USA) notification is required, see Appendix DD.
5. If there is reason to believe that the fence is electrified, you should contact the business owner or an electrical company to shut it off and review Working in the Proximity to Electrical Hazards CSOP.
6. If planned work is known to be in the immediate vicinity of unsheltered residents, then the Supervisor shall assign at least one other person to accompany the employee and/or request MAZEPP if determined to be necessary. If an employee is working alone and feels threatened by individuals at the worksite, they should leave the area, inform their Supervisor, and request CHP to provide a safety escort prior to performing any work.
7. While on foot, make every effort to perform work *facing* oncoming traffic.
8. Use standard personal protective equipment. **100% cotton coveralls are required when cutting or welding.** Since galvanized materials contain zinc, when welding or cutting galvanized material, a respirator may be required. Avoid breathing fumes from cutting or welding on galvanized posts. Work upwind or use local ventilation. If welding or cutting will last more than 30 minutes in a work shift, a half-face cartridge respirator with P-100 cartridges is required. If less than 30 minutes, no respirator is required, but an N-95 dust mask respirator may be worn.
9. Avoid breathing dust from treated posts, review Safety Data Sheet for posts before using. Use sharp saws and tools to minimize creation of dust. Work upwind or use local ventilation if possible during cutting and drilling operations. Respiratory protection is not required, but an N-95 dust mask respirator may be used.
10. When working with treated posts or galvanized materials, don't eat, drink, or smoke while working. Carry wash water and soap to wash your hands before eating, drinking, smoking, or using the restroom.
11. Employee should select proper tools for the job.

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Code of Safe Operating Practices

FENCE REPAIR (Cont'd)

12. Allow ample space for each employee to work safely.
13. Be alert to wire and posts which are under tension.
14. Only use equipment that is designed and manufactured to pull posts/damaged posts out of the ground.
15. Watch for tripping hazards and uneven ground.
16. Clear work area of fire hazards before using torch and have a fire extinguisher available while cutting or welding.
17. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
18. Be aware of slip/trip/fall hazards when working near bridge rails.

Revised 11/22/2022

Code of Safe Operating Practices

SURFACE DRAINAGE CLEANING

HAZARD REVIEW

Moving Traffic
Moving Equipment
Overcrowding of Workers

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use standard personal protective equipment.
6. Before excavating, contact U.S.A. and your regional electrical office.
7. Workers on foot should stay out of the way of operating equipment until the area is clear for hand work.
8. Employees not involved in operation of equipment should avoid being in the vicinity of the same until the area is clear for hand work.
9. Allow ample space for each employee to work safely.
10. Watch for tripping hazards and uneven ground.
11. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
12. Be aware of slip/trip/fall hazards when working near bridge rails.
13. If planned work is known to be in the immediate vicinity of unsheltered residents, then the Supervisor shall assign at least one other person to accompany the employee and/or request MAZEPP if determined to be necessary. If an employee is working alone and feels threatened by individuals at the worksite, they should leave the area, inform their Supervisor, and request CHP to provide a safety escort prior to performing any work.

REPAIR OR REPLACEMENT OF DRAINAGE FACILITIES

A special hazard review and safe operating procedure will be written by the Supervisor for each individual job covered in this section.

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Code of Safe Operating Practices

SURFACE DRAINAGE CLEANING (Cont'd)

The Code and Review shall incorporate those factors needed to cover the highly individualistic nature of this type of job.

Each employee shall review the Code of Safe Practices for the particular tools or equipment the employee will be using.

Revised 9/21/2020

Code of Safe Operating Practices

DRAINAGE STRUCTURE CLEANING

HAZARD REVIEW

Moving Traffic
Wedged Objects
Moving Equipment
Falling
Loose and Slippery Material Within Work Area
Working in Confined Spaces

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use standard personal protective equipment.
6. Employees should not dislodge wedged objects with their hands.
7. Employee should select the proper tool for the job.
8. A confined space entry permit shall be posted at the work site and must be completed and signed before the entry into any confined workspace. (See Confined Space Appendix (B)).
9. Workers on foot should stay out of the way of operating equipment until the area is clear for hand work.
10. Avoid operating equipment inside structures. Equipment operating underground may require special permit from Cal-OSHA. Be aware of possible carbon monoxide buildup and other sources of contamination.
11. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
12. If planned work is known to be in the immediate vicinity of unsheltered residents, then the Supervisor shall assign at least one other person to accompany the employee and/or request MAZEPP if determined to be necessary. If an employee is working alone and feels threatened by individuals at the worksite, they should leave the area, inform their Supervisor, and request CHP to provide a safety escort prior to performing any work.

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Code of Safe Operating Practices

DRAINAGE STRUCTURE CLEANING (Cont'd)

13. Be aware of slip/trip/fall hazards when working near bridge rails and drainage structures. Review Appendix G and fall protection requirements.
14. If the drainage structure has more than one cover, only one cover should be removed at a time to reduce the chance of accidental falls.
15. If there is a potential of a fall greater than 7 ½ feet when the cover is partially or fully removed and fall protection or a guardrail designed to prevent someone from falling into the opening is not feasible, the opening shall be guarded by an attendant. The attendant shall: prevent anyone from falling into the opening and not be assigned any other duties. The attendant shall continually guard the opening until the opening is effectively covered or it is effectively protected by the machine or equipment during operation.

Revised 3/16/2022

Code of Safe Operating Practices

ROADWAY LITTER AND DEBRIS

HAZARD REVIEW

Moving Traffic
Lifting Heavy Objects
Unknown and Unlabeled Substances
Loading Vehicle From Exposed Position
Overcrowding of Workers

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform your work *facing* oncoming traffic.
5. Use standard personal protective equipment.
6. Prior instruction shall be given employees on criteria to determine what constitutes a hazard to traffic. Employees shall exercise judgment in determining whether or not individual objects actually constitute a hazard to traffic, and only if they do, shall the object be removed. Prior to removal of debris from the roadway all of the following conditions must be met:
 - a. The worker can walk to the object and back without interfering with traffic.
 - b. Sight distance shall be at least 500 ft (150 meters).
 - c. A lookout shall be provided or the employee will face traffic continuously -- If these conditions cannot be met, use a CHP traffic break or appropriate traffic control.

NOTE: Refer to Maintenance Manual Chapter 8.

7. Properly identify material or object before handling, it may be hazardous.
8. Use power operated equipment or additional assistance when needed to remove heavy objects from traveled way.
9. When removing debris or objects from traveled way, provide necessary traffic control. Use CHP traffic break when needed, to provide "work area protection".
10. Load vehicle from off-traffic side if possible.
11. Avoid climbing into back of truck to compact brush and/or debris.

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Code of Safe Operating Practices

ROADWAY LITTER AND DEBRIS (Cont'd)

12. Allow ample space for each employee to work safely. Avoid "bunching" of workers.
13. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
14. Be aware of slip/trip/fall hazards when working near bridge rails.

Code of Safe Operating Practices

SWEEPING

HAZARD REVIEW

Moving Traffic
Airborne Contaminants
Unattended Vehicles

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use required personal protective equipment.
6. Wait for break in traffic before sweeping around unattended vehicles.
7. Be sure all warning devices are operating properly before operating sweepers and use shadow vehicles when necessary.
8. When using a shadow vehicle, ensure that there is communication between sweeper and shadow vehicle, i.e., proper planning and radio contact.
9. Do not sweep unknown substances.
10. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
11. Be aware of slip/trip/fall hazards when working near bridge rails.

Code of Safe Operating Practices

LITTER REMOVAL ROADSIDE

HAZARD REVIEW

Moving Traffic
Hidden Obstructions
Overcrowding of Workers
Unidentified Material
Exposure to Sharp Objects
Infectious Substances
Biological Wastes
Distracted Motorists

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements. The use of MAZEPP (Maintenance Zone Enhanced Enforcement Program) is recommended.
3. It is recommended that moving litter removal operations have a shadow vehicle behind the van and porta-potty. Please refer to Chapter 8 of the Maintenance Manual, Sections 8.11.01 and 8.11.02 for definitions.
4. Anytime a porta-potty is occupied in an operation, a barrier vehicle shall be placed behind it (CSOP Section IV For Special Program People #11). The van attached to the porta-potty can be used as a barrier vehicle if the porta-potty is not occupied. If a separate barrier vehicle is not available, the porta-potty may be disconnected and parked securely in a safe location. The van may now be used as the barrier vehicle for the porta-potty, following CSOP General Operating Procedures Section I, Sub-Section IV Chapters 7 & 8, for parking guidelines.
5. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
6. While on foot, make every effort to perform work *facing* oncoming traffic.
7. If two or more people are working on foot close to each other within thirty feet of moving traffic on a roadway with a posted speed limit of 55 mph or more, and have no physical protection, then a lookout shall be assigned.
8. Use standard personal protective equipment.
9. Workers should stay clear of moving equipment.
10. Beware of hidden obstructions in grassy areas or unstable terrain.
11. Properly identify material or object before handling.

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Code of Safe Operating Practices

LITTER REMOVAL ROADSIDE (Cont'd)

12. Use caution when handling bags containing broken or sharp objects.
13. Allow ample space for each employee to work safely. Avoid "bunching" of workers.
14. Read Code for Roadway Litter and Debris, if applicable.
15. Do not overload bags.
16. Place bags where they can be safely retrieved. Do not leave bags in gore areas.
17. Immediately report any discovered weapons or illegal substances to your Supervisor. Do not touch or move them. Call the CHP or local law enforcement to investigate and remove any weapons or illegal substances.
18. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
19. If planned work is known to be in the immediate vicinity of unsheltered residents, then the Supervisor shall assign at least one other person to accompany the employee and/or request MAZEPP if determined to be necessary. If an employee is working alone and feels threatened by individuals at the worksite, they should leave the area, inform their Supervisor, and request CHP to provide a safety escort prior to performing any work.
20. Be aware of slip/trip/fall hazards when working near bridge rails.
21. Avoid sharp turns when towing a porta-potty; trailer could overturn.

Handling Medical and Biological (Human) Wastes

1. Employees shall be informed of the potential health hazards involved with contact of biological (human) wastes and shall be trained regarding proper hygienic procedures.
2. Use standard personal protective equipment. In addition, impermeable (rubber) gloves, boots and rain gear or Tyvek coveralls are required while working with biological wastes. An approved half-mask respirator with organic vapor cartridges may also be desirable.
3. Do not eat or smoke while working with biological wastes. Wash hands thoroughly with clean water and soap before eating, drinking, smoking or using the restroom. Safe drinking and wash water and soap shall be provided at the work site.
4. Plan the task to minimize public and employee contact with potentially infectious substances and to prevent environmental damage. Contain the waste with earth berms if possible or use absorbent materials.
5. Use a disinfectant such as a chlorine bleach solution to disinfect the waste before picking it up.

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Code of Safe Operating Practices

LITTER REMOVAL ROADSIDE (Cont'd)

6. Use motorized equipment (loader, backhoe, Vactor, etc.) whenever possible.
7. An adequate first aid kit should be available.
8. For large quantities, the services of a contractor may be warranted. If services of a contractor are warranted, a properly trained First Responder should be contacted.

Revised 1/23/2025

Code of Safe Operating Practices

DISPOSAL OF ANIMAL CARCASSES

HAZARD REVIEW

Moving Traffic
Lifting Heavy Animals
Biological Waste

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use standard personal protective equipment. In addition, impermeable (rubber) gloves, boots and rain gear or Tyvek (paper) coveralls are required while working with biological wastes.
6. Prior to removal of carcass from the roadway all of the following conditions must be met:
 - a. The worker can walk to the carcass and back without interfering with traffic.
 - b. Sight distance shall be at least 500 ft (150 meters).
 - c. A lookout shall be provided or the employee will face traffic continuously – If these conditions cannot be met, use a CHP traffic break or appropriate traffic control.
7. Use caution when handling animal carcass, it may still be alive. Do not approach a “live” animal. Immediately call Dispatch so they can notify Animal Control.
8. When handling and loading large carcasses, a minimum of two employees will be used.
9. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
10. Be aware of slip/trip/fall hazards when working near bridge rails.

Code of Safe Operating Practices

HANDLING AND DISPOSING OF HYPODERMIC NEEDLES

HAZARD REVIEW

Punctures
Infectious Diseases/Substances
Body Wastes
Personal and Public Contact
Environmental Protection

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Under no circumstances should you pick up discarded hypodermic needles with your hands. Use a litter-picker or other device. Needles can puncture leather gloves.
3. Only place hypodermic needles in a sharps container provided by your Supervisor or District Hazmat Manager. A sharps container is a red plastic container that is filled with used medical needles and has a BIOHAZARD label. Do not hand hold container while placing needles inside with a litter picker; **YOU MAY ACCIDENTLY PUNCTURE YOUR HAND.** Place the open container on the ground before attempting to put the needle inside the sharps container.
4. Do not carry or store needles in the cab of your vehicle or anywhere where they may accidentally come in contact with another person, your clothes or foodstuffs.
5. Store containers with used needles in secure areas where contact will be avoided. For disposal, use the postage paid return box that came with the sharps container.
6. If you feel you may have come in contact with any item that may be infectious, notify your Supervisor. Wash the contaminated area immediately with soap and water. Towelette preps in the first aid kit may also be used to disinfect the hands. Wash thoroughly with clean water and soap before eating, drinking, smoking or using the restroom.
7. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
8. Be aware of slip/trip/fall hazards when working near bridge rails.

Code of Safe Operating Practices

HANDLING AND DISPOSAL OF URINE WASTE

HAZARD REVIEW

Moving Traffic
Hidden Obstructions
Unidentified Materials
Infectious Diseases/Substances
Urine Waste
Personal and Public Contact
Environmental Protection

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in a safe area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work facing oncoming traffic.
5. Employees shall review this Code of Safe Practices and utilize Pre-Task Planning to identify hazards, solutions, and identify individual assignments prior to starting work. All required personal protective equipment; material handling equipment, disposal containers, water for washing, soap, and towels will be onsite before work begins.
6. Use standard personal protective equipment including pesticide-use safety glasses (brow and side shields required) or chemical goggles. In addition, impermeable (rubber) boots, nitrile or other impervious gloves and Tyvek coveralls or other splash resistant clothing (i.e. raingear) are required while working with urine waste. A NIOSH approved N-95 dust mask and/or face shield may also be used. (If a dust mask is used, comply with the Caltrans Dust Mask Guidelines.)
7. Prior to collecting or disturbing suspected urine waste, observe the container and contents:
 - a. The contents are the color of pale yellow, straw, light yellow, yellow, dark yellow or amber.
 - b. The amount of fluid in the container is less than 1 (one) gallon.
 - c. The bottle is of a shape that could be used to urinate in to (workers should be suspicious of glass containers).
 - d. The container does not appear to be eaten away, melted, or deformed by the contents. (These are indicators that the contents may be chemicals rather than urine.)

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Code of Safe Operating Practices

HANDLING AND DISPOSAL OF URINE WASTE (Cont'd)

8. Pick up urine containers with a litter picker or other extension tool (shovel, pitchfork, etc.) and place in a 5-gallon bucket or other leak-proof carrying container. Do not touch urine containers with your hands. Do not open or puncture urine containers. If they disintegrate during handling, collect pieces of container if possible. Don't allow liquid to enter storm drains or drainage facilities, follow Storm water BMPs.
9. Consolidate the waste into a 55-gallon drum with a poly-liner or other leak-proof transport container. Make sure the transport container is in good condition before use. After filling, make sure container is properly sealed and labeled before moving or storage. Use a lift gate or loader to place filled drums in truck; do not lift by hand. Store transport containers in the waste storage locker at the maintenance station. Contact the District Maintenance Hazardous Materials Manager for disposal assistance. **DO NOT THROW URINE IN THE TRASH OR POUR URINE DOWN A STORMWATER DRAIN.**
10. Follow good hygiene practices. Do not eat, drink or smoke while cleaning up urine waste. If urine splashes on skin, wash with water and soap as soon as possible. If protective clothing is splashed, wash off with water and change if leakage is occurring. Remove protective clothing and wash hands thoroughly with clean water and soap when finished and before eating, drinking, smoking or using the restroom. Place disposable protective clothing in garbage bags for disposal in trash. Non-disposable protective equipment should be bagged and cleaned before re-use. If vehicles become contaminated, they should be cleaned before being re-used for other work.
11. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
12. Be aware of slip/trip/fall hazards when working near bridge rails.

Code of Safe Operating Practices

UNIDENTIFIED HIGHWAY SPILLS

HAZARD REVIEW

Moving Traffic
Unknown and Unlabeled Substances

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Stay uphill, upstream, and upwind. Protect yourself first. Avoid contact with unidentified material.
3. Protect traffic.
4. Call for help (Caltrans Maintenance Supervisor, Caltrans HazMat Specialist, Emergency First Responder Operational Level Team, or CHP).
5. Do not leave the site.
6. **WAIT FOR THE EXPERTS.**

NOTE: Handling hazardous material spills by First Responder Operational Level Teams will be in accordance with industry recognized practices and procedures as covered in the CALTRANS/CSTI FIRST RESPONDER OPERATIONAL (FRO) LEVEL TRAINING COURSE AND REFERENCE MANUAL AND HAZARDOUS MATERIAL SPECIALIST COURSE given at CSTI. For additional information see Chapter D5 of the Maintenance Manual.

Code of Safe Operating Practices

GRAFFITI REMOVAL

HAZARD REVIEW

Moving Equipment
Moving Traffic
Hazardous Materials
Working Above Ground
Use of Airless Sprayers
Overcrowding of Workers

SAFE WORK PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection and any traffic control requirements.
3. Park in an area suitable for entering and exiting your vehicle, which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work **facing** oncoming traffic.
5. Use standard personal protective equipment. In addition face, hearing and respiratory protection may be required.
6. Employees not involved in the operation of powered equipment or pressurized sprayers should remain clear until the area is safe for hand work.
7. Allow ample space for each employee to work safely. Do not bunch up.
8. Only trained personnel are allowed to operate airless sprayers.
9. Read Safety Data Sheet for chemicals, which are to be used before the work begins.
10. If an injury occurs, seek immediate medical attention. Take the SDS with you to the doctor, if applicable.
11. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
12. If planned work is known to be in the immediate vicinity of unsheltered residents, then the Supervisor shall assign at least one other person to accompany the employee and/or request MAZEPP if determined to be necessary. If an employee is working alone and feels threatened by individuals at the worksite, they should leave the area, inform their Supervisor, and request CHP to provide a safety escort prior to performing any work.
13. Be aware of slip/trip/fall hazards when working near bridge rails.

Revised 9/21/2020

Code of Safe Operating Practices

OVERHEAD SIGN GRAFFITI REMOVAL

HAZARD REVIEW

Moving Traffic
Power Equipment Operation
Above Ground Work
Unstable Footing
Power Tool Operation
Above Ground Utilities
Falling/Flying Objects
Heavy Lifting

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use appropriate personal protective equipment.
6. Employees shall use proper lifting techniques and obtain assistance when lifting heavy objects.
7. Employees are to examine footing prior to and during work.
8. Position equipment to allow adequate clearance; park vehicle where it does not interfere with passing traffic.
9. All hand tools and materials shall be attached to tool belt, personnel bucket or structure with lanyards.
10. When working from personnel hoist, employees shall use fall restraint. See Fall Protection, Personal fall restraint system (Appendix G).
11. A 2 foot lanyard is used for fall restraint. For situations where a 2 foot lanyard is too short for the employee to reach their work, a longer lanyard may be used but must be rigged to prevent the employee from falling.

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Code of Safe Operating Practices

OVERHEAD SIGN GRAFFITI REMOVAL (Cont'd)

12. Fall restraint shall be attached to the boom, basket, platform and or sign structure at all times.
13. Employees shall use safety railing and chains and make sure they are secure while working from catwalk of overhead signs. See Fall Protection, Standard guardrails (Appendix G).

Code of Safe Operating Practices

MANUAL AND MECHANICAL VEGETATION MANAGEMENT AND LANDSCAPE MAINTENANCE

HAZARD REVIEW

Chain Saws
Moving Traffic
Moving Equipment
Overcrowding of Workers
Noise
Sharp Edged Tools
Hidden Objects
Unwieldy Brush
Unstable Ground
Poison Oak
Utility Lines
Thorns

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use standard personal protective equipment. Coveralls or long sleeve shirts and gloves are recommended. If it is possible for a hot muffler (such as on a grass trimmer) to come into contact with employee's high visibility garment, then 100% cotton coveralls shall be worn with a high visibility vest. Hearing protection is required when using chain saws or chippers.
6. Employees should, when necessary, cut an opening in R/W fence to remove brush. Avoid climbing over fences.
7. Cut and stack brush in small pieces that are easily handled to avoid back injuries.
8. Avoid climbing into back of truck to compact brush and/or debris.
9. Utilize appropriate mechanical means when moving large quantities of brush across drains and up slopes.
10. Be aware of moving equipment in the work zone.

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Code of Safe Operating Practices

MANUAL AND MECHANICAL VEGETATION MANAGEMENT AND LANDSCAPE MAINTENANCE (Cont'd)

11. Chain saw, chipper, and hydraulic and pneumatic tool operators must be trained and qualified.
12. Use caution when handling tools with sharp edges.
13. Watch for tripping hazards and uneven ground.
14. Keep proper clearance from overhead utility lines (At least 10 feet / 3 meters away).
Do not cut limbs that may contact overhead utility lines.
15. The use of cut-resistant leg protection that meets or exceeds ASTM F1414 and ASTM F1897 (chaps, leggings, pants, etc.) is required for all ground level chain saw operation.
16. Locate underground utilities before digging.
17. Tree trimming involving climbing, shall only be performed by a qualified Tree Maintenance worker.
18. Trees over 4 inches (102 millimeters) or greater in diameter (when measured 4 feet (1.22 meters) from the ground) and having a total height greater than 20 feet (6 meters) shall be felled by a qualified Tree Feller.
19. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
20. If planned work is known to be in the immediate vicinity of unsheltered residents, then the Supervisor shall assign at least one other person to accompany the employee and/or request MAZEPP if determined to be necessary. If an employee is working alone and feels threatened by individuals at the worksite, they should leave the area, inform their Supervisor, and request CHP to provide a safety escort prior to performing any work.
21. Be aware of slip/trip/fall hazards when working near bridge rails.
22. If a porta-potty is used in a stationary operation, it is recommended that a barrier vehicle be placed behind it. The van towing the porta-potty shall not be used as the barrier.
23. Avoid sharp turns when towing a porta-potty; trailer could overturn.
24. If encampment activity is observed or suspected, refer to the CSOP's for Litter Removal Roadside, Handling and Disposing of Hypodermic Needles, Handling and Disposal of Urine Waste and Appendix N.

Revised 5/26/2022

Code of Safe Operating Practices

PEST MANAGEMENT

HAZARD REVIEW

Moving Traffic
Storing Pesticides (Handling or Securing)
Wildlife (Desirable)
High Pressure Hose
Toxic Chemicals

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use standard personal protective equipment. Wear all additional protection required by chemical label, Pest Control Recommendation, district policy, and supervisor. Impermeable gloves and boots, coveralls and either face shield or goggles are required when handling pesticides. A respirator may be required.
6. Store chemicals in shed under lock and key; with appropriate warning signs posted.
7. Protect wildlife.
8. Employee should avoid exceeding recommended hose pressure on sprayer. Check for wear and tear on hose. Check pressure regulator to see if working properly.
9. Beware of hidden obstructions in grassy areas or unstable terrain.
10. Refer to general instructions for mixing or applying pesticides. (See Vegetation Control Chapter in Maintenance Manual.)
11. Read product label, Safety Data Sheet and Pest Control Recommendation before applying pesticides or rodent bait. These documents are required at the application site.
12. Test pump and system and perform calibration before adding chemical.
13. Clean wash water shall be available. Hand washing facilities shall be available. Wash thoroughly with clean water and soap before eating, drinking, smoking or using the restroom.
14. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.

Code of Safe Operating Practices

PEST MANAGEMENT (Cont'd)

15. If planned work is known to be in the immediate vicinity of unsheltered residents, then the Supervisor shall assign at least one other person to accompany the employee and/or request MAZEPP if determined to be necessary. If an employee is working alone and feels threatened by individuals at the worksite, they should leave the area, inform their Supervisor, and request CHP to provide a safety escort prior to performing any work.
16. Be aware of slip/trip/fall hazards when working near bridge rails.

Revised 9/21/2020

Code of Safe Operating Practices

VEGETATION MANAGEMENT (CHEMICAL)

HAZARD REVIEW

Moving Traffic
Unstable Terrain
Toxic Chemicals
High Pressure Hoses

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use standard personal protective equipment. Wear all additional protection required by chemical label, Pest Control Recommendation, district policy, and supervisor. Coveralls, rubber boots, chemical resistant gloves, face shield and/or eye protection are required when handling pesticides. A respirator may be required.
6. Beware of hidden obstructions in grassy areas or unstable terrain.
7. Refer to general instructions for applying or mixing materials.
8. Do not exceed recommended pressure; check for wear and tear on hoses; check pressure regulator to see if working properly.
9. Read product labels, Safety Data Sheet and Pest Control Recommendation before handling chemicals. These documents are required at the application site.
10. Review emergency medical plan and have location of nearest medical facility posted in vehicle where applying chemicals.
11. Be sure that fertilizer mist-blower is properly grounded.
12. Keep chemicals in locked storage.
13. Insure that clean water and soap are available at the worksite.
14. No spraying from cone baskets. Shadow vehicles are required when spray baskets are utilized. If spray basket is being used review Cone Carousel, Personnel Basket and Spray Basket CSOP.
15. Test pump and system and perform calibration before adding chemical.

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Code of Safe Operating Practices

VEGETATION MANAGEMENT (CHEMICAL) (Cont'd)

16. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
17. If planned work is known to be in the immediate vicinity of unsheltered residents, then the Supervisor shall assign at least one other person to accompany the employee and/or request MAZEPP if determined to be necessary. If an employee is working alone and feels threatened by individuals at the worksite, they should leave the area, inform their Supervisor, and request CHP to provide a safety escort prior to performing any work.
18. Be aware of slip/trip/fall hazards when working near bridge rails.

Revised 3/16/2022

Code of Safe Operating Practices

IRRIGATION, WATER SYSTEMS MAINTENANCE AND REPAIR

HAZARD REVIEW

Moving Traffic
Hidden Objects and Unstable Terrain
High Pressure Lines
Digging Holes
Improper Tools
Access to Valve Boxes
Electrical Shock
Spiders/Insects

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use standard personal protective equipment. Rubber boots are recommended.
6. Shut off main valves, relieve pressure or drain lines before starting repairs.
7. Use proper tools.
8. Be aware of tripping hazards and uneven ground.
9. Unless properly trained, do not work on electrical valves, or clocks, call an electrician if necessary.
10. Be aware of the hazards connected with the use of recycled water.
11. Keep valve boxes colored and marked, check for spiders and other insects.
12. Keep access to valves clear.
13. Be aware of high water pressure while installing sprinklers.
14. Review Appendix D if excavation is required over 3 feet (1 meter) deep.
15. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.

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Code of Safe Operating Practices

IRRIGATION, WATER SYSTEMS MAINTENANCE AND REPAIR (Cont'd)

16. If planned work is known to be in the immediate vicinity of unsheltered residents, then the Supervisor shall assign at least one other person to accompany the employee and/or request MAZEPP if determined to be necessary. If an employee is working alone and feels threatened by individuals at the worksite, they should leave the area, inform their Supervisor, and request CHP to provide a safety escort prior to performing any work.
17. Be aware of slip/trip/fall hazards when working near bridge rails.

Revised 9/21/2020

Code of Safe Operating Practices

USING RECYCLED WATER

HAZARD REVIEW

Infectious Substances
Personal Contact
Public Contact

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Employees shall be informed of the potential health hazards involved with contact or ingestion of recycled water and should be trained regarding proper hygienic procedures.
3. Ensure that appropriate coliform and chlorine levels are met before using recycled water.
4. Use standard personal protective equipment. In addition, impermeable (rubber) gloves are required while working with recycled water. Coveralls or rain gear may also be required. Consult with your local supplier to determine minimum requirements for personal protective equipment.
5. Wash thoroughly with clean water and soap before eating, drinking, smoking or using the restroom. Safe drinking water shall be provided.
6. Areas where recycled water is used must be conspicuously posted. Individual sprinklers and risers must be equipped with check valves and also be tagged "Recycled water - do not drink - may be harmful".
7. Do not allow recycled water to run "off target" or into drainage systems. Repair leaks in water systems immediately.
8. Water tankers, which use recycled water, must be labeled "Recycled water - do not drink - may be harmful". Repair leaks immediately.
9. Do not allow pedestrian traffic to be exposed to recycled water.
10. Water systems must have functioning back-flow preventers to prevent contamination of fresh water systems.
11. Any discharge of untreated or partially treated wastewater areas shall be immediately reported to the Supervisor, treatment facility and regulatory agency (local health department).
12. Be aware of slip/trip/fall hazards when working near bridge rails.

Revised 5/23/2018

Code of Safe Operating Practices

SERVICING PORTABLE RESTROOMS

HAZARD REVIEW

Body Wastes
Infectious Substances
Sanitizing Chemicals

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Use standard personal protective equipment. Impermeable gloves, boots, and coveralls are required when contact with body wastes or infectious substances are possible.
3. Insure clean water and soap, are available at work site.
4. DO NOT TOUCH body wastes or infectious substances. Use hand tools or other methods to avoid personal contact.
5. Review product label and Safety Data Sheet before using sanitizing chemicals.
6. DO NOT eat or smoke during work involving raw sewage.
7. Make fresh water hose line available when working on portable restrooms (for emergency wash down).
8. Be aware of possible slipping hazards on wet surfaces when cleaning these units.
9. Clean up and hose down area after dumping.

Code of Safe Operating Practices

PUBLIC SERVICE FACILITIES

A special hazard review and safe operating procedure will be written for each roadside rest and weigh station. The Regional Superintendent shall ensure that all activities and work areas are reviewed for hazards. Safe work methods and procedures will be established for each individual location.

The code and review shall incorporate those factors needed to cover the safety items peculiar to each facility.

HAZARD REVIEW

Body Wastes
Infectious Substances
Sharp Objects
Sanitizing Chemicals
Public Contact
Insects
Confined Spaces

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any vehicle or pedestrian traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. Use standard personal protective equipment. Impermeable gloves, boots, and coveralls are required when contact with body wastes or infectious substances is possible.
5. Clean wash water and hand washing facilities shall be available. Wash thoroughly with clean water and soap before eating, drinking, smoking or using the restroom.
6. A plumbed or self-contained eye wash station must be provided. General Industrial Safety Orders (GISO). Section 5162.
7. Review product label and Safety Data Sheet before using sanitizing chemicals.

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Code of Safe Operating Practices

PUBLIC SERVICE FACILITIES (Cont'd)

8. DO NOT TOUCH body wastes, infectious substances, or hypodermic needles. Use hand tools or other methods to avoid personal contact. Place sharp objects in puncture proof containers for proper disposal. Only place hypodermic needles in a sharps container provided by your Supervisor or District Hazmat Manager. A sharps container is a red plastic container that is filled with used medical needles and has a BIOHAZARD label. Do not hand hold container while placing needles inside with a litter picker; **YOU MAY ACCIDENTLY PUNCTURE YOUR HAND.** Place the open container on the ground before attempting to put the needle inside the sharps container.
9. If employees must enter sumps, tanks, crawlspaces or other confined spaces, review the appendix for confined spaces before entry.
10. Be aware of insects, rodents, and snakes in the area.
11. Do not eat or smoke during work involving raw sewage.
12. Make fresh water hose line available when working on sewer lines (for emergency wash down).

Revised 6/1/2012

Code of Safe Operating Practices

BRIDGE STRUCTURE MAINTENANCE

HAZARD REVIEW

Moving Traffic
Overcrowding of Employees
Hazardous Materials
Airborne Contaminants
Flying Particles
Hot Patching Materials
Falling
Confined Spaces
Insects, Rodents, Bird Droppings

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use standard personal protective equipment. 100% cotton coveralls are required when working with hot materials.
6. Employees on foot should stay out of the way of operating equipment until the area is clear for hand work.
7. Allow ample space for each employee to work safely.
8. Employees should avoid direct contact with hot paving material.
9. Employees should utilize approved temporary safety railing or safety harness to eliminate falling hazards. See Fall Protection (Appendix G).
10. Electrical repairs will conform to applicable provisions of the K family.
11. A confined space entry permit shall be posted at the work site and must be completed and signed before entry to any confined space.
12. Assure proper ventilation while welding or cutting galvanized materials with torch.
13. Review SDS for chemicals used.

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Code of Safe Operating Practices

BRIDGE STRUCTURE MAINTENANCE (Cont'd)

14. Review Sand Blaster CSOP in equipment section of this book.
15. Wash thoroughly with clean water and soap before eating, drinking, smoking or using the restroom. Safe drinking and wash water and soap shall be provided at the work site.
16. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
17. If planned work is known to be in the immediate vicinity of unsheltered residents, then the Supervisor shall assign at least one other person to accompany the employee and/or request MAZEPP if determined to be necessary. If an employee is working alone and feels threatened by individuals at the worksite, they should leave the area, inform their Supervisor, and request CHP to provide a safety escort prior to performing any work.
18. Be aware of slip/trip/fall hazards when working near bridge rails.
19. The following activities/equipment require respiratory protection with an assigned protection factor of 10 (APF10) when performed outdoors for more than four (4) hours:
 - a. Using a handheld power saw.
 - b. Jackhammers and handheld power chipping tools.

Revised 9/21/2020

Code of Safe Operating Practices

BRIDGE AND PUMP MAINTENANCE

BRIDGE PAINTING AND CLEANING

Regional Superintendent shall ensure that all activities and work areas are reviewed for hazards. Safe work methods and procedures will be established for bridge cleaning and painting jobs.

The Code and Review shall incorporate those factors needed to cover the highly individualistic nature of this type of job.

Each employee should review Safe Practice Rules for applicable equipment (see Equipment Index).

The CSOP shall be developed using the standard CSOP format. Instructions are found in Appendix F - Instructions for Developing Individual and Site-Specific COSP's.

Please be aware of the requirement to notify the Transportation Permits Branch at least 15 days in advance of implementing proposed changes in vertical clearances, horizontal clearance, or both (such as erecting scaffolding). You must provide the proposed clearance changes and the duration of the changes.

For questions regarding clearance notification, please contact the HQ Permits Office at (916) 654-5548 or go to <http://www.dot.ca.gov/hq/traffops/permits/contact-liaisons.htm>

Code of Safe Operating Practices

PUMP HOUSE MAINTENANCE

HAZARD REVIEW

Explosive Hazards
Oxygen Deficient Atmosphere
Footing and Falling Hazards

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment), perform pre-operational checks and review Confined Space Entry Procedures (see Appendix B).
2. Do not go below floor level prior to notifying Area Supervisor or Area Superintendent, and the local dispatcher.
3. Before entering a confined space, a "Confined Space Pre-Work Check List" shall be posted at the work site and must be completed and signed by all employees involved in entering the confined space before entry into the confined space.
4. All employees, including standby persons, shall be trained in the operating and rescue procedures, including instruction as to the hazards they may encounter.
5. Employees entering confined spaces should be in good physical condition and psychologically suited for the job.
6. At least one person shall stand by on the outside of the confined space ready to give assistance in case of emergency.
7. Smoking or open flames shall not be permitted in any area of the structure. "No Smoking" signs shall be posted on all exterior doors of the pump house. If cutting or welding is required, remove the object to outside area, if possible. If removal is not possible, remove all grates, manhole covers and set up mechanical ventilation to provide maximum ventilation in the work area. Respiratory protection may be required.
8. The area shall be ventilated for a minimum of 15 minutes prior to atmospheric testing and entry. Pumping plants with wet pits need not be ventilated if the crew leader determines that the updraft of air is sufficient to indicate the natural ventilation system is functioning and the atmosphere required tests are satisfactory.

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Code of Safe Operating Practices

PUMP HOUSE MAINTENANCE (Cont'd)

9. Atmospheric tests must be conducted by a trained and qualified person prior to any employee descending below the entry level of the pump house. If it is determined from the initial test that the lower explosive level and oxygen levels are within acceptable and legal standards, then entry below the main floor may proceed. The air shall be continually monitored with an appropriate instrument for combustible gases and oxygen-deficient atmosphere. A record of such tests shall be kept at the job site. **Should the atmospheric-testing instrument's audible alarm or visual indicator indicate a change, all individuals must evacuate the area immediately.**
10. Atmospheric detection instruments shall be stored at Supervisor, Area Superintendent, and Region Manager's office. These shall be certified annually and checked before each use. Detection instruments not operating properly shall not be used.
11. During the initial testing of structure for atmospheric conditions, all employees must remain at floor level.
12. A radio-equipped vehicle must be at the location when an employee(s) will be below the floor level. The radio shall be checked with local dispatcher for communication capabilities at the location.
13. One person must remain at floor level at all times, and visual or verbal communication must be constantly maintained with employee(s) below the floor level.
14. **WRITTEN EMERGENCY RESCUE PROCEDURE MUST BE LOCATED IN PUMP HOUSE AND AT THE LOCAL DISPATCH OFFICE READILY AVAILABLE AT ALL TIMES. THE STAND-BY PERSON (S) SHALL FOLLOW THE WRITTEN EMERGENCY RESCUE PROCEDURES.**
15. Notify the local dispatcher when all work below floor level has been completed and all employees have safely returned to floor level.
16. If the above conditions cannot be obtained, no one shall enter the confined space.
17. For more detailed information about Confined Spaces, please refer to the Departmental Safety Manual, Chapter 14 which can be found here:
http://hs.onramp.dot.ca.gov/downloads/hs/files/Chap_14_aug_2014.pdf

Code of Safe Operating Practices

TUNNEL AND TUBE MAINTENANCE

Most of the hazards involved in this program are covered under the Code of Safe Practices for the various items of equipment being used.

The variables encountered in traffic and weather conditions make each operation unique concerning safety matters. It is recommended that each supervisor prepare a Code of Safe Practices covering the hazards peculiar to his operation/location. This code should be reviewed and revised as necessary.

Regional Superintendent shall ensure that all activities and work areas are reviewed for hazards. Safe work methods and procedures will be established for each location.

For confined space hazards prior to entry, refer to Confined Space Entry Procedures (Appendix B).

Refer to “J” family in MMS.

Code of Safe Operating Practices

TOW SERVICE

HAZARD REVIEW

Moving Traffic
Flammable Materials (gas, diesel, oils, etc.)
Hazardous Materials (battery acid or load being transported)
Slippery Roadway
Tripping Hazards
Adverse Weather Conditions
Broken Glass
Sharp Edges or Points
Limited Space

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks. (Check booms, for cracks, loose pins, bad cables, etc.)
2. Check truck to assure all required equipment is in good working order (chains and hooks, gas cans, jumper cables, flashlights, tools, etc.)
3. Use standard personal protective equipment (hard hat, vest, coveralls, gloves, glasses, etc.). Review Safety Manual section 22.03, Bloodborne Pathogens.
4. When on foot, make every effort to perform work *facing* oncoming traffic.
5. Employees shall use proper lifting techniques and obtain assistance if needed when lifting heavy objects.
6. Working under or around raised vehicles is limited to securing safety chains.
7. Do not exceed equipment limitations.
8. Be alert for other people in the work area.
9. Be especially aware of traffic at night, a driver's perception is different. Also, impaired drivers are more prevalent at night.
10. Maintain radio contact with dispatcher at all times.
11. If it can be done safely, move vehicle off travel way before working on it.
12. Use care when entering or exiting vehicles. Be aware of slip/trip/fall hazards when working near bridge rail.
13. Keep hands and body away from moving parts and pinch points.
14. Check for flammable liquids before using fuses.

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Code of Safe Operating Practices

TOW SERVICE (Cont'd)

15. Proper procedures and safeguards will be used during tow truck operations:
 - a. When giving jump starts, hook up the positive post first and then attach the ground cable to the vehicle away from the battery. Where possible, attach cables to battery, and then plug into socket.
 - b. Never remove the cap from an overheated radiator. Cool off the radiator by putting water over it.
16. Check all rigging (especially snatch blocks) before starting a heavy lift or pull. Stay clear of cables during pulls.
17. Safety chains shall be used when towing on all public roads and are to be used with all towing devices, such as Car Slings, Truck Hitches, Wheel Lifts, Axle Lifts, etc. Safety chains are used in addition to regular hook-up chains and must have a positive locking hook on it to attach to the vehicle being towed; they shall retain the towed vehicle if it accidentally comes loose while in tow.
18. When hooking up vehicles in adverse weather conditions or high-speed traffic, use a protective/barrier vehicle or CHP traffic break. Use a lookout if available.
19. When responding to a disabled vehicle in an open lane of traffic, the following action shall be taken:
 - a. Activate emergency red lights.
 - b. Select appropriate directional mode on light stick.
 - c. Notify DCC with your location.
 - d. Report license plate number of the vehicle.
 - e. Report brief description of the scene (accident/stall).
 - f. Position your truck suitable for exiting and as a barrier for oncoming traffic.
 - g. Request from the DCC for a back up.
 - h. Inform the DCC "10-97 out of the vehicle" before exiting vehicle.
 - i. Make every effort to face traffic.
 - j. Establish contact with patron.
 - k. Give instruction and direction to patron.
 - l. Inform DCC you are "10-98 back into your vehicle" and continue with your pushing off to a safe location".
 - m. Remove vehicle in accordance to Tow Service "Push off Policy" or Towing Procedures.

Code of Safe Operating Practices

TRAFFIC SIGNALS, FLASHING BEACONS & RAMP METERING, MAINTENANCE AND INSPECTIONS, REPAIRS, RELAMPING, FIELD INSPECTIONS AND MODIFICATIONS

HAZARD REVIEW

Traffic Hazards
Electrical Shock
Hot Lamps
Above Ground Work
Footing and Unstable Terrain
Broken Glass
Sharp Edges and Points
Flying Particles

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entry and exit of vehicle, which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use standard personal protective equipment. Wear hearing protection if appropriate. Refer to Appendix Q of the CSOP for PPE requirements.
6. Survey the work area, for electrical hazards, both overhead and surface locations.
7. Use proper testing procedures and equipment.
8. Ensure power is properly disconnected when necessary. Locks and/or tags shall be used where approved.
9. Remain alert to traffic when walking into intersection.
10. Wear gloves when re-lamping.
11. Be aware of pedestrian traffic.
12. Be alert while working around others not part of your crew such as contractors, utility workers or city and county crews. Their safety procedures may differ from ours.

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Code of Safe Operating Practices

TRAFFIC SIGNALS, FLASHING BEACONS & RAMP METERING, MAINTENANCE AND INSPECTIONS, REPAIRS, RELAMPING, FIELD INSPECTIONS AND MODIFICATIONS (Cont'd)

13. Wear safety belts and lanyards when operating aerial equipment. (See Appendix G, Fall Protection)
14. Follow your District's established hazardous materials policies when disposing of any gas filled lamp such as fluorescent, mercury vapor or sodium vapor.
15. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
16. If planned work is known to be in the immediate vicinity of unsheltered residents, then the Supervisor shall assign at least one other person to accompany the employee and/or request MAZEPP if determined to be necessary. If an employee is working alone and feels threatened by individuals at the worksite, they should leave the area, inform their Supervisor, and request CHP to provide a safety escort prior to performing any work.
17. Be aware of slip/trip/fall hazards when working near bridge rails.

Revised 9/21/2020

Code of Safe Operating Practices

SIGN LIGHTING REPAIRS RELAMPING AND MAINTENANCE

HAZARD REVIEW

Traffic Hazards
Electric Shock
Above Ground Work
Hot Lamps
Broken Glass
Falling Material
Excessive Noise
Communication Difficulties

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use standard, required personal protective equipment. Hearing protection if appropriate. Refer to Appendix Q of the CSOP for PPE requirements.
6. Ensure circuit is properly disconnected if appropriate to work. Locks and/or tags shall be used.
7. Place lamps, tools, and supplies where they won't fall.
8. Don't drop or throw materials from sign.
9. Use proper testing procedures and equipment.
10. Be alert when working around others not part of your crew such as contractors, utility workers or city and county crews. Their safety procedures may differ from ours.
11. A safety strap shall be attached at all times to the basket, platform or sign structure when the catwalk safety rails are down. One must be attached before the other one is unattached. Lanyards may be removed when all safety rails are up (if 42") and end chains are in place, (see Appendix G, Fall Protection).
12. Follow your District's established hazardous materials policies when disposing of any gas filled lamp such as fluorescent, mercury vapor or sodium vapor.

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Code of Safe Operating Practices

SIGN LIGHTING REPAIRS RELAMPING AND MAINTENANCE (Cont'd)

13. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
14. If planned work is known to be in the immediate vicinity of unsheltered residents, then the Supervisor shall assign at least one other person to accompany the employee and/or request MAZEPP if determined to be necessary. If an employee is working alone and feels threatened by individuals at the worksite, they should leave the area, inform their Supervisor, and request CHP to provide a safety escort prior to performing any work.
15. Be aware of slip/trip/fall hazards when working near bridge rails.

Revised 9/21/2020

Code of Safe Operating Practices

ELECTRICAL TROUBLE WORK AND KNOCKDOWNS, LIGHTING, SIGNS, SIGNALS, FLASHERS, AND RAMP METERS

HAZARD REVIEW

Traffic Hazards
Electric Shock
Underground and Overhead Utilities
Broken Glass
Equipment Limitations
Suspended Loads
Lifting
Footing and Unstable Terrain
Excavation Hazards
Toxic Materials
Falling Materials
Communication Difficulties
Excessive Noise
Airborne Contaminants

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entry or exit of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use standard, required personal protective equipment. Wear hearing protection if appropriate. Refer to Appendix Q of the CSOP for PPE requirements.
6. Ensure circuit is properly disconnected when necessary. Locks and/or tags shall be used.
7. Provide signal person when load is hidden from boom operator.
8. When raising loads be sure the slings and cables are properly labeled or of sufficient capacity and properly positioned.

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Code of Safe Operating Practices

ELECTRICAL TROUBLE WORK AND KNOCKDOWNS, LIGHTING, SIGNS, SIGNALS, FLASHERS, AND RAMP METERS (Cont'd)

9. Remain visible to boom operator and do not stand under any load. Non-essential personnel should remain clear.
10. Use proper testing procedures and equipment.
11. Follow underground utilities and trench safety procedures, if applicable (see Appendix D).
12. Follow your district's established hazardous materials policies when disposing of any gas filled lamp such as a fluorescent, mercury vapor or sodium vapor.
13. Wear safety belts and lanyards when operating aerial equipment. (See Appendix G, Fall Protection).
14. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
15. If planned work is known to be in the immediate vicinity of unsheltered residents, then the Supervisor shall assign at least one other person to accompany the employee and/or request MAZEPP if determined to be necessary. If an employee is working alone and feels threatened by individuals at the worksite, they should leave the area, inform their Supervisor, and request CHP to provide a safety escort prior to performing any work.
16. Be aware of slip/trip/fall hazards when working near bridge rails.
17. Underground Service Alert (USA) notification may be required, see Appendix DD.

Revised 9/21/2020

Code of Safe Operating Practices

NIGHT ELECTRICAL INSPECTION

HAZARD REVIEW

Traffic Hazards
Impaired Drivers
Hazardous Parking Areas
Dark Work Areas
Footing and Unstable Terrain

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entry and exit of vehicle, which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use standard, required personal protective equipment. Wear hearing protection if appropriate. Refer to Appendix Q of the CSOP for PPE requirements.
6. Be especially aware of traffic as driver perception is different and impaired drivers are more prevalent at night.
7. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
8. If planned work is known to be in the immediate vicinity of unsheltered residents, then the Supervisor shall assign at least one other person to accompany the employee and/or request MAZEPP if determined to be necessary. If an employee is working alone and feels threatened by individuals at the worksite, they should leave the area, inform their Supervisor, and request CHP to provide a safety escort prior to performing any work.
9. Be aware of slip/trip/fall hazards when working near bridge rails.

Revised 9/21/2020

Code of Safe Operating Practices

MISCELLANEOUS ELECTRICAL INSTRUCTIONS

HAZARD REVIEW

Traffic Hazards
Hazardous Parking Areas
Electrical Shock
Falling Materials
Heavy Materials
Sharp Edges and Points
Obstructed Work Spaces
Above Ground Work
Airborne Contaminants
Equipment Limitations
Underground Utilities
Excavation Hazards
Noise
Footing and Unstable Terrain

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use standard personal protective equipment. Refer to Appendix Q of the CSOP for PPE requirements.
6. Utilize truck-mounted work light or flashlight.
7. Be especially aware of traffic as driver perception is different at night and, also, drunk drivers are more prevalent at night.
8. Do not work over bridge rails or on sign bridges without being properly secured (See Appendix G, Fall Protection).
9. Use proper testing procedures and equipment.
10. Ensure circuit is properly disconnected when necessary. Locks and/or tags shall be used where approved.

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Code of Safe Operating Practices

MISCELLANEOUS ELECTRICAL INSTRUCTIONS (Cont'd)

11. Remain alert to traffic when walking into an intersection.
12. Perform testing in such a manner as to minimize traffic disruptions.
13. Good housekeeping will be continuously practiced to preclude obstruction of workspaces.
14. Check ladder footing on first and second step before climbing. (Slight jump to verify ladder is secure). Do not use the top steps.
15. Follow underground utility and trench safety procedures (See Appendix D).
16. Be alert while working around others who are not part of your crew such as contractors, utility workers, or city and county crews. Their safety procedures may differ from ours.
17. Follow your district's established hazardous materials policies when disposing of any gas filled lamp such as fluorescent, mercury vapor or sodium vapor.
18. Employees required to work on series or high voltage circuits, must have high voltage and series circuit safety training before starting work.
19. Only Caltrans electricians will work on high voltage circuits (600 volts or more). A minimum crew of two is required; one will act as an observer. A Caltrans Electrical Technician may be used if under the immediate supervision of a Caltrans electrician.
20. Maintain at least 10 feet of clearance from overhead high voltage lines at all times.
21. Open safety switches, lock and tag out at any locations that are automatically controlled.
22. Should work require entry into a confined space, a Confined Space Pre-Work Checklist shall be posted at the work site and must be completed and signed before entry into the confined space. (See Appendix B)
23. Care must be exercised when removing or replacing conductors, components, circuit boards or similar devices that fingers or hands are not burned, lacerated, pinched or punctured.
24. Wear safety belts and lanyards when operating aerial equipment. (See Appendix G, Fall Protection).
25. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
26. Be aware of slip/trip/fall hazards when working near bridge rails.
27. Underground Service Alert (USA) notification may be required, see Appendix DD.

Revised 5/5/2020

Code of Safe Operating Practices

WORKING IN THE PROXIMITY TO ELECTRICAL HAZARDS

HAZARD REVIEW

Electrical Shock
Utility Lines
Moving Traffic
Electrical Fires
Brush Fires
Cables Under Tension
Equipment Coming Into Contact with Lines

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work facing oncoming traffic.
5. Use standard personal protective equipment.
6. Before any work is performed in the proximity of an electrical hazard an employee qualified and trained in the hazards associated with the task must determine if an electrical hazard exists.
7. If there is reason to believe that the fence is electrified, Caltrans employees should contact the business owner or an electrical company to shut it off.
8. If an electrical hazard does exist, the person in charge must mitigate the operation so that employees and/or equipment do not enter the minimum approach distances (MAD).
9. If overhead equipment (e. g., personal hoist, digger derrick, crane, drill rig.) is operated and has the potential to enter the MAD a second employee will be used as a spotter to assist in keeping the required distance from energized conductors.
10. The minimum approach distance for 50,000 volts and less is 10 feet. For voltage more than 50,000 volts the MAD could be as much as 35 feet.

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Code of Safe Operating Practices

WORKING IN THE PROXIMITY TO ELECTRICAL HAZARDS (Cont'd)

11. Qualified tree workers are permitted to perform tree work within 10 feet of an energized low-voltage (600 V or less) power line, but cannot work less than 1 foot from the low-voltage power line. All other employees not trained in working in proximity to high voltage lines must keep a distance of 10 feet from all power lines. Tree workers should read and understand the ANSI Z133-2017 and the Cal/OSHA-Title 8 regulations.
12. Responding to emergencies. Survey the area for electrical hazards. If an electrical hazard is present isolate and deny entry. Do not try to move wires.
13. An energized electrical conductors or energized grounded object (e.g., guy wires or pole grounds, guard rail, metal fences, and other conductive material), there exists the hazard of touch and step potential. Step potential is the step voltage between the feet of a person standing near an energized grounded object. It is equal to the difference in voltage, given by the voltage distribution curve, between two points at different distances from the electrode.
14. If there is a possibility of step potential you should shuffle your feet without picking them up, retreat to a safe location. If you need to exit a vehicle or platform you must jump away with feet together. Do not step down with one foot and make a circuit. Electricity takes the path of least resistance. The human body contains 60% water. We are a great conductor for electricity.
15. When work is required within the MAD the qualified person in charge must contact the system owner/operator of the utility company to de-energize the electrical conductors. There must be protective grounds installed as close as is practical to the work being done. This reduces the chance for back feed from other electrical sources.
16. During an electrical hazard incident do not take the word from anybody (including CHP and/or Fire Departments) that it's safe to handle electrical components. Only the owner/operator of the utility company can guarantee when it is safe to perform work.

Revised 3/16/2022

Code of Safe Operating Practices

TRAFFIC INCIDENTS/EMERGENCY RESPONSE

HAZARD REVIEW

Moving Traffic
Moving Equipment
Confused Motorists
Non-Caltrans Personnel
Hazardous Spills
Infectious Diseases
Deceased Persons/Body Parts

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Use appropriate radio communications to notify Caltrans dispatcher per District instructions.
3. Park your vehicle where it will not be a hazard to yourself or others. Never stand between your vehicle and traffic.
4. Continually *face* oncoming traffic; if possible, use a lookout.
5. Use discretion if administering first aid, use protection where there is a chance of body fluid contamination.
6. Refer to Chapter 7, section 7.13 for Deceased Persons/Body Parts.
7. Install Chapter 7 traffic controls when necessary.
8. **DO NOT** attempt to identify spilled substances; they may be hazardous. Protect yourself; protect traffic; protect the environment; WAIT FOR THE EXPERTS!
9. Do not let down your guard after the incident has stabilized. Motorists are confused when they encounter traffic congestion and incidents. Be aware of the errant and/or frustrated driver.
10. Be careful when working around non-Caltrans personnel (law enforcement, fire departments, ambulance crews, etc.), their safety procedures may differ from ours.
11. Be careful when removing debris from the traveled way; use equipment if possible.
12. Above all, do not jeopardize your personal safety.
13. Be aware of slip/trip/fall hazards when working near bridge rails.
14. Avoid sharp turns when towing a flashing arrow sign; trailer could overturn.

Revised 8/19/2024

Code of Safe Operating Practices

PAVEMENT STRIPING AND MARKINGS

HAZARD REVIEW

Moving Traffic
Hot Materials
Hazardous Materials
Open Flame
Pressurized Containers
Moving Equipment
Heavy Equipment Handling
Noise

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use standard personal protective equipment. 100% cotton coveralls, gloves, eye protection, and face shield (wire mesh for thermoplastic) are required when handling and loading. Use appropriate footwear with hard soles and leather uppers.
6. Bead tank pressure shall be completely released before the lid is removed.
7. Make sure paint pressure is completely released before pulling paint filters.
8. Do not use pressure relief valves to bleed pressure on any pressurized tanks.
9. All air and paint pressure lines should be checked periodically for softness and wear.
10. Do not use a pressurized air hose to clean yourself.
11. Use extreme caution when working around high-pressure paint guns. Paint could be injected into your skin.
12. Avoid contact with hot thermoplastic.
13. Alert all crewmembers to hazards of removing thermoplastic.
14. Dispose of all hazardous waste properly.
15. Lift properly.

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Code of Safe Operating Practices

PAVEMENT STRIPING AND MARKINGS (Cont'd)

16. Follow specified kettle lighting procedures. Extinguish flames before refueling operations.
17. Be aware of sharp edges on metal stencils.
18. Wash thoroughly with clean water and soap before eating, drinking, smoking or using the restroom. Safe drinking and wash water and soap shall be provided at the work site.
19. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
20. Be aware of slip/trip/fall hazards when working near bridge rails.

Revised 3/16/2022

Code of Safe Operating Practices

PAVEMENT MARKINGS MMA 98:2 KOLD SPRAY

HAZARD REVIEW

Moving Traffic
Hazardous Materials
Heavy Material Handling
Pressurized Containers
Pressurized Hoses
Pressurized Spray Tip
Moving Equipment
Heavy Equipment Handling
Noise

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use standard personal protective equipment. 100% cotton coveralls, rubber gloves, and eye protection. Face shield, hand and arm protection, rubber apron is required when handling, loading, and disposition of MMA paint, catalyst, and solvent. Use appropriate footwear with hard soles and leather uppers.
6. Paint tank pressure shall be completely released before lid is removed for filling or cleaning paint tank.
7. Catalyst tank pressure shall be completely released before lid is removed for filling or cleaning catalyst tank.
8. Glass bead tank pressure shall be completely released before the lid is removed for filling or cleaning glass bead tank.
9. Solvent tank pressure shall be completely released before lid is removed for filling or cleaning solvent tank.
10. Do not use pressure relief valves to bleed pressure on any pressurized tanks.
11. All paint, catalyst, and solvent pressure lines should be checked before use for softness and wear.

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Code of Safe Operating Practices

PAVEMENT MARKINGS MMA 98:2 KOLD SPRAY (Cont'd)

12. MMA paint will only be sprayed/applied in open fresh air areas.
13. MMA paint WILL NOT be used in confined space areas.
14. Do not use a pressurized air hose to clean yourself.
15. Use extreme caution when working around high-pressure paint guns. Paint and/or catalyst could be injected into your skin.
16. Alert all crewmembers to hazards of removing MMA 98:2 paint.
17. Dispose of all hazardous waste properly.
18. Use all appropriate Best Management Practices (BMP's) when spraying MMA 98:2 paint in the field.
19. Lift properly.
20. Follow all specified MMA 98:2 machine manufacturers procedures for startup and shut down of machine.
21. Be aware of sharp edges on metal stencils. Be aware of extra weight on stencils after spraying the MMA 98:2 paint.
22. Wash thoroughly with clean water and soap before eating, drinking, smoking or using the restroom. Safe drinking and wash water and soap shall be provided at the work site.
23. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, MAZEPP, and group maintenance when appropriate.

New 9/28/2022

Code of Safe Operating Practices

THERMOPLASTIC STRIPER AND PRE-HEATER

HAZARD REVIEW

Hazardous Materials
Moving Traffic
Pressurized Containers
Hot Materials
Noise
Open Flame
Moving Equipment
Heavy Equipment Handling

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use standard personal protective equipment. The use of 100 % cotton smocks or coveralls is required. Gloves, eye protection, and face shield (wire mesh for thermoplastic) are required when handling and loading. Use appropriate footwear with hard soles and leather uppers.
6. Bead tank pressure shall be completely released before the lid is removed.
7. A type BC, 20lb (9 kilograms) dry chemical fire extinguisher, shall be carried on all thermoplastic heating or applying equipment.
8. Smoking is prohibited within 25 feet (8 meters) of LPG tank opening vents and while filling tanks. Burners on pre-heaters shall not be left unattended while lit.
9. Material shall never be heated beyond manufacturers recommended temperature for applications.
10. Pre-heaters should be loaded and unloaded with care to prevent splashing of hot material. Pre-heaters should be left about six inches (152 millimeters) from top while filling to leave room for material to move when vehicle is deadheaded.
11. In case of fire, all engines, pumps, and valves should be shut off.
12. Truck beds should be cleaned each day of loose material and melted thermoplastic.

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Code of Safe Operating Practices

THERMOPLASTIC STRIPER AND PRE-HEATER (Cont'd)

13. Only qualified and trained personnel are allowed to operate pre-heaters.
14. The "Owner's Manuals" for both units will be reviewed with each operator prior to their first-time operation.
15. Avoid contact with hot thermoplastic.
16. Alert all crew members to hazards of removing thermoplastic.
17. Review Safety Data Sheet for materials used.
18. Dispose of all hazardous waste properly.
19. Lift properly. Review "Proper Lifting" video in Maintenance Employee Safety Orientation series for specific instructions on correct lifting practices.
20. Follow specified kettle lighting procedures. See CSOP for Propane Tank Handling and Use (Appendix A). Extinguish flames during refueling operations.

SEE EQUIPMENT CODES FOR SPECIFIC EQUIPMENT SAFETY INSTRUCTIONS!

Revised 6/1/2012

Code of Safe Operating Practices

THERMOPLASTIC PRE-HEATER

HAZARD REVIEW

Flammable Gases
Hot and Molten Material
Open Flame
Hazardous Materials and Wastes
Dust and Fumes
Pressurized Containers
Moving Equipment
Operating Mechanical Lifting Devices
Heavy Lifting
Noise

SAFE OPERATING PROCEDURES

1. Review safe practice rules before starting work. Perform pre/post operational checks on vehicle and pre-heater installed electric igniter system (including rental equipment), if applicable.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic or working equipment that is supporting your operation.
5. In addition to standard personal protective equipment, the following protective gear is also required.
 - a. For handling of thermoplastic in the granular form or glass safety spheres: (This includes loading/unloading of vehicles, applicators and cleanup of spilled material).
 1. Safety glasses & wire mesh face shield.
 2. 100% cotton coveralls.
 3. Leather gloves.
 4. Appropriate work boots (no low cut) with leather uppers and non-slip hard soles.

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Code of Safe Operating Practices

THERMOPLASTIC PRE-HEATER (Cont'd)

6. If visible dust is generated, cartridge respirators (with HEPA filters) or N-100 dust masks shall be worn. Respirator training and use will comply with Chapter 15 of the Caltrans Safety Manual.
 - a. For handling thermoplastic in the molten form, the following is required:
 1. Safety glasses & wire mesh face shield.
 2. 100% cotton coveralls.
 3. Leather gloves.
 4. Foot protection.
 5. A type "BC" 20lb (9 kilograms) dry chemical fire extinguisher shall be carried on all thermoplastic equipment, including applicators.
7. Smoking is prohibited within 25 feet (8 meters) of LPG tanks and during tank filling or changing.
8. Pre-heater burners shall not be lit during filling of LPG tanks or fueling of vehicle.
9. Pre-heater shall not be left unattended while burners are on.
10. Thermoplastic material shall never be heated beyond 425°F (218° Celsius) or the manufacturer's recommended temperature for application.
11. Care shall be taken when loading/unloading pre-heaters to prevent splashing of hot material and to reduce spillage of unmelted material. A space of approximately six inches (152 millimeters) shall be left unfilled from the top of the kettle to provide for material movement during agitation or vehicle deadheading.
12. In case of fire immediately turn off or close all engines, pumps and valves.
13. Vehicles shall be cleaned daily of spilled materials. Care shall be exercised to segregate the recovered material to provide for proper waste disposal according to material classification. Never dump molten or unmelted material on the ground as a disposal method. Place the material in a container for re-use or proper disposal.
14. Only qualified personnel shall operate pre-heaters. Refer to the attached safe practice rules for proper lighting procedures.
15. Equipment 'Owner's Manual', if available, shall be reviewed during the qualification procedures. If the manual is not available, contact the assigned mechanic or Equipment Shop for assistance in procuring manual.
16. Avoid contact with hot thermoplastic. Alert all crewmembers to hazards of removing hot thermoplastic if an employee is splashed. If molten material gets on skin, immerse in water to cool – then seek medical assistance – do not remove the spilled material off the skin.

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Code of Safe Operating Practices

THERMOPLASTIC PRE-HEATER (Cont'd)

17. Avoid standing downwind during loading operations in case of spillage of unmelted material. REMINDER: A respirator with HEPA filter is required within ten feet (3 meters) of the pre-heater or nurse truck whenever unmelted thermoplastic is being handled and, within five feet (1.5 meters) from the immediate vicinity where a thermoplastic spill (unmelted) is being handled.
18. Review the Safety Data sheet prior to handling thermoplastic material.
19. Lift Properly: Periodically review “Proper Lifting” video in the Maintenance Employee Safety Orientation series for specific instruction on correct lifting practices.

SAFE PRACTICE RULES

1. Never travel outside of your immediate work area with burners lit. If the main burner & pilot light go out, immediately closed all valves starting at the tank(s), wait three minutes to clear all gases from firebox. Then start the lighting procedures.
2. Pre-heater temperature shall be a minimum of 375° F (190° Celsius) before engaging kettle agitator.
3. Operator shall ensure pre-heater lid is secured before engaging kettle agitator or before deadheading.
4. Operator shall perform a ‘gas leak’ test (at least weekly) on all lines, fittings and connections using a spray bottle and soap solution. Any leaks shall be immediately repaired.
5. Before securing at the end of the work shift, fill kettle to reduce possibility of fire. When securing the pre-heater close the main propane tank(s) valve(s) and allow all gas in the line to be exhausted at the burner. Once you confirm that the burner and pilot are off, close all propane line valves.
6. The following safety equipment is mandatory while lighting pre-heater.
 - a. Standard safety equipment (hard hat, safety glasses, proper foot protection, ANSI compliant vest).
 - b. Heat reflecting face shield.
 - c. Hand & arm heat shielding.

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Code of Safe Operating Practices

THERMOPLASTIC PRE-HEATER (Cont'd)

LIGHTING PROCEDURES

Electric

(If the installed electric igniter system properly operates during pre-operational check, its use is mandatory for the initial lighting of the pre-heater. *If the installed igniter system fails to properly operate during pre-op, the vehicle shall not be used until the installed igniter system is repaired.*) The operator shall:

1. Visually inspect the main burner firebox. If the firebox is dirty or contains oils and or other debris thoroughly clean the firebox before lighting pilot.
2. Ensure that all valves associated with the pre-heater are closed.
3. Turn on propane tank(s), as appropriate.
4. Starting at the tank(s), turn on all valves leading to the thermostat valve.
5. Turn thermostat to 250° F (121° Celsius) then open valve to access the propane. Depress pilot light gas button and operate electronic igniter switch a maximum of ten seconds to light pilot. If pilot light burns hold down pilot gas button for 30 seconds. Release button, and verify through the site port that burners are on. If pilot fails to light, wait three minutes for the propane gas to dissipate from the firebox before relighting. **FAILURE TO WAIT THE THREE MINUTES MAY RESULT IN A FLASHBACK DUE TO TRAPPED GASES IN THE FIREBOX.**
6. Once burners are steadily burning increase thermostat temperature to 425° F (218° Celsius).

NOTE:

Two employees (operator & assistant) shall be present during lighting procedures. The assistant shall verify that the lighting procedures are being followed and shall immediately call for assistance in case of an accident.

Manual

(If the installed electric igniter system does not operate properly once the vehicle reaches the work site, manual lighting procedures are authorized.) The operator shall:

1. Visually inspect the main burner firebox. If the firebox is dirty or contains oils and or other debris thoroughly clean the firebox before lighting pilot.
2. The operator shall ensure that all valves associated with the pre-heater are closed.
3. The operator shall turn on propane tank(s), as appropriate.
4. The operator starting at the tank(s) shall turn on all valves leading to the thermostat valve.

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Code of Safe Operating Practices

THERMOPLASTIC PRE-HEATER (Cont'd)

- 5 The operator shall turn thermostat to 250° F (121° Celsius) then open valve to access the propane.
- 6 While depressing the pilot light gas button the operator shall have his/her assistant attempt to light the pilot through an available port utilizing a long reach manual igniter (24 inches / 600 mm maximum reach) for a maximum of ten seconds. The assistant shall not reach inside the firebox and shall not look directly into the port opening while lighting the pilot. If pilot light ignites the operator shall hold down pilot gas button for 30 seconds. The operator shall then release the pilot button and verify through the site port that burners are on. **If pilot fails to light, the operator shall wait three minutes for the propane gas to dissipate from the firebox before attempting to relight the pilot. FAILURE TO WAIT THE THREE MINUTES MAY RESULT IN A FLASHBACK DUE TO TRAPPED GASES IN THE FIREBOX.**
- 7 Once burners are steadily burning the operator shall increase thermostat temperature to 425° F (218° Celsius).

NOTE:

Two employees (operator & assistant) shall be present during lighting procedures.
The assistant shall verify that the lighting procedures are being followed and shall immediately call for assistance in case of an accident.

Revised 6/1/2012

Code of Safe Operating Practices

BITUMINOUS OR EPOXY RAISED PAVEMENT MARKER REPLACEMENT AND REMOVAL

HAZARD REVIEW

Moving Traffic
Hazardous Material
Skin Irritation
High Noise Level
Lifting
Flying Objects

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use standard personal protective equipment. 100% cotton coveralls, eye protection and gloves are required. Face shields are required for manual marker removal. Hearing protection may be required. Use appropriate footwear with hard soles and leather uppers.
6. Make sure pressure on thinner tank is released before removing lid.
7. Epoxy machine shall not be operated in wet weather as electrical shock may result.
8. While operating the epoxy machine make sure the air valve is closed to the thinner tank.
9. During an epoxy operation, make sure the compartment lid is closed.
10. Use proper tools for removal of markers.
11. Use proper lifting techniques to avoid back injury.
12. Review Safety Data Sheet for material used (note first aid).
13. Avoid contact with hot bituminous material. If contact occurs immerse injury into cold water and seek immediate attention.
14. Burners shall not be lit while in transit.
15. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
16. Be aware of slip/trip/fall hazards when working near bridge rails.

Code of Safe Operating Practices

SIGN MAINTENANCE

HAZARD REVIEW

Moving Traffic
Power Equipment Operation
Above Ground Work
Footing Hazard
Power Tool/Chain Saw Operation
Underground Utilities
Splintered Posts
Falling/Flying Objects
Heavy Lifting
Wood Preservatives

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use standard personal protective equipment. Leather gloves and long sleeved shirts or coveralls are required to minimize skin contact when handling treated posts.
6. Avoid breathing dust from treated posts. Review Safety Data Sheet for posts before using. Use sharp saws and tools to minimize creation of dust. Work outdoors or use local ventilation if possible during cutting and drilling operations. The treated wood sometimes reacts with the aluminum sign causing aluminum oxide film or a white powder. Respiratory protection is recommended; an N-95 dust mask respirator may be used.
7. Avoid breathing fumes from cutting or welding on galvanized posts. Work outdoors or use local ventilation. If welding or cutting will last more than 30 minutes in a workshift, a half-face cartridge respirator with P-100 cartridges is required. If less than 30 minutes, no respirator is required, but an N-95 dust mask respirator may be worn.
8. Avoid cutting sign bolts where the danger exists of these flying into eyes or face.

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Code of Safe Operating Practices

SIGN MAINTENANCE (Cont'd)

9. When working off of truck utility body on bridges, employees shall use fall protection. See fall protection (Appendix G).
10. Check ladder footing on first and second step (slight jump to secure footing) before climbing. (Reference: Personnel Hoist, General Instructions, Equipment Section).
11. Employees shall use safety railing and chains and make sure they are secure while working on overhead signs.
12. Extreme care must be exercised to avoid the rupture or disturbance of underground utilities when digging postholes. Underground Service Alert (USA) notification is required, see Appendix DD.
13. Safety strap shall be attached at all times to the boom, basket, platform or sign structure when the catwalk safety rails are down.
14. Employees shall use proper lifting techniques and obtain assistance when lifting heavy objects.
15. Be alert to suspended loads and avoid walking or working under suspended loads or other equipment.
16. Employees are to examine footing prior to working on slopes.
17. Employees shall promptly dispose of protective paper between signs so other employees won't slip on it.
18. Dispose of treated posts properly, do not burn them.
19. When working with treated posts observe good personal hygiene -- do not eat, drink, or smoke during work. Carry wash water, soap, and paper towels. Wash your hands before eating, drinking, smoking or using the restroom. Launder clothing worn when handling CCA-treated wood separately.
20. Use caution when installing signs in windy conditions; the panels may be difficult to control. Larger sign installation should be avoided during periods of high winds. Gloves shall be worn when performing sign maintenance, installation, repair and replacement.
21. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
22. If planned work is known to be in the immediate vicinity of unsheltered residents, then the Supervisor shall assign at least one other person to accompany the employee and/or request MAZEPP if determined to be necessary. If an employee is working alone and feels threatened by individuals at the worksite, they should leave the area, inform their Supervisor, and request CHP to provide a safety escort prior to performing any work.
23. Be aware of slip/trip/fall hazards when working near bridge rails.

Revised 9/21/2020

Code of Safe Operating Practices

ROADSIDE MARKER REPAIR OR REPLACEMENT

HAZARD REVIEW

Moving Traffic
Uneven Terrain
Removing Damaged Posts
Driving Posts and Pilot Holes
Handling Materials
Fiberglass Splinters
Underground Utilities

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use standard personal protective equipment. Wear gloves when handling posts.
6. Use proper tool when removing or installing posts.
 - a. **Caution** - Damaged posts may break during removal- Stay clear of vertical movement.
7. Beware of hidden objects in grassy areas or unstable terrain.
8. Use special care when handling fiberglass markers that are broken or splintered.
9. Keep vehicle between yourself and traffic if possible.
10. Use special care when handling material with sharp edges or points.
11. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
12. If planned work is known to be in the immediate vicinity of unsheltered residents, then the Supervisor shall assign at least one other person to accompany the employee and/or request MAZEPP if determined to be necessary. If an employee is working alone and feels threatened by individuals at the worksite, they should leave the area, inform their Supervisor, and request CHP to provide a safety escort prior to performing any work.
13. Be aware of slip/trip/fall hazards when working near bridge rails.
14. Underground Service Alert (USA) notification may be required, see Appendix DD.

Revised 9/21/2020

Code of Safe Operating Practices

GUARDRAIL AND MEDIAN BARRIER REPAIR OR REPLACEMENT INCLUDES VEHICLE ENERGY ATTENUATOR REPAIR

HAZARD REVIEW

Moving Traffic
Overcrowding of Workers
Handling Materials
Sharp Objects
Uneven Terrain
Material Under Stress
Falling Objects
Cutting and Welding Galvanized Materials
Blowing Sand
Underground Utilities

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use standard personal protective equipment. Gloves and long sleeved shirts or coveralls are required when handling treated posts. 100% cotton coveralls are required when cutting or welding. Use cutting goggles or safety glasses that meets CAL/OSHA requirement for using a torch for cutting.
6. Avoid breathing dust from treated posts, review Safety Data Sheet for posts before using. Use sharp saws and tools to minimize creation of dust. Work upwind or use local ventilation if possible during cutting and drilling operations. Respiratory protection is not required, but an N-95 dust mask respirator may be used.
7. Allow ample space for each employee to work safely. Keep the work area clear
8. Inspect area for hidden hazards before beginning work.
9. Be careful when removing damaged rail or cable - it may flex and spring back.
10. Be alert for objects, such as guardrail or blocks that can fall when they come loose.

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Code of Safe Operating Practices

GUARDRAIL AND MEDIAN BARRIER REPAIR OR REPLACEMENT INCLUDES VEHICLE ENERGY ATTENUATOR REPAIR (Cont'd)

11. Use proper lifting techniques to avoid back injury.
12. Avoid breathing fumes from cutting or welding on galvanized posts. Wear welding goggles when using torch. Work upwind or use local ventilation. If welding or cutting will last more than 30 minutes in a workshift, a half-face cartridge respirator with P-100 cartridges is required. If less than 30 minutes, no respirator is required, but an N-95 dust mask respirator may be worn.
13. Locate utility lines and pipes before digging. Underground Service Alert (USA) notification is required, see Appendix DD.
14. When entering or exiting the truck bed use provided ladders.
15. Before moving sand truck, be sure personnel are out of bed.
16. Stay clear of boom when under tension. Keep clear of pinch points. Do not stand between boom extension and controls.
17. Be aware of moving equipment in the work zone.
18. Be aware of sharp wire ends or damaged posts and sharp edges.
19. When using Guardrail Straightener, refer to the Equipment CSOP for specific equipment cautions.
20. Dispose of treated posts properly, do not burn them.
21. When working on treated posts don't eat, drink, or smoke while working. Carry wash water and soap to wash your hands before eating, drinking, smoking or using the restroom.
22. Minimize exposure to traffic by placing tools and materials on off-traffic side of work vehicle. Use the guard rail/ median barrier/ or work vehicle as a physical barrier from traffic whenever possible.
23. Do not needlessly expose yourself to moving traffic to pick up small pieces of debris left over from impacted sand barrel/gore attenuators.
24. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
25. Be aware of slip/trip/fall hazards when working near bridge rails.

Revised 5/5/2020

Code of Safe Operating Practices

WORKING IN TRUCK ESCAPE RAMPS

HAZARD REVIEW

Traffic Hazards
Flying Gravel and Sand
Footing and Unstable Terrain

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Shoulder should be closed with cones near the entrance to the *ESCAPE RAMP*.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use standard personal protective equipment.
6. Employees on foot should stay out of the way of operating equipment until the area is clear for hand work.
7. Be especially alert when working around others not part of your crew, i.e., contractors, tow truck operators, etc.
8. Stay clear of tow cables and vehicles involved in vehicle retrieval.
9. Use a spotter if employees are on foot.
10. Use a planned escape route.
11. Use typical ramp or connector closures.
12. Use two (2) C19 signs as well as two (2) C30 signs.
13. At 1/2 mile (0.8 kilometers) before ramp, use a Changeable Message Sign or Flashing Arrow Sign in the caution mode and a lookout with a radio to warn our crew of fast moving or runaway trucks.
14. Entrance of Ramp: Place lookout with *Remote Control* warning device.
15. Barrier trucks should be placed across entrance of *ESCAPE RAMP*.
16. At night, signs and cones shall be retro reflective.
17. Optional: Lookout person standing near workers.

The procedures listed above shall be followed any time our crews have to work in the *Truck Runaway Escape Ramp*.

Code of Safe Operating Practices

SNOW REMOVAL AND ICE CONTROL

HAZARD REVIEW

Moving Traffic
Out of Control Vehicles
Adverse Weather Conditions
Poor Visibility
Moving Equipment
De-Icing Materials
Slip and Trip Hazards
Workers on Foot
COVID-19

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational and post-operational checks.
2. It is recommended to clean and disinfect all shared vehicles and equipment frequently and at shift change. Review Safety Data Sheet (SDS) for all disinfectants used. Refer to Covid 19-IIPP in the Safety Manual Link: [Caltrans COVID Injury and Illness Prevention Program Word | Health and Safety](#)
3. Review work area protection procedures and any traffic control requirements.
4. Park in an area suitable for safe entering or exiting of vehicle. Enter and exit vehicles properly. Steps and surfaces may be slippery or icy.
5. Use standard personal protective equipment. Hearing protection may be required. Dress appropriately for the job and weather conditions.
6. A face covering may be used when indoors and whenever two or more employees are in the same vehicle. Gloves and face coverings must not be shared.
7. When you are working on foot be alert for out-of-control vehicles, especially on the curves. Be prepared to take evasive action at a moment's notice. Make every effort to perform work *facing* oncoming traffic.
8. While plowing snow, be alert for pedestrians, and slow down as needed.
9. Do not plow snow over the sides of bridges. There may be vehicles and/or pedestrians below.
10. Make sure equipment and personal protective devices are in good repair before leaving the yard. It is advisable to carry a shovel, extra washer fluid and shear bolts.

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Code of Safe Operating Practices

SNOW REMOVAL AND ICE CONTROL (Cont'd)

11. Use caution when plowing around obstructions and parked vehicles. Slow down as needed, i.e., chain control areas and bridge decks. Obstructions are usually marked with blue reflectors. Review and be familiar with the Statewide Snow Pole Policy.
12. Use tire chains when required, or when there is difficulty starting or stopping.
13. Clean and check all warning and vehicle lights frequently during plowing and sanding operations.
14. If possible, do not stop in the traveled way to work on equipment. Pull off the road in a safe location. Avoid stopping or standing on low side of super elevated curves.
15. Use caution while backing during adverse conditions, avoid if possible.
16. Review Safety Data Sheet for de-icing chemicals.
17. Use proper lifting techniques to avoid back injuries.
18. Be aware of slip/trip/fall hazards when working near bridge rails.

Revised 8/26/2024

Code of Safe Operating Practices

STAFFED CHAIN CONTROL

HAZARD REVIEW

Moving Traffic
Moving Equipment
Workers on Foot
Slip and Trip Hazards
Adverse Weather Conditions
Poor Visibility
Out of Control Vehicles
COVID-19

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational and post-operational checks.
2. It is recommended to clean and disinfect all shared vehicles and equipment frequently and at shift change. Review Safety Data Sheet (SDS) for all disinfectants used. Refer to Covid 19-IIPP in the Safety Manual Link: [Caltrans COVID Injury and Illness Prevention Program Word | Health and Safety](#)
3. Review work area protection procedures and any traffic control requirements. Contact and use a CHP Officer at your location, as needed.
4. Park in an area suitable for safe entering or exiting of vehicle. Enter and exit vehicles properly. Steps and surfaces may be slippery or icy.
5. Use standard personal protective equipment. Dress appropriately for the job and weather conditions.
6. A face covering may be used when indoors and whenever two or more employees are in the same vehicle. Gloves and face coverings must not be shared.
7. While working chain control, be especially alert for out-of-control vehicles. You are working on foot, and you must be prepared to take evasive action at a moment's notice. Make every effort to perform work *facing* oncoming traffic.
8. Do not argue with irate persons, remain positive and use CHP for help..
9. During storm conditions, employees should exercise extreme caution to allow for unexpected actions on the part of other motorists.
10. When working at night, use sufficient illumination. ANSI certified high-visibility Class 3 garments at the chain control checkpoint are required day and night.
11. Always maintain radio contact.

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Code of Safe Operating Practices

STAFFED CHAIN CONTROL (Cont'd)

12. Use caution while backing during adverse conditions, avoid if possible.
13. Make sure equipment and personal protective devices are in good repair before leaving the yard. If using a Chain Control Camper, test the carbon monoxide, smoke, and LPG detector. Refresh batteries as recommended by the manufacturer, or as soon as it is determined replacement is needed. Replace expired detectors.
14. When parked and idling, be aware the exhaust pipe could become blocked by snow. If blocked, turn engine off and clear exhaust pipe. Ensure that there is plenty of ventilation into the cab and/or living quarters of the camper.
15. Use tire chains when required, or when there is difficulty starting or stopping.
16. Clean and check all warning and vehicle lights frequently. Wipe off any accumulated snow on signs and cones in your work area. Keep your work area as clean as possible.
17. Supervisors should consider all methods of work zone safety enhancement such as using Changeable Message Signs (CMS) for safety messages and Maintenance Zone Enhanced Enforcement Program (MAZEEP).
18. Be aware of slip/trip/fall hazards when working near bridge rails

Revised 8/26/2024

Code of Safe Operating Practices

SNOW REMOVAL IN AVALANCHE AREAS

HAZARD REVIEW

Moving Traffic
Moving Equipment
Small Snow Slides
Large Snow Slides
Drifting Snow
Poor Visibility
Stopped Traffic
Pedestrians on Foot
COVID-19

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational and post-operational checks. (See equipment index).
2. It is recommended to clean and disinfect all shared vehicles and equipment frequently and at shift change. Review Safety Data Sheet (SDS) for all disinfectants used. Refer to Covid 19-IIPP in the Safety Manual Link: [Caltrans COVID Injury and Illness Prevention Program Word | Health and Safety](#)
3. Review work area protection procedures and any Traffic Control requirements.
4. Use required personal protective equipment. Dress appropriately for the job and weather conditions.
5. Wear required avalanche beacons/transceivers/trackers. Make sure they are operating correctly and refer to the unit's operating manual for proper instruction.
6. A face covering may be used when indoors and whenever two or more employees are in the same vehicle. Gloves and face coverings must not be shared.
7. Avalanche areas and slopes shall be constantly monitored by qualified personnel and by equipment operators. Any unusual snow movement or occurrence shall be immediately reported to qualified personnel.
 - a. A qualified person is a person by reason of experience or instruction is familiar with the avalanche area and the hazards involved.
 - b. A qualified person will have the authority to close the road if avalanche hazards exist.
8. Stop only in designated safe areas. Qualified personnel shall define safe areas.
9. Never exit vehicles or equipment except in designated safe areas. Be aware of slippery/icy surfaces.

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Code of Safe Operating Practices

SNOW REMOVAL IN AVALANCHE AREAS (Cont'd)

10. Face traffic whenever possible and continually be alert for out-of-control vehicles while on foot. Use a lookout as needed.
11. Use caution when plowing around obstructions and parked vehicles. Slow down as needed, i.e., chain control areas and bridge decks. Obstructions are usually marked with blue reflectors. Review and be familiar with the Statewide Snow Pole Policy.
12. Use tire chains when required, or when there is difficulty starting or stopping.
13. Clean and check all warning and vehicle lights frequently during plowing and sanding operations.
14. All personnel working in avalanche areas shall maintain periodic radio contact with their base station.
15. Never exit vehicle or equipment if caught in an avalanche, shut off engine and attempt to contact the base station or another vehicle by radio.
16. Use caution while backing during adverse conditions, avoid if possible.
17. All employees shall be briefed on these procedures at the beginning of each snow season and periodically during the winter. Any new employees assigned to work in avalanche areas shall be briefed prior to beginning work.

Revised 8/27/2024

Code of Safe Operating Practices

STORM PATROL

HAZARD REVIEW

Rocks, Mud and Debris on Roadway
Overhead Falling/Sliding Material
Slippery Pavement
Poor Visibility
Entering or Exiting from Traffic-Flow
Falling Trees
Flooding
Abrupt Changes in Vehicular Speeds
Blowing Sand or Snow
COVID-19

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational and post-operational checks.
2. It is recommended to clean and disinfect all shared vehicles and equipment frequently and at shift change. Review Safety Data Sheet (SDSS) for all disinfectants used. Refer to Covid 19-IIPP in the Safety Manual Link: [Caltrans COVID Injury and Illness Prevention Program Word | Health and Safety](#)
3. Review work area protection procedures and any traffic control requirements.
4. Park in an area suitable for safe entering or exiting of vehicle. Enter and exit vehicles properly. Steps and surfaces may be slippery or icy.
5. Use standard personal protective equipment. Hearing protection may be required. Dress appropriately for the job and weather conditions.
6. A face covering maybe used by employees when indoors and whenever two or more employees are in the same vehicle. Gloves and face coverings must not be shared.
7. When you are working on foot be alert for out of control vehicles, especially on the curves. Be prepared to take evasive action at a moment's notice. Make every effort to perform work *facing* oncoming traffic.
8. Make sure equipment and personal protective devices are in good repair before leaving the yard. It is advisable to carry a shovel, extra washer fluid and shear bolts.
9. Watch out for hydroplaning or unexpected action by motorists, especially on the curves.
10. Use tire chains when required, or when there is difficulty starting or stopping.

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Code of Safe Operating Practices

STORM PARTROL (Cont'd)

11. If storm deposited material cannot be removed from the roadway, set up traffic control and if necessary close the road until appropriate personnel and equipment are provided and the area is safe. Communicate with dispatch and chain of command.
12. If working on foot under a cut slope, avoid the hazards of falling rock or other debris, or being trapped by a slide. Notify dispatch and chain of command that you are leaving your vehicle to work under a cut slope.
 - a. First evaluate what hazards are apparent in the cut slope area.
 - b. When working at night, use sufficient illumination to check the face of the slope.
 - c. If you have any doubt as to your safety, do not work under the cut slope. Refer to Slope and Embankment Maintenance CSOP and Cut Slope Safety Guidelines (Appendix E).
13. During high winds watch for falling trees, downed power lines, blowing sand or snow. If downed power lines are present, Maintenance forces shall not try to move or repair them. They shall stay clear and notify supervisor and/or dispatch. Wait for the local utility company to respond.
14. Be alert for washouts hidden by floodwaters.
15. Be aware of slip/trip/fall hazards when working near bridge rails.
16. Use caution while backing during adverse conditions, avoid if possible.

Revised 8/26/2024

Code of Safe Operating Practices

SLOPE AND EMBANKMENT MAINTENANCE INCLUDES REMOVAL OF SLIDES, SLIPOUTS AND ROCKFALL

HAZARD REVIEW

Moving Traffic
Moving Equipment
Workers on Foot
Rocks, Mud and Debris on Roadway
Overhead Falling/Sliding Material
Slipping and Tripping Hazards
Poor Visibility
Underground Utilities

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use standard personal protective equipment. Hearing protection may be required.
6. Before work is started, a qualified person must evaluate what hazards are apparent and the scope of the work involved. This evaluation should include an examination of the area and adjacent areas for ground cracks and excessive water flow as well as loose boulders, trees, and other debris on slopes.
 - a. A qualified person is a person who by reason of experience or instruction is familiar with the operation to be performed and the hazards involved.
 - b. A qualified Caltrans person will direct the operation, and have the authority to relieve any person for noncompliance of his orders.
7. A lookout shall be used to continually watch the face of the slope and give warning when loose rocks, or other materials, start to fall.
 - a. Lookouts have the authority to clear the area or stop work at any time.
 - b. The number and placement of lookouts is at the discretion of the qualified person who is directing the operation. Lookouts should be carefully placed to reduce their exposure to falling material, operating equipment and moving traffic.

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Code of Safe Operating Practices

SLOPE AND EMBANKMENT MAINTENANCE INCLUDES REMOVAL OF SLIDES, SLIPOUTS AND ROCKFALL (Cont'd)

- c. Lookouts shall have adequate communications with equipment operators at all times. When using voice communication devices with optional voice actuated and push-to-talk modes, the lookout shall use the voice actuated mode and equipment operators shall use the push-to-talk mode. If voice communications are used, an alternate alarm system shall be provided, e.g., hand held air horn, etc. Should communications not work properly, the lookout shall stop the operation until the situation is corrected.
 - d. Lookouts shall have pre-planned escape routes which will be reviewed and changed as necessary.
 - e. Lookouts should be changed periodically to avoid lowered levels of alertness.
8. Equipment operators, whether Caltrans' employees or rental equipment operators, are required to take direction from the qualified Caltrans person directing the operation.
- a. Equipment operators shall have pre-planned escape routes which will be reviewed and changed as necessary.
 - b. Equipment operators shall move to a safe area when the lookout gives the alarm.
9. Any person who fails to respond to the lookout's alarm shall be immediately relieved of duty by the qualified Caltrans person directing the operation.
10. Work shall be preplanned. It is important to understand that careful, planned actions must be followed in this type of work activity.
- a. Work crews shall hold pre-job conferences on the operation to be performed and the conditions involved, with re-briefing on a timely basis to avoid complacency.
 - b. Personnel and equipment appropriate for the work activity shall be provided.
 - c. If necessary, traffic control shall be established, including highway closure, until appropriate personnel and equipment are provided and the slide is safe to work.
 - d. Flaggers and other workers on foot should be located well clear of moving equipment and rock/slide active faces.
 - e. When pushing over an embankment edge, a spotter will be provided if necessary to protect workers below.
11. Traffic control procedures should be designed to assure the safety of motorists as well as Caltrans employees.
- a. Holding areas should be in safe locations.
 - b. Where possible, motorists should be advised of the amount of delay time and other pertinent information including how to proceed through the work area.
12. When working at night, sufficient illumination shall be provided throughout the work area.
13. Be aware of slip/trip/fall hazards when working near bridge rails.
14. Underground Service Alert (USA) notification may be required, see Appendix DD.

Revised 5/5/2020

Code of Safe Operating Practices

ROCK SCALING

Personnel assigned to scale slopes shall be trained and outfitted with approved climbing gear in accordance with the safety commission, Union International des Association (U.I.A.A.). All safety belts, harnesses, lanyards, climbing ropes, lifelines, drop lines and carabineers shall meet or exceed ANSI A10.14-1975 standards.

HAZARD REVIEW

Work at Heights and on Uneven Ground
Overhead Falling/Sliding Material
Rock and Debris on the Roadway
Moving Equipment
Moving Traffic
Workers on Foot
Slipping and Tripping Hazards
Poor Visibility

SAFE OPERATING PROCEDURES

1. Before work is started a qualified slope assessor¹ must evaluate what hazards are apparent and the scope of the work involved. This evaluation should include an examination of the area and adjacent areas for ground cracks and excessive water flows as well as loose boulders, trees and other debris on slopes. The evaluation shall include completion of a written Slope Scaling Assessment Form as described in Chapter 3 (Site Evaluation) of the Caltrans Climbing Manual*. The form will then be sent to qualified geotechnical personnel for review and approval/modification. Slopes will receive a classification from 1 to 5.
2. A qualified slope assessor and/or qualified geotechnical personnel will direct the operation, and have the authority to relieve any person for noncompliance to procedures or direction.
3. Classification 3-5 slopes require that qualified geotechnical personnel be on site watching the slope during scaling operations. This is in addition to the qualified slope assessor directing/managing the operation.
4. Pre-op equipment and review safe practice rules for applicable equipment.
5. Review work area protection procedures and any traffic control requirements.
6. Park in an area suitable for safe entering and exiting of vehicle and which does not cause a hazard to yourself and others.
7. While on foot make every effort to perform your work facing oncoming traffic.
8. Use required personal protective equipment.

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Code of Safe Operating Practices

ROCK SCALING (Cont'd)

9. Before starting any scaling operation, daily pre-job briefing, work procedures and assignments shall be discussed.
10. Location of all utilities shall be known before starting operations.
11. Before starting any scaling operation, all precautions shall be taken to protect property, traveling public and employees from injury or accidents.
12. Keep work area clear and be aware of surroundings. Danger areas shall be posted with signs and barriers.
13. All climbing gear shall be inspected daily, both prior and after use as described in the Caltrans Bank Scaling and Rock Climbing Manual.
14. Before climbing operations begin there shall be on site at least one trained aerial rescue climber on standby.
15. A lookout shall be used to continually watch the face of the slope and give warning when loose rock or other material starts to fall.
 - a. Lookouts shall have completed the Caltrans Slope Scaling Assessment class and be competent in basic rock fall science and hand scaling procedures. They have the authority to clear the area or stop work at any time.
 - b. The number and placement of lookouts is at the discretion of the competent person who is directing the operation. Lookouts should be carefully placed to reduce their exposure to falling material, operating equipment and moving traffic.
 - c. Lookouts shall have adequate communications with climbers and equipment operators at all times. When using voice communication devices with optional voice activated and push to talk modes, the lookout shall use the voice-actuated mode and equipment operators shall use the push to talk mode. If voice communications are used, an alternate alarm system shall be provided, e.g., hand held air horn, etc. Should communication not work properly, the lookout shall stop the operation until the situation is corrected.
 - d. Lookouts shall have pre-planned escape routes which will be reviewed and changed as necessary.
 - e. Lookouts should be changed periodically to avoid lowered levels of alertness.
 - f. All lookouts at the top of the slope should have a safety line attached to themselves and be properly tied in.
16. In more difficult conditions where there might be frequent rope contact with the ground or conditions are very loose and random rock falls are possible, climbing on belay should be considered.

*Caltrans Bank Scaling and Rock Climbing

¹A qualified slope assessor must complete the Slope Scaling Assessment Training, attend the Caltrans Bank Scaling and Rock Climbing Refresher Class every three years, and participate as a scaler on at least 6 scaling operations.

Revised 5/23/2018

Code of Safe Operating Practices

CHANGING WEAR PARTS

(Plow, loader and grader blades, drag shoes, flights and mower blades)

HAZARD REVIEW

Back Strain
Cuts and Abrasions
Crushing Injuries
Pinch Points

SAFE OPERATING PROCEDURES

1. Plan the activity and have all necessary tools and replacement parts available before beginning the work.
2. Use safe lifting techniques. Get help or use equipment if necessary.
3. Use safety stands, safety chains, or safely block attachments before attempting wear part replacement. Never work under an attachment or blade without protective devices in place to prevent it from falling.
4. Hearing and eye protection are required while operating air impact wrenches.
5. Use only approved replacement parts. Contact the Equipment Shop or consult the operator's manual for specialized equipment.
6. Use only replacement fasteners that are in good condition. Do not torque fasteners above recommended pressure (ft./lbs.).
7. Wear parts can become very sharp, wear gloves while handling blades, watch for metal splinters and sharp edges.
8. Ensure that engines on equipment that you are working on cannot start. Remove the key if necessary.
9. While changing wear parts on equipment either chock the wheels or otherwise secure the vehicle to prevent movement.
10. Keep hands and fingers clear of pinch points.

Code of Safe Operating Practices

MOVING LANE CLOSURES

HAZARD REVIEW

Moving Traffic
Moving Equipment
Errant Drivers
Inattentive Motorists

SAFE OPERATING PROCEDURES

**BEFORE THIS TYPE OF OPERATION IS PERFORMED YOU SHOULD CONSIDER
IF THERE IS A SAFER METHOD BY WHICH PROJECTED
WORK CAN BE DONE**

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review all applicable code of safe operating practices.
3. All employees involved in the operation shall receive assignments and instructions before operation begins.
4. Proper communication techniques shall be discussed.
5. Fold up or remove signs before dead heading or when not in use.
6. Distractions, such as use of personal radios, cell phones or headsets are not allowed.
7. Riding on the back of moving equipment will not be allowed unless a specific work operation requires a properly secured operator (i. e., fertilization, hydro-seeding, mist blowing, and tree spraying, etc.).
8. Whenever possible, avoid stopping vehicle in the traveled way.
9. Make repairs or adjustments as far away from the traveled way as possible.
10. Radio communication in all vehicles is required.
11. Refer to Chapter 7 of the Maintenance Manual for additional requirements for moving lane closures.
12. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
13. Be aware of slip/trip/fall hazards when working near bridge rails.

Code of Safe Operating Practices

SHADOWING MOVING OPERATIONS

HAZARD REVIEW

Hazard Review
Moving Traffic
Errant Drivers
Inattentive Motorists
Sight Distance
Excessive Overhang of Attenuator

SAFE OPERATING PROCEDURES

A shadow vehicle shall be equipped with FAS (flashing arrow sign, arrowboard), TMA (truck mounted attenuator), two-way radio, shoulder restraint, and headrest or high back seat.

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Maintain proper distance (spacing) from work vehicles (review Maintenance Manual, Chapter 8, Section 8.11.01. Actual spacing should be coordinated prior to performing the work.
3. Where sight distance is limited, additional shadow trucks may be necessary, one to protect the work vehicle, the other to act as an advance warning.
4. Maintain radio contact with work vehicle.
5. Use the appropriate FAS message; use arrow mode when encroaching on an open lane of a multi-lane highway and use the caution mode if not encroaching on an open lane or when on two-lane highways.
6. When pulling away from guardrails, etc., attenuator will swing wide due to excessive overhang. Move out gradually.
7. Scan rear view mirrors often while shadowing, especially if encroaching on a live lane of traffic. Be ready to move at a moment's notice, even a slight amount of forward movement may avoid a collision, and lessens the impact if hit.
8. Distractions, such as use of personal radios, cell phones, or headsets are not allowed.
9. When an operation is completed, ensure that the shadow truck moves into the lane before the work vehicle when entering an open lane of traffic.
10. Do not encroach on a live lane of traffic while shadowing unless in an approved shadow vehicle.

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Code of Safe Operating Practices

SHADOWING MOVING OPERATIONS (Cont'd)

11. If repairs, or adjustments to equipment, become necessary, move as far away from moving traffic as practical. Avoid repairs or adjustments in the median or on the traffic side of the vehicle.
12. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
13. Be aware of slip/trip/fall hazards when working near bridge rails.

Revised 8/10/2020

Code of Safe Operating Practices

SAFETY IN CHANGING AND CHARGING STORAGE BATTERIES

HAZARD REVIEW

Explosive
Visual
Flying Objects
Sparking

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Battery-charging installations shall be located in areas designated for that purpose.
3. Employees assigned to work with storage batteries shall be instructed in emergency procedures such as dealing with accidental acid spills.
4. The area shall be adequately ventilated to prevent concentrations of flammable gases.
5. Adequate means shall be provided to neutralize or dispose of corrosive liquid spills and overflows promptly and safely.
6. Appropriate lifting and handling devices or equipment shall be provided for handling batteries.
7. Smoking and open flame shall be prohibited in battery-charging area, and signs stating that prohibition shall be posted in the area.
8. Precautions shall be taken to prevent open flames, sparks, or electric arcs in battery-charging areas.
9. Tools and other metallic objects shall be kept away from the top of batteries
10. When charging batteries, the vent caps shall be kept firmly in place to avoid electrolyte spray. Care shall be taken to assure that vent caps are functioning.
11. Fire-extinguishing equipment adequate to cope with the hazards, which may be encountered, shall be provided and maintained close at hand.
12. Face shields shall be worn when measuring storage battery, specific gravity or handling electrolyte.
13. The Supervisor shall ensure that such devices are used by the employees.
14. The Supervisor shall also ensure that acid resistant gloves and aprons are worn for protection against acid spattering.

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Code of Safe Operating Practices

SAFETY IN CHANGING AND CHARGING STORAGE BATTERIES (Cont'd)

15. Approved personal equipment including face, eye and hand protection is provided and employees are required to use them. Such protective items shall be maintained in a sanitary condition and stored in a dust-free container readily available.
16. Facilities for quick drenching or flushing of the eyes and body shall be provided.
17. When taking specific gravity readings, the open end of the hydrometer shall be covered with an acid resistant material while moving it from battery to battery to avoid splashing or throwing the electrolyte.
18. Check batteries for proper fluid level and corrosion on terminals.
19. Add water only to a used battery. Electrolyte should be added to a new battery only.
20. Connect positive to positive terminals and negative to negative terminals before charging batteries.
21. Allow ample time for fumes to dissipate before connecting or disconnecting batteries to or from battery charger. A spark could cause an explosion.
22. Clean top of battery, removing all dirt and corrosion, before charging battery.
23. Battery charger must be turned off before connecting or disconnecting batteries.
24. Keep tops of batteries clean; moisture and dirt allows batteries to discharge.
25. If battery acid is spilled on skin, neutralize with cool; clean water for five minutes or more. If spilled on clothing or other surfaces, neutralize with baking soda and water. This solution should also be used periodically to keep battery holders, terminals and tools clean.

Code of Safe Operating Practices

LUBE RACK

HAZARD REVIEW

Falling Objects
Slipping Hazards
Visual

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Employees shall be properly trained before using lube rack. Consult manual or operating instructions.
3. Make sure hoist rams are completely down before entering on exiting lube rack.
4. Park vehicle properly centering vehicle over hoist posts on lube rack - rear wheels in depression - adjust movable front axle hoist to proper position - cover open post trench with movable floor panels.
5. Check hoist rams for proper positioning prior to lifting vehicle.
6. Check overhead clearance of vehicle while raising. (Arrow board, antenna, etc.)
7. Be sure all safety devices on vehicles are secure prior to lifting.
8. When guiding vehicle onto lube rack, do not stand between front of vehicle and wall.
9. If the hoist is equipped with a locking safety device, the device must be in the locked position while vehicle is in the raised position. Other hoists not equipped with a locking safety device are equipped with a hydraulic restrictor valve that allows the hoist to come down very slowly.
10. For hoists with independently activated ramps, be sure they are used simultaneously to keep vehicle level.
11. Eye protection shall be worn while servicing vehicles.
12. Spilled oil or grease shall be cleaned up immediately. Cleanup entire area when servicing is completed.
13. Raise bay door all the way up when entering or exiting.
14. Ensure that there is adequate ventilation while engine is running.

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Code of Safe Operating Practices

LUBE RACK (Cont'd)

15. Air operated grease guns create a very high pressure. Be sure hand and all other parts of the body are clear of the gun. Do not point gun at others. Check condition of flexible hoses.
16. Lift capacity must be posted.
17. Lift controls must be clearly labeled.
18. Facilities for quick drenching or flushing of the eyes and body shall be provided.

NOTE: Hoist lock must be released prior to lowering.

Code of Safe Operating Practices

REMOVE/REPLACE TEMPORARY K-RAIL

HAZARD REVIEW

Moving Traffic
Moving Equipment
Equipment Limitations
Suspended Heavy Loads
Overcrowding of Workers
Wedged Objects

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Determine weight of individual K-Rail sections before attempting to lift or haul. Review equipment limitations on loading, rigging, moving and placing K-Rail.
4. Review all possible tools and rigging needed for the job including their safe condition and limitations. Do not exceed equipment lifting capacity.
5. Review where each piece of necessary equipment is to park for safe loading and unloading of K-Rail.
6. Plan and review site preparation; including grading and cleaning of the K-Rail pad area. Underground Service Alert (USA) notification may be required, see Appendix DD.
7. Designate two riggers and one primary signal person for rigging, moving and placing K-rail.
8. Review common hand signals between equipment operator and signal person. During operations, only the primary signal person shall direct the equipment operator.
9. All employees shall stand clear of the suspended loads and the loading and unloading areas.
10. All employees shall follow one fore-person's directions while placing and/or fitting each piece into a line; this includes the primary signal person.
11. Watch for tripping hazards and uneven ground.
12. Watch for employees swinging double jacks or utilizing other hand tools.
13. Keep hands and feet clear of pinch points.
14. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
15. Be aware of slip/trip/fall hazards when working near bridge rails.

Revised 5/5/2020

Code of Safe Operating Practices

INSTALLATION AND REMOVAL OF RAZOR WIRE

HAZARD REVIEW

Moving Traffic
Moving Equipment
Sharp Objects
Uneven Surfaces
Working Above Ground
Poor Footing
Falling Objects

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering/exiting of vehicles/equipment and which does not cause a hazard to yourself or others.
4. Employees shall utilize all minimum Personal Protective Equipment (PPE). Additionally “gauntlet” style gloves and long sleeves shall be worn while handling razor wire.
5. Razor wire has the potential to cause severe lacerations. Employees must remain aware of this and exercise care when handling razor wire to avoid injury.
6. Be aware that razor wire can recoil when cut. When cutting, one employee shall firmly hold the wire to contain recoiling/springing.
7. A fully stocked 24 Unit First Aid Kit shall be at the job site and readily accessible to employees.
8. When employees are exposed to falling more than 7 ½ feet, work shall be performed in accordance with APPENDIX G of this code.
9. After removal of wire, store in a place where minimal exposure to employees exist. Do not reach in to truck to remove pieces of wire and use an alternate method.
10. Supervisors should consider all methods of work zone safety enhancement such as using CMS for safety messages, Balsi Beam, MAZEPP and group maintenance.
11. Be aware of slip/trip/fall hazards when working near bridge rails.

Code of Safe Operating Practices

ILLEGAL DRIVEWAY PROCEDURE

HAZARD REVIEW

Moving Traffic
Moving Equipment
Possible Hostile Work Environment

SAFE OPERATING PROCEDURES

1. Refer to Maintenance Manual Volume 1, Chapter Y, Section Y.06.12.
2. Drive area of responsibility after the weekend, especially long weekends, when illegal driveway activity commonly occurs. Catching illegal driveways early in the process will make compliance easier to attain.
3. Make contact with the owner/contractor in a professional and friendly manner and ask to see their encroachment permit. Always have someone with you, never go alone. If at any time you feel uncomfortable about approaching the owner, arrange to have CHP with you for the initial contact.
4. If they do not have a permit, advise them to cease work until a permit is obtained. Provide them with a copy of Streets and Highway Code 1720-1734, along with the name, number of the person in your District responsible for issuing encroachment permits, and your business card.
5. If the owner becomes combative, do not argue. Leave the area and arrange to return with the CHP to red-tag the work site as an illegal encroachment and take a picture for documentation.
6. Prior to performing the work to close off the driveway, a tailgate safety meeting shall be held. Have a plan of action if a hostile work environment develops.
7. Close off illegal driveway using barricades, dirt, or concrete barrier. If hostility from the owner had been experienced during the initial contact phase, advise CHP so they can be present during the closing procedure. Use a lookout to watch for any suspicious/hostile activity by the owner and warn the crew using an alarm.

Code of Safe Operating Practices

CULVERT INSPECTION

HAZARD REVIEW

Airborne Contaminants
Confined Spaces
Footing and Falling Hazards
Hazardous Materials
Infectious Substances
Insects and Vermin
Manhole Access
Moving Traffic
Overhead Falling/Sliding Material
Oxygen Deficient Atmosphere
Uneven Ground
Workplace Violence

SAFE OPERATING PROCEDURES

1. Conduct regular safety and tailgate meetings per [Chapter 2](#) of the Caltrans Safety Manual.
2. Prepare a pre-task plan to evaluate the safest way to complete the task before going out to the site.
3. Determine the safest way to approach inspection area, plan for known hazards and methods to mitigate them. Some hazards to consider are:
 - a. Traffic
 - b. Terrain
 - c. Wet/Slippery Surfaces
 - d. Animal, Insect, Plant
 - e. Criminal activity
4. Review safe practice rules for applicable equipment (including rental equipment), work area protection procedures and perform pre-operational checks.
5. Review as-built plans, maps, aerial photographs or other material before going out to the field to determine if the following are needed.
 - a. Lane or shoulder closures
 - b. Confined space entry
 - c. Manhole access
6. Determine if pedestrians will be present in the work area. If so, make plans to keep pedestrians safely away from the work area by the use of applicable signs, barriers, etc.

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Code of Safe Operating Practices

CULVERT INSPECTION (Cont'd)

7. When traffic control is needed, review Chapter 7 and 8 of the [Maintenance Manual](#) for guidance.
8. Review Chapter 14 of the [Caltrans Safety Manual](#) for entry procedures if planning to enter a confined space.
9. Review the Rock Scaling section in the [Caltrans Code of Safe Operating Practices](#) when planning to scale a slope.
10. Secure equipment in the vehicle before transport.
11. Park vehicles in a safe location that will not cause a hazard to yourself or others.
12. If possible or when feasible, one person should act as a lookout for hazards while others work.
13. If planned work is known to be in the immediate vicinity of unsheltered residents, then the Supervisor shall assign at least one other person to accompany the employee and/or request MAZEPP if determined to be necessary. If an employee is working alone and feels threatened by individuals at the worksite, they should leave the area, inform their Supervisor, and request CHP to provide a safety escort prior to performing any work.
14. Always use the parking brake.
15. Use chock blocks on steep slopes to prevent rollaway.
16. When exposed to traffic make every effort to perform work facing oncoming traffic.
17. Allow ample space for each employee to work safely.
18. Use standard personal protective equipment (PPE); hard hats, flagger vest, and eye protection.
19. Gloves should be worn when hand hazards exist. Be aware of the source of water you are working in and take applicable precautions. Impermeable (rubber) gloves are required when working with reclaimed water. Waterproof boots, coveralls or rain gear may also be needed. If in doubt consult with your district Safety Office to determine minimum requirements for PPE.
20. Wash hands thoroughly with clean water and soap before eating, drinking, smoking, or using the restroom.
21. Soap and potable water for drinking and washing should be accessible at all times.
22. Do not touch body wastes, infectious substances, road kill, explosive devices, or SHARPS (hypodermic needles or other devices). Use hand tools or other methods to avoid personal contact or call hazmat if applicable.
23. Know the location of the emergency medical facility nearest to the worksite.

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Code of Safe Operating Practices

CULVERT INSPECTION (Cont'd)

24. Determine if cell phone or radio communication is available in the work area, and make arrangements for communication appropriate for that area.
25. Make your itinerary known to your supervisor, including departure and arrival times and locations. Notify supervisor of any changes to itinerary.

MANHOLE SAFETY

1. Park vehicle in a safe location allowing safe access to the manhole.
 - a. When using a remote camera, ensure cables and moving equipment are inaccessible to pedestrians.
2. Secure the manhole location with appropriate barriers, signs, or use of a crew member as a look out once the manhole cover has been removed.
3. An uncovered manhole should never be left unattended or unsecured.
4. Consider the following when choosing a way to secure the manhole:
 - a. Will the manhole be left unattended?
 - b. Will pedestrians be present?
 - c. Will children be present? Children may not understand the significance of signs or barriers and may ignore them.
5. Use proper fall prevention procedures while working around open manholes. Review Appendix G of the [Caltrans Code of Safe Operating Practices](#).
6. Use proper confined space procedures when entering a manhole. Review Chapter 14 of the [Caltrans Safety Manual](#) for confined space entry procedures.

Revised 9/21/2020

Code of Safe Operating Practices

SECTION III

EQUIPMENT SAFE PRACTICE RULES

Code of Safe Operating Practices

EQUIPMENT

The Code of Safe Practices in the following section is intended to identify the hazards involved in the operation of the various types of equipment currently being used in highway maintenance and to establish prudent operating procedures to avoid accidents (specialized rental equipment may need a special CSOP).

For convenience of review by the operator, each code addresses the hazards peculiar to a single type of equipment. In addition, it is required each operator will observe the following general Code of Safe Operating Procedures.

EQUIPMENT GENERAL CODE OF SAFE PRACTICES

1. Perform required pre-operation and post-operation checks.
2. Know your equipment - be familiar with operator's manual.
3. Do not use any equipment that is unsafe.
4. Observe rules regarding traffic control in Chapter 7.
5. Drive defensively and observe all Vehicle Code laws.
6. Observe safety orders concerning high voltage proximity rules.
7. Observe rules of construction safety orders concerning earth work and excavating.
8. Employees must wear clothing appropriate for job and use all required protective safety equipment.
9. Employees will stay clear of moving equipment and keep hands and body away from moving parts.
10. Before backing any equipment, make sure the area is clear and use observer when available.
11. Do not work under vehicles supported by jacks or chain hoists without protective blocking that will prevent injury if jack or hoists should fail.
12. Employees should check to see that all guards and other protective devices are in proper places and adjusted, and shall report deficiencies promptly to their supervisor.
13. Vehicles and equipment should be handled with care, especially in precarious areas---- edges of deep fills, cut banks, and steep slopes.
14. Make sure of footing when mounting and dismounting equipment. Use proper mounting and dismounting procedures.
15. Be sure area is clear before operating excavating equipment.
16. Stunt driving and horseplay are prohibited.

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Code of Safe Operating Practices

EQUIPMENT GENERAL CODE OF SAFE PRACTICES (Cont'd)

17. Use safety stand when working under raised body or bed. Do not stand under hi-lift tailgate unless it is blocked to prevent accidental movement.
18. Use of seat belts is required on all units so equipped.
19. Do not operate equipment unless trained and qualified.
20. Do not get under a vehicle unless provisions have been taken to prevent the wheels from moving (i.e. wheels are blocked, or other positive means are provided, grader blade is down and set). Do not rely on the parking brake.
21. All aggregate loads above sideboards must be tarped.
22. Vehicles hauling aggregate loads must be equipped with "top to bottom" mud flaps.
23. When new specialized equipment (including rental equipment) is introduced, supervisors shall ensure that employees are trained in the hazards involved in the operation of the equipment and are familiar with the safe operating procedures.
24. Employees shall wear a hard hat whenever they are operating any motorized equipment not equipped with an enclosed cab. An enclosed cab is defined as motorized equipment with a windshield, doors, and surrounding cab protection with metal components and window glass. Motorized equipment with a covered operator area, or roll-over protection only, is not considered an enclosed cab.
25. Do not overload cone holders. Maximum number of cones per holder is five.
26. Do not store aerosol cans/pressurized containers in equipment in high heat conditions. Aerosols, when kept in overheated conditions, can become volatile and explosive. Many aerosol cans, whatever the contents, warn explicitly against keeping them in areas where the temperature reaches 120 degrees F or more. During the summer, the inside of a vehicle can reach 130 degrees F or hotter. At these temperatures, aerosols become over pressurized and can explode at any time.
27. Use caution when accessing the bed of a dump truck equipped with an automatic tarp. On some models, the tarp arm crosses the ladder. Use both hands when ascending/descending the ladder.

Revised 88/10/2020

Code of Safe Operating Practices

TRUCKS, 1/2 TON THROUGH 3-AXLE

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Keep windshield, side windows, and mirrors clean.
3. Make sure slack adjusters on air brakes are properly adjusted. Watch for air loss.
4. Keep tires properly inflated.
5. Clean windshield before wiper is used.
6. Check brake connections, pintle hook, and safety chain before towing trailer.
7. When mounting and dismounting face machine, use handholds, steps and ladders.
8. Allow engine to reach operating temperature before using at full capacity operation.
9. When operating truck, keep engine below governed speed.
10. Keep pyrometer (when equipped) at proper operating levels.
11. Check instruments for overheating, loss of oil pressure, proper RPM, and road speed.
12. Do not overload truck.
13. Make sure cargo is properly loaded and secured.
14. Always use proper engine speed and gear ratio.
15. Do not coast downhill. Use lower gears.
16. When parking, set emergency brake; consult owner's manual for proper placement of transmission shifter. If not covered in owner's manual, **consult your Supervisor for the Equipment Service Center recommendation on procedure to follow.** Use wheel blocks when potential of rollaway exists.
17. On trucks equipped with air brakes, the air tanks should be drained once a shift.
18. Remove push frame and accessories of plows that will not be used for an extended time.
19. Use the lube chart when servicing equipment. If in doubt, call the Shop for the most current procedure.
20. Trucks 1 ton and above shall be equipped with automatic backup alarms.
21. Operator and passenger must wear seat belt and harness.
22. Use vehicle ladders to access truck beds. Do not climb on tires. Use caution when accessing the bed of a truck equipped with an automatic tarp; the arm may cross the ladder. Use both hands when climbing up/down the ladder.
23. Do not stand under hi-lift tailgate unless it is blocked to prevent accidental movement.

Revised 6/16/2020

Code of Safe Operating Practices

TRUCK MOUNTED FUSEE IGNITER

HAZARD REVIEW

Hot and Molten Material
Flying Particles
Fumes

SAFE PRACTICE RULES

1. Pre-op all equipment including the fusee igniter
2. Keep igniter contacts and ejector tube clean and free of residue, corrosion, rust, or any other obstructions.
3. Check wiring for breaks or frays.
4. Wear suitable protective equipment when handling fusees. As a minimum: work gloves, long sleeves, ANSI compliant vest, hard hat and safety glasses (face shields may be used when deemed more appropriate). 100% cotton coveralls are required if employee is exposed to hot material. Review SDS prior to use.
5. If repairs or adjustments to equipment become necessary, move as far away from traffic as practical. Avoid repairs or adjustments in the median or on the traffic side of the vehicle.
6. If the fusee does not ignite right away or becomes hung in the ejector tube, do not use hands to dislodge or remove fusee. If necessary use a non-conducting probe such as a wooden sign flag dowel to push fuse through.
7. Disconnect igniter from electrical power source before performing maintenance.
8. Refer to Appendix AA for more information regarding flare use.

Revised 5/23/2018

Code of Safe Operating Practices

TRUCK AND GRADER MOUNTED PLOWS INCLUDING DEBRIS PLOWS

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Do not operate a plow unless you are properly trained, qualified and understand how to operate the vehicle and the controls.
3. Inspect plows and components as follows and repair or replace any items found to be deficient:
 - a. Check plow, plow frame and shear flange for cracks, broken welds or loose bolts.
 - b. Check shear flange and pins for proper bolt grade, size, tightness and condition.
 - c. Check safety chains and blade for wear and condition.
 - d. Check for leaky or damaged hydraulic lines, fittings or cylinders.
 - e. Check lube points and lube if necessary.
 - f. Check all controls to ensure smooth and correct operation.
4. Be aware of pinch points when installing or removing plows. Keep your hands away; use a hoist or hydraulic jacks to position plows for installation. Do not lift with your back; you could injure yourself. Get help or use lifting equipment when necessary.
5. Always use safety chains or protective blocking when changing blades or performing other work on plows; **never trust the hydraulic system.**
6. Plows are used on a variety of equipment from 3/4-ton pickups, to 10-yard dumps, and different types of graders. Adjust your plowing speed to the conditions, i.e. traffic volumes, pedestrians, highway conditions, material to be plowed, terrain and visibility.
7. While plowing, watch for bridge joints, slow down, and check angle of the plow. Adjust the angle if necessary to prevent the plow from dropping into bridge joints.
8. While plowing debris, adjust your speed to reflect the object you are plowing; heavy items may damage the plow, light items may fly up and into your vehicle. If you cannot plow the object safely, call for a CHP traffic break.
9. Do not check for hydraulic leaks with your hands, use a piece of cardboard or wood to search for suspected leaks.
10. Check the condition of the plow periodically during the shift using the guidelines provided in number 3 above. You can be held responsible for damage that occurs during your shift.

Code of Safe Operating Practices

TRUCK AND GRADER MOUNTED WING PLOWS

SAFE PRACTICE RULES

1. Do not operate a wing plow unless you are properly trained, and understand how to operate the vehicle and the controls.
2. An operator not trained to operate a wing plow can operate the carrying unit as long as the wing is not used and the safety chains are in place.
3. Pre-op equipment and be familiar with the operator's manual.
4. As part of the pre-op inspection, check the following items, repair or replace any items found to be deficient:
 - a. Plow, plow frame and shear flange for cracks, broken welds or loose bolts.
 - b. Shear flange and pins for proper bolt grade, size, tightness and condition.
 - c. Safety chains and blade for wear and condition.
 - d. Leaky or damaged hydraulic lines, fittings or cylinders.
 - e. Lube points (service per lube chart if necessary).
 - f. All controls to ensure smooth and correct operation.
 - g. Tower bolts and angle of tower to the cab.
 - h. Wing plow lights and mirrors for proper operation and adjustment.
 - i. Due to the additional thrust caused by wing plow use, frequently check wheels for cracks and lug nuts for looseness.
5. Always use safety chains or protective blocking when changing blades or performing other work on plows; **never trust the hydraulic system.**
6. When operating a wing plow remain constantly alert to traffic and roadside obstacles.
7. Adjust plowing speed to conditions i.e. traffic volume, highway conditions, melting ice pack, grade, alignment and visibility.
8. When using the wing near unpaved surfaces, slow to a safe speed and adjust the wing lift to prevent the wing from digging in to the unpaved shoulder.
9. Use caution when plowing around obstacles, the best way to avoid accidents is to be familiar with the area you are working.
10. It is recommended to use ballast and if needed tire chains.
11. Do not park or leave the unit without either securing the safety chain and/or pin, if the wing is up, or lowering the wing to the ground.
12. Check the condition of the plow periodically during the shift using the guidelines provided in number 4 above.
13. The Supervisor/Superintendent should develop a site-specific plan for wing plow operations unique to his/her areas, not covered in this code. (See Appendix F.)

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Code of Safe Operating Practices

TRUCK AND GRADER MOUNTED WING PLOWS (Cont'd)

14. Be aware that when operating articulating type graders with wings, the angle of the blade will change while plowing or using rear steer.
15. When not using the wing, it should be raised completely. Never leave the wing partially raised.

SAFE OPERATING TIPS

1. Slowing down and downshifting instead of retracting the wing will help maintain your plow pattern and reduce the time to clear the traveled way. If the snow load is too heavy retracting the wing is another option to maintain forward speed.
2. When using a motor grader equipped with a wing plow it is possible to adjust the wing position, and at very slow speed snow banks can be benched and stacked to maintain road width and storage areas.
3. Safety chains are not designed to keep the wing tight against the side of the vehicle. Wings can move out even with safety chains properly attached. This is especially true on ten wheelers and graders. Wings can move out several feet/meters with safety chains attached if the rear ram breaks loose.
4. When operating a wing plow, realize that the truck may lose traction and slide sideways if crowding too closely to a snow bank or windrow.

Code of Safe Operating Practices

TRUCK-MOUNTED ATTENUATORS (TMA)

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. When installing or removing TMA's, keep hands, arms and fingers clear of pinch points.
3. To reduce the risk of injury, it is recommended that a minimum of two employees install and remove TMA.
4. Hook and unhook on level ground.
5. Keep attenuator wheels blocked when it is not mounted to the truck, if so equipped.
6. While operating, be aware of overhang, especially when adjacent to guardrails or other fixed objects. Move out gradually.
7. Be aware of excessive overhang while backing.
8. Understand that the TMA, although it protects our driver and the public, will not lessen vehicle roll-ahead if hit from behind.
9. Keep attenuator in the down position while shadowing, raise before deadheading.
10. For Scorpion TL-3 Truck Mounted Attenuator installation and removal instructions, see Appendix Z.

Revised 5/23/2018

Code of Safe Operating Practices

LITTER RETRIEVAL (SNIPE) TRUCK

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual. Review safe practice rules for applicable operation.
2. Be familiar with all controls before operating this unit.
3. Mounting and dismounting shall be conducted when the vehicle is at a complete stop.
4. Rear seats shall be in the fully raised position while deadheading.
5. Secure gates and cargo before transporting.
6. Watch for pinch points.
7. The dump bed shall not be raised while employees are in the bucket.
8. Make sure all workers remain clear while dumping.
9. Check that tailgate is properly secured after dumping.
10. Do not drive over curbs or raised objects with rear seats lowered.
11. Litter retrieval truck shall not be operated adjacent to moving traffic with a person in the rear seat without the protection of an approved shadow truck. Seatbelts shall be worn.
12. Transporting workers in the bucket as passengers is prohibited. The only exception is if you will be in a narrow median or other hazardous area, it is permissible to transport a person in the bucket from a nearby safe location to the work zone.
13. Make sure that the area between the bed and the rear seat remain free of debris.
14. Do not attempt to lift heavy or awkward objects (tire caps, etc.) without help. You could injure your back.
15. Do not allow debris to accumulate on the bed next to the employee.
16. Do not retrieve objects that appear hazardous in nature (unknown chemical containers, explosive devices, etc.); call your supervisor.
17. Employees shall not work or ride in the bucket on the traffic side of the vehicle.
18. Do not overload cone holders. Maximum number of cones per holder is five.

Revised 6/1/2012

Code of Safe Operating Practices

LOADER TRUCK (FROST LOADER)

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Use dump-person when dumping over embankment.
3. Make sure "kill-switch" is in operating condition to prevent lowering bucket arms onto cab doors when they are not tightly closed.
4. Check for overhead clearance before raising bucket.
5. Don't raise bed before first lowering bucket.
6. Don't ram material or overload bucket.
7. Don't overload truck.
8. Keep workers on foot clear when operating bucket.
9. Keep arms and body inside cab when raising and lowering bucket.

Code of Safe Operating Practices

SCISSOR TRUCK

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Check your equipment daily for leaks and check that all controls are properly functioning.
3. Check to see sideboards or safety railing is securely attached when bed or platform is raised.
4. Set parking brakes before leaving cab of truck. Use wheel chock when bed is raised.
5. Always disengage PTO when bed or platform is lowered or when vehicle is moved.
6. If ladder is used to climb into raised bed, make sure it is securely fastened.
7. Do not use ladders or other objects on top of units to gain heights.
8. Do not operate truck unless you have been qualified to do so.
9. Do not allow material accumulation on platform to become a hazard.
10. Inspect work area for clearance before raising bed.
11. Bed or platform must be lowered before changing work locations.
12. Do not overload cone holders. Maximum number of cones per holder is five.

Code of Safe Operating Practices

FENCE/GUARDRAIL REPAIR TRUCK (BOOM TRUCK)

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. It is unlawful to operate boom within 10 feet of high voltage lines.
3. Check boom for cracks, deformities, oil leaks, loose pins, loose nuts and bolts.
4. Mounting and dismounting: face vehicle, use handholds, steps and ladders.
5. Be sure the boom hook isn't spread or cracked, hook pins are secure, and safety catch is working properly.
6. Make a daily check of slings, cables and chains for deformities, kinks, or frayed wire before use. They shall be properly labeled with the correct lifting capacity.
7. Before traveling, check the boom for proper storage position, store boom while not in use.
8. Never travel with PTO engaged.
9. Never exceed the maximum lifting capacity of the boom in its different positions. Refer to load chart.
10. Only one person shall operate the boom and only one person shall signal and assist the operator.
11. Be aware that the hand controls function differently depending which side of the truck the boom is being operated on and when using the remote.
12. Check and use outrigger safety locks and warning lights.
13. Do not use outrigger for lifting.
14. Do not operate boom unless outriggers are down and properly supported. Always use outrigger pad (only use approved Effer pad that comes equipped with truck).
15. Each outrigger shall be visible from an actuating location, unless the operator is assisted by a signalperson.
16. When setting outriggers, check clearance of outriggers to adjacent lane or sidewalk.
17. When swinging boom, change direction slowly.
18. When operating boom over the roadway, maintain safe clearance from passing vehicles or provide traffic control.

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Code of Safe Operating Practices

FENCE/GUARDRAIL REPAIR TRUCK (BOOM TRUCK) (Cont'd)

19. When lifting heavy loads, use approved slings or cables, do not use chain and grab hooks (see load chart). Do not extend or swing load to a position that will overload booms.
20. Operators shall be trained and qualified on truck.
21. Do not use boom swing to straighten posts.
22. Do not overload cone holders. Maximum number of cones per holder is five.
23. Use only proper lifting techniques. Never use boom to push or pull any objects.

Revised 4/14/2021

Code of Safe Operating Practices

DIGGER TRUCK

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Do not operate digger or boom within 10 feet of high voltage lines.
3. Underground Service Alert (USA) notification is required, see Appendix DD.
4. Make a daily check of slings, cables and chains for deformities, kinks, or frayed wire before use. They shall be properly labeled with the correct lifting capacity.
5. Keep employees a safe distance from auger when in motion.
6. Secure outriggers before moving trucks.
7. Use outriggers at all times. Be sure they are properly supported.
8. Do not lower or raise power tool from bucket by live power cord.
9. Do not load basket or boom beyond its rated capacity.
10. Do not drill or cut hole in basket.
11. Do not stand or reach from steps in basket.
12. Do not move truck while PTO is engaged.
13. Do not operate truck without proper qualification and training.
14. Basket capable of reaching 30 feet in height or over shall not be operated without at least two persons: one of which shall be on the ground for assistance.
15. When lifting heavy loads, see load chart. Do not extend or swing load to a position that will overload booms.
16. Never swing loads over other employees.
17. Store boom properly before traveling.
18. While working in basket, always use personal fall protection. See Fall Protection, (Appendix G).
19. Be aware the basket is not mechanically self-leveling, but free swinging, gravity leveling. To stabilize the basket, use the friction brake when the basket is stationary and work is being done.
20. Be aware when the friction brake is applied the basket will no longer swing free and gravity level itself, but will remain in the position it was locked into as the elevation of the boom changes.
21. In the event of an emergency and the person in the basket cannot operate the controls and the friction brake has been applied, the ground person operating the controls needs to be aware of the level of the basket as it's lowered to the ground.

Revised 5/5/2020

Code of Safe Operating Practices

TANKER

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Check air brake hoses for proper connections.
3. Examine for worn or frayed hoses.
4. Keep fifth-wheel clean and lubricated.
5. Allow for room to compensate for trailer "cheating" when turning.
6. Be aware of possible load surge when turning/braking.
7. Allow for additional stopping distance required when loaded.
8. Any truck/trailer combination over 40 feet must have a 5 BC fire extinguisher.
9. Do not enter tanker unless following confined spaces, rules and procedures.
10. Check hoses and connections before unhooking trailer.
11. Do not overload cone holders. Maximum number of cones per holder is five.

Code of Safe Operating Practices

COMPACTOR TRUCK

SAFE PRACTICE RULES

Loading:

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. The operators shall be trained and instructed in the safe operation of the compactor unit prior to operation.
3. Avoid working on traffic side.
4. Set parking brakes.
5. Load compactor bucket so nothing extends over rim.
6. Load only brush and paper type trash; never heavy metal or concrete, or large unbreakable branches.
7. All employees must stand clear of and be off of machine during operation to eliminate the possibility of being thrown or struck.
8. Keep hands away from machinery when loading cycle is activated.
9. If you suspect a safety hazard at any time, push stop button.
10. Before transporting load, lower tailgate safety door.
11. No employee shall be permitted to ride on a loading sill.
12. Do not overload cone holders. Maximum number of cones per holder is five.

Unloading:

1. Set parking brake.
2. Check behind, above and about vehicle at dumpsite.
3. Before extracting load, have people stand clear of rear of compactor.
4. Make sure that the extracted load will not interfere with the closing of the tailgate. This can be accomplished by driving the truck forward for a short distance.

Cleaning/Repairing:

1. When any component capable of vertical movement is raised to perform any maintenance it will be properly safety blocked.
2. Before cleaning, repairing, servicing or adjusting collection equipment it shall be properly safety locked. This shall include (relaxing hydraulics, installing safety stands, turning off engines and removing keys from ignition) and placing a safety lock out tag on ignition to prevent accidental start up.

Code of Safe Operating Practices

VACTOR TRUCK

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment; be familiar with the operator's manual.
2. Use adequate personal protective equipment; footwear, snug fitting clothing, eye, hearing (must be enrolled in the hearing conservation program) and head protection devices.
3. Check and make sure the Vactor is full of water prior to use.
4. Make a visual inspection of the high-pressure hose during and after use for any frayed portions of the hose. Hose with worn or damaged areas showing cord should be repaired prior to use.
5. Do not exceed manufacture's recommended engine RPM's for both the Vacuum and high-pressure portion of the Vactor.
6. Stay clear of culvert or pipe ends while cleaning with the high-pressure hose. Rocks and debris come out at high speeds.
7. Check all accessories to be sure they are secure and properly tied down prior to moving the equipment.
8. Make sure all clamps and pipes are properly fitted and tight.
9. Use caution to not run over the high-pressure hose.
10. Use caution with the reel operation; keep it under control at all times.
11. Wind hose on the reel slowly and smoothly, as kinks or a loose hose can result in hose damage. As you are rewinding hose keep fingers far enough away from reel so they don't become pinched between the hose and reel.
12. Never run out of water while using the high-pressure line as this could cause pump damage.
13. When swinging boom, change directions slowly.
14. Only one person should operate the boom at a time.
15. Do not over load the Vactor with material. Be aware of possible load surge when turning or stopping.
16. Only dump gathered material in an approved dump location.
17. Keep cab clean of debris.
18. Do not tow the pick-up when the Vactor is full of material. Only tow the pick-up when the Vactor is empty.

Code of Safe Operating Practices

PAINT STRIPER

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Check paint valves and hoses for wear and leaks.
3. Be sure there is no pressure on paint system when setting up, cleaning, pulling filters, or servicing guns.
4. Choose place for setting up away from traffic, if possible.
5. Keep 20 BC Fire extinguishers in handy known location.
6. No smoking allowed in immediate area of pumping paint.
7. When securing at end of day, bleed entire system of pressure. Never leave pressure in system.
8. Be sure truck is equipped with functioning ground strap.
9. Do not use pressurized air to clean yourself.
10. Have a communication system between driver and operator.
11. Use appropriate DOT hazard-class placard for material being used.
12. Release pressure on bead tank before removing lid.
13. Use ground strap between vehicles when pumping paint.
14. Burners shall not be lit while in transit.
15. Do not overload cone holders. Maximum number of cones per holder is five.

Revised 1/5/2012

Code of Safe Operating Practices

THERMOPLASTIC STRIPER AND PRE-HEATER

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. On C# 3333 thermoplastic striper, flip the propane safety switch in back of cab.
3. Turn on propane tank on side.
4. Turn thermostat to around 250° F (121° Celsius).
5. Turn valve for propane at the thermostat.
6. Press red pilot light button on thermostat.
7. Flip striker switch until pilot is lit.
8. Hold red button, about 30 seconds.
9. Release button and burners should light.
10. If burner does not light, turn everything off, wait a couple of minutes and do process again.
11. Set thermostat to manufacturer's recommended temperature.
12. To shut down at night, turn materials off and blow air through all material lines.
13. Reverse all lighting procedures at end of day.
14. Replenish propane every third day.
15. NEVER LEAVE MATERIAL IN LINES OR IN TANK AT NIGHT!

C# 3334 Thermoplastic Pre-Heater:

1. Turn all three propane tanks on.
2. No smoking within 25 feet (7.6 meters) of LPG tank opening vents and while filling tanks.
3. Turn thermostat valves on.
4. Set thermostat at 400° F (204° Celsius).
5. Press red buttons on thermostats (one at a time).
6. Always use a long handled igniter to light burners on pre-heaters.
7. All gauges should be checked each morning to be sure of good working conditions. Leaks of any kind should be repaired immediately.
8. One person on ground using small propane torch lights pilots.

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Code of Safe Operating Practices

THERMOPLASTIC STRIPER AND PRE-HEATER (Cont'd)

9. Hold red button depressed for about one minute.
10. Release button and burners should ignite.
11. If burner does not come on, turn everything off, wait a few minutes and start the process over.
12. After all burners are lit, turn thermostat to manufacturer's recommended temperature.
13. A lookout shall remain with equipment at all times while lit due to possibility of a fire.
14. Burners shall not be lit while in transit.
15. Reverse procedure at shift's end to shut equipment down.
16. Replenish propane every third day.
17. Pre-heaters should be loaded and unloaded with care to prevent splashing of hot material. Leave about 6 inches (152 millimeters) below top while filling to leave room for material to move when deadheading vehicle.
18. Pre-heaters should be heated to approximately 275° F (135° Celsius) before agitators are engaged. Operators should stand below the top of kettle when engaging agitators for the first time in A.M.
19. Leave kettles full overnight. When this is done, there is less chance of fire.
20. Lift properly. Periodically review "Proper Lifting" video in Maintenance Employee Safety Orientation series for specific instructions on correct lifting practices.
21. 100% cotton coveralls shall be worn.

Revised 6/1/2012

Code of Safe Operating Practices

STENCIL MARKING TRUCK (PAINT)

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Check paint valves and hoses for wear and leaks.
3. Be sure there is no pressure on paint system when setting up, cleaning, pulling filters, or servicing guns.
4. Don't drop paint hoses or guns in dirt.
5. Keep 20 BC fire extinguishers in a handy location.
6. When securing at end of day or when changing work locations, bleed entire system of pressure.
7. No smoking allowed during operation.
8. Properly secure all equipment and miscellaneous items before leaving yard or job site.
9. When positioning truck to work, be extra cautious of personnel and other equipment in work area.
10. Be sure truck is equipped with functioning ground trap.
11. Do not use pressurized air to clean yourself.
12. Use appropriate DOT hazard-class placard for material being used.
13. 100% cotton coveralls shall be worn.
14. Do not overload cone holders. Maximum number of cones per holder is five.

Code of Safe Operating Practices

STENCIL MARKING TRUCK, THERMOPLASTIC

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. When working with hot thermoplastic materials, a 20-pound BC dry chemical fire extinguisher shall be available in a handy and known location, and 100% cotton coveralls shall be worn.
3. Smoking is prohibited near LPG tank openings, vents and when changing tanks, to reduce fire hazard.
4. Long-handled light must be used to ignite burners: use manufacturers specified lighting procedure.
5. Material should not be heated beyond recommended temperature.
6. Pre-heater should be filled with care to prevent splashing of hot material
7. Pre-heater should not be overfilled.
8. Burners shall not be lit while in transit.
9. All gauges should be checked periodically.
10. Any oil leaks should be repaired immediately.
11. When moving, applicator shall be secured.
12. In case of fire, stop all engines.
13. Truck bed should be kept clean.
14. Backing movements should be controlled by someone outside of vehicle.
15. Be sure truck is equipped with a functioning static ground strap.
16. Extinguish fire before moving in transit.
17. Lift properly. Periodically review "Proper Lifting" video in Maintenance Employee Safety Orientation series for specific instructions on correct lifting practices.
18. Do not overload cone holders. Maximum number of cones per holder is five.

Revised 6/1/2012

Code of Safe Operating Practices

BITUMINOUS DISPENSING MACHINE

HAZARD REVIEW

Moving Traffic
Skin Irritation
Flying Objects
Hazardous Material
High Noise Level
Lifting

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. All workers, while loading Bituminous material into melting tank shall wear:
 - a. 100% cotton coveralls with a high visibility vest.
 - b. Safety glasses.
 - c. Hard hat with plastic face shield.
 - d. Approved gloves.
 - e. Appropriate footwear with hard soles and leather uppers.

NOTE: Failure to wear or enforce the wearing of the above safety items is grounds for adverse action.

3. A 20-pound BC dry chemical fire extinguisher shall be carried on all bituminous applicator trucks. Operators of said trucks shall check charge and condition of fire extinguisher as part of their daily pre-operational check. Leadworker or Supervisor shall sign off monthly fire extinguisher check.
4. A five-gallon container of fresh water must be on the truck for first- aid in case of burns. Check daily and change as needed.
5. Never open electrical control panel while generator is running or machine is plugged into an outside power source.
6. Material shall never be overheated beyond manufacturers recommended temperature.
7. Avoid placing wet material such as oil or water in the tank.
8. Melting tank should be loaded with care to prevent splashing of hot material. Do not load material above the fill mark.
9. Employees shall not ride in any auxiliary seating outside the passenger compartment of the vehicle to and from the jobsite. Employees are only allowed to occupy the outside seats while performing the duties within the work zone and shall use seatbelts at all times when these seats are being used.

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Code of Safe Operating Practices

BITUMINOUS DISPENSING MACHINE (Cont'd)

10. The driver is responsible for the daily pre-op, post-op, and operation of the truck, i.e., engine oil, water check, headlights, wipers, tires, etc.
11. The operator is responsible for all materials needed for the installation of markers, bituminous material, markers, and safety equipment. A pre-op checklist will be filled out and signed off by the Leadworker or Supervisor. The driver will assist the operator in stocking the truck, clean up, and all phases of the operation.
12. In case of fire, all engines, pumps, and valves should be shut off (if possible).
13. Air tank must be drained at the end of each shift.
14. Never allow personnel not trained in safe operation of the bituminous unit to operate it.
15. The applicator should be stored properly during transit.
16. Any necessary adjustments or repairs shall not be made in a moving operation - move to the shoulder or other safe area.
- NOTE:** Consult manufacturer's recommended temperature for dispensing material.
17. Be sure truck is equipped with functioning static ground strap.
18. While servicing or filling tanks, make sure all pressure is released before removing lids of disconnecting lines.
19. Do not drive on uneven ground with carriage in down position.
20. Employees shall not ride on lift gate.
21. Use caution when operation approaches a signal or non-signal controlled intersection.
22. Check operational condition of adjustable carriage and watch for pinch points.
23. Wear adequate clothing to protect from burns. 100% cotton coveralls, heat resistant gauntlet type gloves and face shields are required.
24. Do not load material above the fill mark.
25. Close opening securely when in transit.
26. Always check for water in tank and never allow water inside bituminous tank.
27. Oil valve gauge should register full at each pre-op.
28. Do not heat above flash point of material.
29. Keep hose and fittings in good condition and free of leaks.
30. Keep equipment and bituminous tank clean.
31. Do not heat material in non-ventilated areas.

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Code of Safe Operating Practices

BITUMINOUS DISPENSING MACHINE (Cont'd)

- 32. Use correct process when loading brick material to avoid splashing hot material. Do not drop material into tank.
- 33. Do not use air blower near pedestrians or bituminous material.
- 34. Smoking is prohibited near tank opening.
- 35. Burners shall not be lit while in transit.

Revised 6/1/2012

Code of Safe Operating Practices

SWEEPERS

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Stop elevators and rear broom whenever repairing, adjusting, or removing obstructions.
3. While driving, always scan the entire area for possible hazardous situations.
4. When backing, use your mirrors or get out and check if you are in doubt.
5. Keep cab clean.
6. Use safety stand when working under raised hopper.
7. Drive carefully when deadheading, especially when loaded.
8. Take extra caution when changing or adjusting gutter brooms, to avoid injuring self with steel bristle.
9. Use hand and footholds when climbing onto and off sweeper or hopper.
10. Don't attempt to sweep an unidentified substance.
11. All repairs or adjustments should be made away from the traveled way.
12. Do not load hopper beyond marked capacity.
13. Use water to control dust.
14. Do not overload cone holders. Maximum number of cones per holder is five.

Code of Safe Operating Practices

TOW TRUCKS

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Keep windshields, side windows, and mirrors clean.
3. Keep tires properly inflated.
4. Mounting and dismounting: face vehicle, use handholds, steps and ladders.
5. Allow engine to reach operating temperature before using full capacity operation.
6. Check instruments for overheating, loss of oil pressure, proper RPM and road speed.
7. Do not overload truck.
8. Always use proper engine speed and gear ratio.
9. When parking set hand brakes; put truck in gear or park. Use blocks when potential of rollaway exists.
10. Operator and passenger must wear seat belt and harness.
11. Never travel with the power take-off control engaged.
12. Never use a control unless you understand its purpose and how to operate it.
13. Never disengage the wrecker service drum engagement control when the cable is loaded.
14. Cars with anti-theft steering locks should never be towed on their front wheels while locked in the turned position.
15. Never apply lubricant or perform any kind of maintenance while tow truck equipment is operating.
16. For sling type towing, always unlatch the hood of the disabled vehicle when lifting its front end. Leave the safety catch engaged.
17. Do not overload cone holders. Maximum number of cones per holder is five.

Code of Safe Operating Practices

HYDRO CRANE

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Operator and signal person shall have agreed on clearly understood visual and audible signal before beginning any work.
3. Workers shall not be allowed under boom operation.
4. All unauthorized persons shall be kept clear of the operation.
5. Position drop-line as near to directly over the balance point of piece being removed as possible.
6. Crane shall *never* be worked without first properly setting all outriggers.
7. Every step necessary shall be taken to ensure adequate traction for outriggers whenever slippery conditions prevail.
8. Truck shall be made level before beginning work.
9. Slack shall not be allowed to get in drop line, because to do so may cause the line to become fouled on the drum. Take special care not to run drop line out when pull weight is off drop line.
10. Crane shall be operated within the limits, set by manufacturer and cable used for drop line. See load chart.
11. Make a daily check of slings, cables and chains for deformities, kinks, or frayed wire before use. They shall be properly certified for correct lifting capacity.
12. Truck deck shall be kept clean and free of debris and obstruction at all times.
13. Climbing (safety) ropes and basket lanyards shall not be used to handle branches, wood or equipment of any description or weight.
14. Do not operate digger or boom within 10 feet of overhead high voltage lines.
15. Secure outriggers before moving truck.
16. Do not operate truck without proper qualification.
17. Do not overload cone holders. Maximum number of cones per holder is five.

Code of Safe Operating Practices

PERSONNEL HOIST

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Personnel Hoist operators shall be trained and qualified.
3. Prior to the daily use of an aerial-lift device, a visual inspection and operational check shall be made in accordance with the manufacturers and owner's instructions.
4. Personnel Hoist Operators shall follow all operating instructions in the operator's manual. The operator's manual shall be available during operation, service, inspection and repair.
5. Read safety placards before operating controls.
6. Check safety switches and dead man controls prior to use.
7. The combined load, including workers, material, and tools, shall not exceed the rated lift capacity as stated by the manufacturer.
8. Prior to use, fiberglass booms and basket shall be inspected for cracks or damage.
9. The insulated portions of the boom and bucket shall be kept clean and free of conductive materials, including dirt, oil, and metal objects.
10. Workers shall not drill holes in aerial-lift buckets.
11. An additional person qualified in aerial rescue shall be at all work sites involving aerial tree work.
12. Wheel chocks shall be installed before using an aerial lift on an incline. Be sure brakes are set and locked before leaving cab of truck.
13. Booms shall not be operated unless outriggers, if equipped, are down. Follow operator's manual before operating on a slope of 5 degrees or more.
14. When setting outriggers, make sure the area is clear when lowering. Outriggers should be kept in sight when lowering. Use support under an outrigger that is to be put down on soft ground to prevent it from sinking.
15. While working at elevated locations, employees must use personal fall protection. See Fall Protection (Appendix G).
16. While working in basket, have tools in proper place or keep a secure grip on them while maneuvering.
17. When operating an aerial-lift device, the operator shall look in the direction of travel of the bucket and be aware of the booms in relation to all other objects and hazards. Operate controls smoothly.

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Code of Safe Operating Practices

PERSONNEL HOIST (Cont'd)

18. When booms are operated over roads, safe clearances from passing vehicles shall be maintained or traffic control shall be provided.
19. Personnel hoist operators shall maintain proper clearance from overhead utility lines.
20. When moving from one area to another, the boom must be cradled.
21. Riding in a basket when moving within a work area is permitted only when the boom is cradled and speed is limited to less than 3 miles per hour.
22. Before traveling, make sure the outriggers are secured and the safety hooks are in place if so equipped.
23. Do not sit or climb on edge of basket to gain height.
24. Keep a 5-pound BC fire extinguisher on unit at all times.
25. Keep body parts away from areas where they may be pinched between basket and other objects.
26. Do not overload cone holders. Maximum number of cones per holder is five.

TEREX Personnel Hoist Emergency Outrigger Interlock Over-ride Procedure (All Digger Derricks or Aerial Devices with an outrigger interlock system):

Required for crews who operate a TEREX Personnel Hoist. Record training under LMS Code 102092

Video: http://svgcstream01.dot.ca.gov/webcast/vod/training/vod_training.asp?vodfilename=20190118_Terex_Unit_Training.mp4

Tech-Tip (Scroll down to #73): <https://www.terex.com/utilities/en/support/technical-support/tech-tips>

Code of Safe Operating Practices

GRADALL (BADGER)

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Before operating read Operator and Safety Manuals.
3. Operator is responsible for safe operation and ground personnel.
4. Familiarize yourself with all controls before operating.
5. Be sure everyone is in the clear before operating Gradall.
6. Clear loose objects off machine before operating.
7. Check counterweight swing clearance before operating.
8. Check for high voltage lines, and observe electrical proximity rules at all times.
9. Do not operate with other people on machine.
10. Before operating upper structure, be sure controls are properly set in carrier unit.
11. Keep machine as level as possible.
12. Never operate machine on unstable ground.
13. Never drive too close to the edge of a ditch or excavation.
14. Before digging, review Appendix D, Trenching and Excavation Safety Guide, and Appendix DD Underground Service Alert (USA).
15. Before moving be sure of a clear path and sound horn.
16. Never allow anyone to work under raised boom.
17. Use a signal person if visibility is limited.
18. Only one person at a time should give signals.
19. Before adjusting or servicing, rest the boom on ground, stop engine and set brakes.
20. Never reach into boom holes unless the boom sections are securely anchored together with heavy timber or chains.
21. Escaping fluid under pressure can have sufficient force to penetrate the skin, causing serious personal injury. Before disconnecting lines, be sure to relieve all pressure. Before applying pressure to the system, be sure all connections are tight and that lines, pipes and hoses are not damaged. Fluid escaping from a small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands, to search for suspected leaks.

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Code of Safe Operating Practices

GRADALL (BADGER) (Cont'd)

22. If injured by escaping fluid, see a doctor at once. Serious infection or reaction can develop if proper medical treatment is not administered immediately.
23. Always operate engine at full throttle to keep cylinders full of oil and operating properly.
24. Keep foot away from clutch when digging brake is engaged.
25. Secure bucket to boom, and boom to boom rest, before deadheading.
26. Before leaving cab, leave boom in boom rest or on the ground, set parking brake and shut engine off.
27. Do not attempt to operate Gradall unless you are certified.
28. Do not overload cone holders. Maximum number of cones per holder is five.

Revised 5/5/2020

Code of Safe Operating Practices

ROTARY PLOW

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Check lights, tires, chains, windshield wipers, wear blades, auger box shoes, auger fan and blades for deficiencies.
3. Disengage augers and shut off engine when replacing shear bolts.
4. Use safety pins while replacing auger box shoes.
5. Insert auger box safety pins before deadheading.
6. Do not leave augers in gear when leaving cab or when persons are around the auger box.
7. Repair cross chains immediately. Broken cross-chains can damage brake lines.
8. It is usually safer, to stay in cab if caught in a snow slide, another slide may develop. Use radio to call for assistance.
9. If buried by an avalanche, shut down the engine to prevent suffocation.
10. Use extreme caution while backing. Be sure your path is clear.
11. Use extreme caution when blowing snow, especially across the road.
12. Drain water from the fuel and air tanks daily.
13. Keep steps and walkways cleared of snow and ice.
14. Lock rear steering for traveling.
15. Be aware of buried cars, guardrails, etc.
16. Hearing protection may be required.

Code of Safe Operating Practices

FORKLIFT AND INDUSTRIAL TRUCKS

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Only operators certified by the employer and trained in the safe operations of industrial trucks, within the last three years, shall be permitted to operate.
3. Rated capacity must be stated on forklift, and it shall not be loaded in excess of that amount.
4. Riders shall not be permitted on forklifts or on forks of lift trucks.
5. Loaded forklifts shall not be moved until load is safe and secure.
6. Seat belt (if equipped) must be worn at all times.
7. All unattended forklifts shall have mast at vertical position; forks in the down position; engine shut down; and parking brake set.
8. Forklifts shall not be driven up to anyone standing in front of a bench or other fixed object where such person could be caught between the forklift and object.
9. Operators shall look in the direction of travel and shall not move forklift until certain that all persons are clear.
10. The forks shall always be carried as low as possible, consistent with safe operation.
11. Forklifts shall not be driven into and out of highway trucks and trailers at unloading docks, until such trucks are securely blocked and brakes set.
12. Employees shall not place any part of their body outside the running lines of the forklift or between mast uprights or other parts of the unit where shear or crushing hazards exist.
13. Employees shall not be allowed to stand, pass, or work under the elevated portion of any industrial truck, loaded or empty, unless it is effectively blocked to prevent it from falling. (Industrial Safety Orders §3664. Operating Rules (6))
14. The operator shall slow down and sound the horn at all locations where visibility is obscured or obstructed. If the load being carried obstructs forward view, the operator (unless uphill) shall be required to travel with the load trailing.
15. Extreme care shall be taken when tilting loads. Tilting forward with forks elevated, shall be prohibited except when picking up a load. Tilting elevated loads forward shall be prohibited, except where the load is to be deposited on a storage rack or equivalent.
16. Special precautions shall be taken in the securing and handling of loads by forklifts equipped with special attachments, and during the operation of these trucks after loads have been removed.

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Code of Safe Operating Practices

FORKLIFT AND INDUSTRIAL TRUCKS (Cont'd)

17. If lifting employees with a forklift:
 - a. Use an approved basket and appropriate fall protection. See Fall Protection, (Appendix G).
 - b. Operator at the controls at all times.
 - c. Basket secured to the forks.
 - d. Mast-guard in place.
 - e. Mast kept in a vertical position.
18. When forks are empty, and when ascending or descending grades, mast should be tilted to the rear to prevent tips of forks from contacting ground.
19. Grades should be ascended and descended slowly.
20. Employees shall not ride on forks of lift truck.
21. The forks shall be placed in such a manner that the load will be securely held or supported.
22. Forklifts shall not be operated if any employee is in a position where they can be struck by the load if any part of it falls or slides from the forks.
23. Employees shall wear a hard hat whenever they are operating any motorized equipment not equipped with an enclosed cab. An enclosed cab is defined as motorized equipment with a windshield, doors, and surrounding cab protection with metal components and window glass. Motorized equipment with a covered operator area, or roll-over protection only, is not considered an enclosed cab.
24. Do not overload cone holders. Maximum number of cones per holder is five.

Code of Safe Operating Practices

POWER MOWER (RIDE-TYPE)

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Check condition of drive-belts before starting.
3. Check area, clear rocks and debris before mowing.
4. Clear all persons from path of potential flying objects.
5. Avoid entangling blade in wires, ropes, or cables.
6. Make sure seat is properly secured to machine.
7. Make sure mower is in neutral before starting.
8. Do not carry passengers on mower.
9. Use mower only for its designed purpose.
10. Use care while operating over uneven terrain.
11. Do not dismount machine unless stopped.
12. Disengage mower when not cutting.
13. Hearing and eye protection are required.
14. Keep feet and hands clear of mower blades.
15. Employees shall wear a hard hat whenever they are operating any motorized equipment not equipped with an enclosed cab. An enclosed cab is defined as motorized equipment with a windshield, doors, and surrounding cab protection with metal components and window glass. Motorized equipment with a covered operator area, or roll-over protection only, is not considered an enclosed cab.

Code of Safe Operating Practices

HIGHWAY MOWERS

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Don't start tractor from ground. Always be in the seat and check gear selector before starting.
3. Watch traffic when driving around guide markers, signs, culverts, etc.
4. Don't mow too close to fences and be alert for utility pole guide wires.
5. Use caution when mowing on steep slopes. Mower could tip over.
6. Use caution when mowing downhill on wet or green grass, as brakes are less effective.
7. Shut off tractor when working on mower.
8. Keep area clear of personnel on foot.
9. Always carry fire suppression equipment.
10. Do not dismount unless motor is off, blades have stopped, and brake is set.
11. Wear standard PPE. In addition, hearing protection is required. Respiratory protection is recommended.
12. Review wheel tractor CSOP.
13. Employees shall wear a hard hat whenever they are operating any motorized equipment not equipped with an enclosed cab. An enclosed cab is defined as motorized equipment with a windshield, doors, and surrounding cab protection with metal components and window glass. Motorized equipment with a covered operator area, or roll-over protection only, is not considered an enclosed cab.

FLAIL OR ROTARY

1. Never work under mower unless properly secured with safety stand or safety chain.
2. Keep mower adjusted to proper height above ground (not less than 4") to prevent throwing rocks and debris. This will also cause less damage to the mower.
3. Don't run side mount flail when in the "UP" position.
4. Replace missing flail knives to maintain balance.
5. Ensure debris guard is place.

Code of Safe Operating Practices

TRACTOR, WHEEL

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Never leave the machine unattended with the engine running.
3. Do not leave attachments in the raised position when it is not in use. Always lower to the ground.
4. Travel slowly when moving over rough terrain.
5. Never allow anyone to work under raised attachments without proper safeguards in place and secured.
6. Never drive too close to the edge of a ditch or excavation.
7. Watch for overhead wires.
8. Reduce speed before turning or applying brakes. Couple the brake pedals together when traveling at high speed. Be sure that both wheels are braked simultaneously when making an emergency stop. Drive at speeds slow enough to ensure your safety, especially over rough ground.
9. When driving out of a ditch, gully or up a steep slope, engage the clutch slowly. Be prepared to de-clutch promptly if the front wheels rise off the ground. Use the same care if rear wheels mire in soft ground or drop into hole. Back the unit out of these spots if at all possible.
10. Never attempt to start or operate the machine except from the operator's station.
11. Protect PTO drive with master guard and shield.
12. Do not oil, grease or adjust the unit while it is in motion.
13. Operator must wear lap belt.
14. Employees shall wear a hard hat whenever they are operating any motorized equipment not equipped with an enclosed cab. An enclosed cab is defined as motorized equipment with a windshield, doors, and surrounding cab protection with metal components and window glass. Motorized equipment with a covered operator area, or roll-over protection only, is not considered an enclosed cab.

Code of Safe Operating Practices

BACKHOE

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Never leave the machine unattended with the engine running.
3. Do not leave attachments in the raised position when equipment is not in use. Always lower them to the ground.
4. When in operation, only one person, the operator, should be permitted on the machine.
5. Keep loading area as level as possible.
6. Do not change relief valve settings.
7. When operating on a slope, use caution when swinging the backhoe bucket to the downhill direction. Dump on the uphill side.
8. Be sure outriggers are properly set before operating backhoe.
9. Carry the loader bucket low at all times, especially when working on a hillside or backing up an incline.
10. After stopping engine, turn steering wheel until the hydraulic system accumulator fails to activate the power steering.
11. Travel slowly when moving over rough terrain.
12. Never allow anyone to work under a raised bucket.
13. Never drive too close to the edge of a ditch or excavation.
14. It is unlawful to operate boom within 10 feet of overhead high voltage power lines.
15. Don't dig close to outriggers. Soft ground or sandy soil might cause cave-in.
16. Be sure area is clear of personnel before lowering stabilizers or moving the boom.
17. Use swing and boom locking pins when transporting the backhoe.
18. Be sure to remove locking pins before operating the backhoe.
19. Do not use the loader as a battering ram.
20. Shift to low gear when loading downhill.
21. Always discharge accumulator by operating control levers before disconnecting any oil lines and hoses.

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Code of Safe Operating Practices

BACKHOE (Cont'd)

22. Escaping fluid under pressure can have sufficient force to penetrate the skin, causing serious personal injury. Before disconnecting lines, be sure to relieve all pressure. Before applying pressure to the system, be sure all connections are tight and that lines, pipes and hoses are not damaged. Fluid escaping from a small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands, to search for suspected leaks.
23. If injured by escaping fluid, see a doctor at once. Serious infection or reaction can develop if proper medical treatment is not administered immediately.
24. Reduce speed before turning or applying brakes. Couple the brake pedals together when deadheading. Be sure that both wheels are braked simultaneously when making an emergency stop. Drive at speeds slow enough to ensure your safety, especially over rough ground.
25. When driving out of a ditch, gully, or up a steep slope, engage the clutch slowly. Be prepared to de-clutch promptly if the front wheels rise off the ground. Use the same care if rear wheels mire in soft ground or drop into a hole. Back the unit out of these spots if at all possible.
26. Never attempt to start or operate the machine except from the operator's station.
27. Reduce boom lift speed when raising loaded bucket to full height.
28. Avoid deadheading. trailer whenever possible. Chain down boom when trailering.
29. Before digging, review Appendix D, Trenching and Excavation Safety Guide, and Appendix DD Underground Service Alert (USA).
30. Avoid contacting outriggers with boom while digging.
31. Employees shall wear a hard hat whenever they are operating any motorized equipment not equipped with an enclosed cab. An enclosed cab is defined as motorized equipment with a windshield, doors, and surrounding cab protection with metal components and window glass. Motorized equipment with a covered operator area, or roll-over protection only, is not considered an enclosed cab.

Revised 5/5/2020

Code of Safe Operating Practices

LOADER

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Underground Service Alert (USA) notification may be required, see Appendix DD.
3. Always park loader with bucket on ground.
4. Do not leave cab with motor running, except as specified by manufacturer for pre-operational inspection.
5. Engage safety steering lock while trailering and before working on loader, if equipped.
6. Work pressure off steering before leaving cab of articulated type loaders equipped with accumulator.
7. Always set parking-brake and turn off engine before leaving machine.
8. Let no one stand on steps or ride in bucket while machine is being operated.
9. Carry loaded bucket low to ground.
10. Stop loader with brakes, not transmission.
11. Do not operate the loader or controls from any position other than the operator's seat.
12. Do not lower the loaded bucket with the control lever in the float position.
13. Never back up unless you are sure the way is clear.
14. Always lock the loader properly when parking overnight or for extended periods.
15. Do not swing bucket over truck cab or ground crew.
16. Use extreme care when working down slope.
17. Build berm prior to dumping over banks.
18. Operator must wear lap belt.
19. When operating loader with fork attachment:
 - a. Do not exceed the loader manufacturer's weight capacity.
 - b. When forks are attached to the loader bucket, a signal person shall be assigned to assist loader operator.
 - c. Employees (including the signal person) shall not walk or stand where they can be struck by the load if any part of it falls or slides from the forks.
 - d. All repairs of fork attachments must be completed by Equipment Service Center personnel.
 - e. Prior to operating loader forks, operators shall review Safe Practice Rules for Forklift.
20. Personnel baskets SHALL NOT be used with forks mounted on a front-end loader.
21. Bucket/loader shall not be lifted/moved unless directed by signalperson.

Revised 5/5/2020

Code of Safe Operating Practices

LOADER BUCKET ATTACHED PAVER BOX

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Do a complete pre-op of the asphalt paver box including chains, skids, and hooks.
3. Do not ride on paver box.
4. Never stand near the front or rear of paver box when in motion. This action could cause serious injury if one is pinned or pinched between loader and paver box. Loader must come to a complete STOP before working on or near paver box.
5. Operator must be extra cautious of personnel on the ground. When in doubt, STOP machine.
6. Always operate paver box on a solid, supportive surface, never on soft or unstable ground.
7. Always come to a complete STOP before lifting the paver box from within paving motion.
8. Hearing protection is required for those on the ground nearby during paving.

Code of Safe Operating Practices

GRADER

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Underground Service Alert (USA) notification may be required, see Appendix DD.
3. Be sure to watch fingers when removing inspection panels.
4. When traveling, make sure blade is properly positioned under grader.
5. Never leave grader unattended without putting blade down.
6. When operating grader next to edge of slope or bank, be sure of footing.
7. Don't extend blade into front or rear tires or transfer case.
8. When operating grader, be aware of protruding or overhanging objects or limbs.
9. Be on the lookout for hazards in or on traveled way, such as bridge joints, bridge abutments, curbs and manhole covers.
10. When backing grader, be extra cautious of personnel and equipment in the area.
11. Don't open doors when grader is in motion.
12. When cutting pack on supers, lighten up on blade pressure to avoid slipping into other lane of traffic.
13. Review controls before starting engine on unfamiliar graders.
14. When dismounting from grader, back out of cab using safety rails and steps, do not jump from cab.
15. Operator must wear lap belt.

Revised 5/5/2020

Code of Safe Operating Practices

DOZER

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Underground Service Alert (USA) notification is required, see Appendix DD.
3. Make visual inspection of area before starting.
4. No one on machine other than operator while tractor is in motion.
5. When parking, set foot brakes, lock transmission, let the dozer down, and leave in full float position. Turn off switch and remove key.
6. When operating machine on side hill, never allow anyone to remain down-slope while machine is in motion.
7. Never allow machine to coast downhill with transmission in neutral.
8. When working machine in unfamiliar terrain, heavy brush, trees or areas with poor visibility, operator should enlist the assistance of an observer on the ground. The observer must stay clear of falling trees and limbs.
9. **NEVER** back up without first looking to the rear.
10. Operator must wear lap belt.
11. Employees shall wear a hard hat whenever they are operating any motorized equipment not equipped with an enclosed cab. An enclosed cab is defined as motorized equipment with a windshield, doors, and surrounding cab protection with metal components and window glass. Motorized equipment with a covered operator area, or roll-over protection only, is not considered an enclosed cab.

Revised 5/5/2020

Code of Safe Operating Practices

PAVEMENT GRINDER

HAZARD REVIEW

Moving Equipment
High Noise Level
Grinder May Lunge
Moving Traffic
Flying Particles
Poor Visibility

SAFE PRACTICE RULES

1. Do a complete pre-op of the machine and cutting teeth before operating. Be familiar with the operator's manual and controls (including rental equipment).
2. Start and operate the machine only from the operator's platform, never from the ground.
3. Do not allow riders.
4. Never stand near the front or rear of the machine when the engine is being started or pavement is being ground. Grinders may lunge rearward unexpectedly.
5. Be extra cautious of personnel on the ground.
6. Always operate the grinder on a solid, supportive surface, never on soft or unstable ground.
7. Always come to a complete stop and also stop grinder head before reversing the direction of the machine.
8. Never grind in reverse gear.
9. Always use caution when turning or crossing near traffic, the machine moves slow and requires more time to maneuver than a loader.
10. Always align the rear wheels with the frame when roading the machine.
11. Standard PPE and hearing protection are required for the operator and those on the ground nearby during grinding.
12. Always use water while grinding.
13. Never grind in dirt or base rock as this could damage the grinder teeth and drum.
14. Before adjusting, lubricating, changing wear parts or fueling, move the grinder drum engagement lever to the off position, set the brake, shut off the engine and block the wheels if on an incline. Review CSOP, Changing Wear Parts.

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Code of Safe Operating Practices

PAVEMENT GRINDER (Cont'd)

15. Always use two employees when loading or unloading from a trailer or transport.
16. Park on the trailer with a block of wood beneath the grinder head. Shut off the engine before dismounting from the operator's seat.
17. Employees shall wear a hard hat whenever they are operating any motorized equipment not equipped with an enclosed cab. An enclosed cab is defined as motorized equipment with a windshield, doors, and surrounding cab protection with metal components and window glass. Motorized equipment with a covered operator area, or roll-over protection only, is not considered an enclosed cab.

Code of Safe Operating Practices

EMULSION AND ASPHALT HEATING KETTLES

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Wear standard PPE and adequate clothing to protect from burns. 100% cotton coveralls and gloves are required. Hearing protection may be required. Face shields are recommended for the activity and are required when loading material into the kettle.
3. Do not overfill; keep 6 to 8 inches below top of tank.
4. Close valves and openings securely when in transit.
5. Do not leave kettle unattended when burners are lit.
6. Do not heat above flashpoint of material.
7. Keep hoses and fittings in good condition and free of leaks.
8. Keep kettles and equipment clean.
9. Raise spray bar when in transit.
10. Keep shafts and gears guarded.
11. Keep 20-pound BC fire extinguisher available at all times.
12. Burner(s) shall be off when in transit.
13. Smoking is prohibited near tank openings, vents and during refueling. Use caution when using the hand torch--do not hold the torch close to vents as flashback may occur.
14. Guard propane bottle valve and pressure regulator and keep bottles properly secured.
15. Do not light burners inside of buildings.
16. Beware of vapor hazards when using the Crafcro Kettle (rubberized asphalt-heating kettle).
17. Use correct process when loading-in brick material bags to avoid splashing hot material.
Do not drop-in material!

Revised 2/4/2012

Code of Safe Operating Practices

RUBBERIZED ASPHALT HEATING KETTLES

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Read operator's manual, make sure operator is familiar with the machine. The operators shall follow all safety instructions.
3. Wear standard PPE and adequate clothing to protect from burns. 100% cotton coveralls and gloves are required. Hearing protection may be required. Face shields are recommended for the activity and are required when loading material into the kettle.
4. Observe all caution and warning signs posted on machine.
5. For Crafcro, avoid the entrance of water into any part of the machine. Water will displace heat transfer oil or sealant, which could be hazardous to personnel surrounding the machine when it reaches operating temperatures.
6. A visual inspection shall be performed on all hoses, fittings and joints. Worn, frayed or split hoses shall be replaced. All fittings and joints shall be leak-proof.
7. Always keep a fire extinguisher near the unit. It should be a 20-pound unit rated BC.
8. Perform a pre-operation check and the pre-start procedure outlined in the operator's manual. Do not over-fill heat transfer oil or spillage will occur when machine reaches operating temperatures, use only recommended heat transfer oil.
9. Follow operating instructions for starting and shutting down burners. Shut down burners and engine prior to refueling. Do not operate in a closed building or confined space.
10. Keep hands, feet, and clothing away from all moving parts.
11. Do not exceed 500° F for heat transfer oil temperature.
12. Avoid bodily contact with hot sealant material or heat transfer oil, serious burns may result. It is recommended that a non-potable water jug be mounted on the kettle to use for affected parts of the body if contact with hot material occurs. Jug should contain cool water, not cold. Do not use ice on burns. Seek immediate medical help if burns occur. When adding solid material to sealant tank, stop auger, lift lid, lower material into tank, and close lid before restarting auger. Hot material could splash and cause serious burns if procedure is not followed. Do not overfill.
13. Keep all shafts and gears guarded.
14. Burners shall be shut down during transit.

Revised 6/19/2014

Code of Safe Operating Practices

ROLLERS, TOWABLE, POWERED, & HAND OPERATED

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Use caution when operating roller on steep grades.
3. Keep area clear when operating roller.
4. Shut off motor, set brake, and use blocks when working on roller.
5. Always completely stop roller before changing directions.
6. When rolling patches or edges, don't get too close to the edge of banks as the roller can easily tip over.
7. Don't roll over raised pavement markers.
8. Remain in seat while operating. Wear seatbelt if equipped with rollover protection.
9. When possible, use two employees to hook up the roller to the truck.
10. Always set roller hand brake when backing truck to roller. This will prevent bending hydraulic foot.
11. Hook up and unhook roller on stable, level ground. Use blocks if on a slope.
12. Don't start motor from the ground (except when hitched to truck).
13. Use locking pins when wheels are in "up" or "down" position.
14. Allow clearance for towing wheels - remove if necessary.
15. When towing, observe conditions and adjust speed to road accordingly.
16. After disconnecting, rear roller drum should be on ground.
17. Employees shall wear a hard hat whenever they are operating any motorized equipment not equipped with an enclosed cab. An enclosed cab is defined as motorized equipment with a windshield, doors, and surrounding cab protection with metal components and window glass. Motorized equipment with a covered operator area, or roll-over protection only, is not considered an enclosed cab.

Rollers, Powered, Hand Operated:

1. When possible use two employees to hook up the roller to truck.
2. Hook up and unhook roller on level ground. Use blocks if on a slope.
3. Don't roll over raised pavement markers.
4. Make sure tailgate is secured before attaching roller.
5. Use proper body position when turning.
6. Adjust hooks for adequate ground clearance.

Code of Safe Operating Practices

SWEEPER, TOW

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Check frame for cracks, and loose bolts.
3. If visual obstruction, due to sweeping, causes potential traffic hazard, use traffic control.
4. Check for proper hook-up of sweeper to towing vehicle and use safety chain. Check chain before leaving yard.
5. Operator shall be cautious of persons on foot during sweeping operations.
6. Keep hands and feet clear when adjusting sweeper angle.
7. While driving, always scan the entire area for possible hazardous situations.
8. When dead heading make sure broom is raised and locked in place.
9. Use water to control dust.
10. Protect towing vehicle from rock damage.

Code of Safe Operating Practices

TRAILER-MOUNTED FLASHING ARROW SIGN AND CHANGEABLE MESSAGE SIGN

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Check for oil residue build-up in engine compartment. Keep clean.
3. Check frame for cracks, and loose bolts.
4. Use jacks to stabilize operating flashing arrow sign and changeable message sign.
5. Make sure locking pins are used and secure when jacks are down or up.
6. When towing, jacks shall be up.
7. Check for frayed electrical wires and cables.
8. When towing, check for proper hook-up of trailer to vehicle and use safety chain.
9. If equipped, release hand brake when towing and secure when parked.
10. Check that the board is down when towing and secure with hold-down fastener.
11. Minimize the time you are between the towing vehicle and trailer. Face traffic or use a lookout when connecting or disconnecting trailer from towing vehicle. A shadow or barrier vehicle shall be used on the shoulder; a shadow vehicle shall be used if in the traveled way.
12. Face traffic or use a lookout while setting cones for PCMS or FAS. A shadow or barrier vehicle shall be used on the shoulder; a shadow vehicle shall be used if in the traveled way.
13. Keep fingers out of pinch points when raising and lowering flashing arrow sign and changeable message sign and when connecting or disconnecting from towing vehicle's pintle hook.
14. Avoid placing PCMS or FAS in gore area if at all possible. If you must place a PCMS or FAS in a gore area, you shall use a shadow or barrier vehicle and a lookout (See Maintenance Manual Chapter 8 Section 8.14, 8.14.01).
15. Avoid sharp turns when towing a trailer; trailer could overturn.

Revised 8/10/2020

Code of Safe Operating Practices

EQUIPMENT TRANSPORT TRAILER

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Back up to trailer with the assistance of another person when possible.
3. After trailer is secured to truck, raise trailer stand and lock it in the up position.
4. Check for wear or damage to the following while securing trailer to truck:
 - a. Hitch connection.
 - b. Safety chains.
 - c. Electrical lines.
 - d. Air lines.
 - Be sure there are rubber washers in air-lines and glad hands.
5. After the trailer is secured to the truck, and air-lines, electrical lines and safety chains are secured, switch air lever in the cab of truck. When proper air pressure is obtained, check air-lines for leaks.
6. Check trailer brakes, release brakes in cab and move truck and trailer and apply trailer brakes.
7. Never load or unload trailer unless hooked to a truck.
8. Check both winch cables for damage or wear.
9. Never use small winch cable for pulling load on the trailer. Always use the large cable winch for pulling loads on the trailer.
10. Never use small cable winch to lower the bed of trailer while bed is up and loaded.
11. Drive equipment on trailer slowly to avoid damage when trailer bed tilts to down position.
12. Know the weight of your load. Do not overload your vehicle.
13. After loading equipment, lock bed in down position.
14. Use loading ramps when applicable.
15. Secure articulator lock on loader and grader.
16. Be sure load is properly secured with chains, cables, ropes, etc. Use META guidelines for proper securing requirements.
17. Always check the height of the load before transporting equipment.
18. Pull trailer with a truck suitable to handle the weight of the load.

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Code of Safe Operating Practices

EQUIPMENT TRANSPORT TRAILER (Cont'd)

19. The weight of the load should be centered according to the manufacturer's recommendation; 10% to 20% is the maximum weight allowed on the hitch.
20. After parking trailer, drain the air tanks, if equipped with spring brake chambers.
21. When towing trailer, observe trailer and adjust speed to weight of load and road conditions.
22. Caution should be exercised when transporting equipment with a high center of gravity.

Code of Safe Operating Practices

SKID STEER, TRACTOR/LOADER

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual and always follow manufacturer's instructions.
2. Underground Service Alert (USA) notification may be required, see Appendix DD.
3. Never leave the machine unattended with the engine running.
4. Do not leave attachments in the raised position when it is not in use. Always lower to the ground.
5. Travel slowly when moving over rough or uneven terrain.
6. Never allow anyone to work under raised attachments without proper safeguards in place and secured.
7. Never drive too close to the edge of a ditch or excavation.
8. Watch for overhead wires and other hazards.
9. Reduce speed when turning. Drive/operate at speeds slow enough to ensure your safety, especially over rough terrain and on slopes.
10. Never attempt to start or operate the equipment except from the operator's seat.
11. Do not oil, grease, lube or adjust the equipment while it is in motion.
12. Operator must always wear lap/seat belt.
13. Never bypass any safety device.
14. Equipment must have an operating back-up alarm.
15. Follow manufacturer's instructions when using and/or changing attachments.

Revised 5/5/2020

Code of Safe Operating Practices

ASPHALT PAVER

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Do not operate without proper training.
3. Pre-op before using----i.e. hoses, air filter, coolant, oils, leaks, cables, etc.
4. A 5-pound BC fire extinguisher shall be available at all times.
5. Check radiator for debris or being clogged with oil.
6. Check tracks for wear, tension, and loose hardware. If tire paver, check tires for cracks, correct inflation, and wear.
7. Check frame for cracks and broken welds.
8. Check screed for wear, any loose hardware and broken bolts.
9. Check operator's stations for garbage and tools that could become a tripping hazard.
10. Never leave heaters burning while unattended or while in transit.
11. Keep hands and tools away from augers when in operation.
12. ONE PERSON ONLY shall direct truck drivers backing into or leaving paver.
13. Do not at any time work between haul truck and paver.
14. Do not make repairs or attempt to remove parts unless you are qualified and have read the manufacturer's instructions.
15. When work is completed thoroughly clean machine especially hopper, flight chains, augers, screed, and remove electronics.
16. Keep all parts as clean as possible, especially the walking platform at rear of paver. The use of proper cleaning agents imperative.
17. Always wear proper apparel; i.e.: hardhat, gloves, safety glasses, ANSI compliant vest. 100% cotton coveralls are required when working with hot plant mix.

Revised 6/16/2015

Code of Safe Operating Practices

SPREADER, CHIP

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Follow factory instructions when installing or removing the spreader hopper. Avoid pinch points and make sure chains and hooks are properly positioned.
3. Deadhead spreader with hopper empty or no more than 1/4 full.
4. Two operators shall be used to operate spreader.
5. Operator only shall ride on the spreader when deadheading. Use seatbelt.
6. Material feed belts should be checked for centering, adjustment and condition.
7. Check for proper function of all electrical switches and hydraulic valves prior to receiving first load of material.
8. Coordination between spreader operators and truck drivers is essential. A pre-job discussion will increase efficiency and reduce accident potential. One person shall be designated to direct truck drivers.
9. Caution shall be used when starting and stopping on grades.
10. Keep ground personnel clear of spreader when in operation.
11. Do not ride on front of material hopper while spreader is in motion.
12. Shut off engine and set brake when spreader is not in use.
13. Do not jump off spreader. Use steps and handrails when mounting or dismounting spreader.
14. Do not mount or dismount spreader while in motion.
15. Use caution when installing or removing spreader hopper. Properly secure load. Avoid pinch points.
16. Safety rails shall be 42 inches high with mid-rail and tow-board.
17. Chain on safety rails shall be in place during operation.
18. Load and tie the machine down properly.

Code of Safe Operating Practices

MUDJACK MACHINE

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Position equipment to protect workers on foot.
3. Secure materials before traveling.
4. Wash skin which contacts materials. Skin barrier cream can be used.
5. High-pressure hoses should not be kinked. Check hose fittings for proper connection.
6. Operator should never leave machine while pumping is in progress.
7. Operator must coordinate work with ground crew. Only nozzle operator will direct the pump operator when to start the pump.
8. Make sure all hoses and nozzles are in good condition.
9. Do not stand over hoses or plugged holes.
10. Watch for tripping/slipping hazards in work area.
11. Protect from blow when removing nozzle from pressurized holes.
12. Use proper lifting procedures, especially when moving hose and lifting bagged material.
13. Clean machine properly and thoroughly at end of shift (or more often if needed).
14. Medical surveillance is required to be provided by the employer for any employee required to wear a respirator for more than 30 days a year when exposed to respirable silica dust. Incorporate the following controls to reduce/eliminate the amount of exposure to dust created during the activity:
 - a. Engineering Controls: Use equipment equipped with vacuum and/or water application capabilities.
 - b. Administrative Controls: Rotate personnel to reduce amount of time required to wear a respirator.
 - c. Respiratory Control: Require respiratory protection with an assigned protection factor of 10 (APF10) when performed outdoors for more than four (4) hours.

Revised 5/23/2018

Code of Safe Operating Practices

CHIPPER

SAFE PRACTICE RULES

1. Do not operate a chipper unless you have been trained and qualified to do so.
2. Pre-op equipment including rental equipment. The chipper operator's manual shall be available to workers operating and servicing the chipper.
 - a. Before operating the chipper, all operators shall read and understand the safety information in the operator's manual and the location of all safety devices and decals on the machine. These decals should never be removed, if they are worn or frayed, new decals shall be ordered from your local equipment dealer or your Caltrans mechanic.
 - b. Always follow the manufacturer's startup and shut down procedures.
 - c. Before operating the chipper, the emergency safety shutdown mechanism shall be tested. An actual shutdown test shall be made by the operator with engine running at idle or just above as part of daily pre-operation check.
3. Operators must use standard personal protective equipment including hearing protection, long hair should be tucked away, clothing should be close fitting and should be kept tucked in. Respiratory protection is recommended. Workers not involved in the chipping operation shall not approach the chipper without personal protective equipment.
4. Gauntlet-type gloves shall not be worn by a chipper operator. Gloves should fit loose so if they snag on a branch being chipped they can come off easily.
5. The wearing of cell phones and jewelry is prohibited. Jewelry includes, but is not limited to, rings, watches, neck chains and key chains on belts.
6. Before any chipper is towed, the hitch, safety chain and electrical connection shall be properly attached. An inspection of the emergency braking system shall be performed. No one shall ride on any part of the chipper.
7. A chipper with a safety control bar simply controls the flow of hydraulic oil to the motor that drives the chipper's feed wheel.
 - a. The safety control bar has three positions. It is pulled to turn the feed wheel forward and pushed to reverse the feed wheel. Between forward and reverse is the neutral position. It is vital that operators know and understand its function.
 - b. Before starting the engine, the safety control bar should be placed in the neutral position.
8. A chipper shall never be operated without proper locking pins and safety guards in place.

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Code of Safe Operating Practices

CHIPPER (Cont'd)

9. The chipper ignition shall be locked and the key removed whenever the unit is left unattended or being serviced.
10. Whenever working on the chippers disc/drum, always use the chipper lock pin to secure the disc/drum. Safety cover or guard shall be placed on rotor knives before adjustment or blade change. Never attempt to turn rotor disk/drum with hands, use a push-stick. Cutting bar and blades shall be kept sharp, properly adjusted and otherwise maintained in accordance with the manufacturer's recommendations.
11. Be constantly aware of people and obstacles in your work area while operating the machine. All workers shall be kept clear of the exhaust chute when the chipper is running.
12. Brush chippers shall be fed from the side of the feed table. Brush and limbs should always be fed butt end first. When placing the material into the chipper always use a path of motion that will allow you to quickly turn your face away and keep moving. Keep the working area clear of limbs and debris. Tripping or entanglement can allow the operator to be dragged into the chipper causing injury or death.
13. Workers shall never under any circumstances, place their hands or feet inside the in-feed chute while the machine is running. Never break the plane of the in-feed chute with your hands, and never attempt to kick brush in with your feet.
14. You should never feed into the chipper the handfuls of twigs, leaves and other material that has been raked or swept. There is no way to get this material into the chipper without violating safety rules. This material should be placed in the chip truck or chip pile directly. Twigs, leaves and other material may contain rocks, metal or other items that may cause damage to the chipper.
15. If a chipper is not hitched to a vehicle, the chipper should be set up on level ground, the tongue should be blocked, wheel chocks shall be placed under both wheels to keep the chipper from moving and set the emergency brake if equipped. Do not operate the unit unless hitched to a tow vehicle or equipped with a rear support leg.
16. To prevent fires keep the engine compartment, exhaust system, battery, hydraulic lines, fuel tank, and operator's station clean of accumulated trash, grease, and debris. Have a fire extinguisher and a first aid kit available at the work site.

Revised 5/21/2015

Code of Safe Operating Practices

STUMP CUTTER

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Review equipment operation portion of Operators Manual.
3. The Operator's Manual shall be available to workers operating or servicing the cutter.
4. Check daily for loose or worn teeth, hoses, or belts.
5. Familiarize yourself with the operation of cutter and the shut down procedure before using.
6. Review work site and clear all debris away from stumps (rocks, bottles, metal, etc.).
7. Before starting cutter, make sure all safety guards are in place.
8. Wear hard hat, ANSI compliant garment and gloves. Use face shield over safety glasses to protect against flying debris. Hearing protection is required. Respiratory protection may be required when working under dusty conditions.
9. An additional person should be used as necessary to keep spectators and others from approaching the work area and being struck by debris.
10. Avoid forcing cutting wheel into stump.
11. After shutting down stump cutter do not approach cutting wheel until it completely stops turning.
12. Check cutting teeth before cutting next stump.
13. Locate underground facilities prior to cutting stumps. Underground Service Alert (USA) notification is required, see Appendix DD.

Revised 5/5/2020

Code of Safe Operating Practices

CHEMICAL SPRAY, TRUCK, TRAILER OR SKID MOUNTED

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Check connections for leaks.
3. Check for kinked or frayed hoses. Do not use damaged hoses.
4. Check packing glands on agitator shafts for leaks.
5. Avoid splashing, do not overfill tank.
6. On trailer mount, check frame for cracks and loose bolts.
7. Check for proper hook-up of trailer to vehicle and use safety chain--check before leaving yard.
8. Chemical containers including spray rigs must be labeled.
9. Safety shut-off valves shall be installed on all outlets.
10. Test pump and system and calibrate before adding chemical.

Code of Safe Operating Practices

CHEMICAL SPRAY BOOM

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Properly secure boom while not in use.
3. Watch for side clearance and conflict with fixed or moving objects while using or adjusting boom.
4. Check packing glands on agitator shafts for leaks.
5. Avoid splashing do not overfill tank.
6. On trailer mount, check frame for cracks and loose bolts.
7. Check for proper hook-up of trailer to vehicle and use safety chain--check before leaving yard.
8. Chemical containers including spray rigs must be labeled.
9. Safety shut-off valves shall be installed on all outlets.
10. Test pump and system and calibrate before adding chemical.

Code of Safe Operating Practices

MIST BLOWER, FERTILIZER SPREADER

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Keep body away from moving parts.
3. Keep personnel clear of chute while blowing fertilizer.
4. Have chute pointed in the right direction before starting the spreader.
5. Be sure all safety guards are in place and nuts and bolts are tight.
6. Be sure bed of truck is kept clean to avoid slipping.
7. Hearing protection is mandatory while using this unit.
8. Safety rails on the truck bed shall be used.
9. Be sure truck is equipped with a functional ground strap.

Code of Safe Operating Practices

HIGH PRESSURE CULVERT CLEANER

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Check to see if tank is full of water.
3. Make visual inspection of hose first thing in morning and last thing at night. Minor scrapes should be wrapped with tape provided. Check for full water flow before pressurizing hose. Hose with worn or damaged areas showing cord should be replaced.
4. Do not exceed manufacturer's recommended engine RPM or water pressure.
5. Wear face shields, hard hat, and rubber gloves when operating jet rodder.
6. Stay clear, of culvert or pipe ends, when cleaning as rocks and debris come out at high speed.
7. Start auxiliary engine and obtain proper operating temperature prior to using.
8. Check all accessories to be sure they are secure and properly tied down.
9. Make sure all clamps and pipes are properly fitted and tight.
10. Caution must be exercised to keep from running over hoses.
11. Use caution with reel operation, keeping it under your control at all times.
12. Wind hose on reel smoothly, as kinks or a loose hose can result in hose damage and will make the operation more difficult.
13. Never run out of water. Pump will be damaged if run dry.

Code of Safe Operating Practices

IN BED SALT AND SAND SPREADER

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Keep hands and body away from all moving parts and be aware of pinch points.
3. Never make any repairs on the unit while it is in operation.
4. All personnel must keep clear of spread area.
5. Depressurize all lines before disconnecting.
6. Do not exceed weight limitations.
7. Properly secure to truck.
8. Shut down engine and relieve all pressure from hydraulics before attempting to remove debris from any moving part.

Code of Safe Operating Practices

SNOW POLE DRIVER

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Underground Service Alert (USA) notification is required, see Appendix DD.
3. Be aware of possible pinch points.
4. Check for proper hose connections, kinked or frayed hoses.
5. Watch for swing and vertical clearance when positioning driving derrick.
6. Use caution when inserting pole into driver because machine has strong magnet.
7. Pole driver is very noisy and walkie-talkies could be used for improving communications between driver and employee on back of truck.
8. Don't insert pole until truck comes to a complete stop.
9. Continually check for loose bolts.
10. Hearing protection is required.

Revised 5/5/2020

Code of Safe Operating Practices

GUARDRAIL STRAIGHTENER

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Persons handling rails must wear gloves. Watch for sharp burrs.
3. Two persons must be assigned to lift rails for feeding into machine. Watch for pinch points. Keep clear of ends during straightening.
4. Machine must be thoroughly inspected before operating.
5. Inspection mirrors must be properly adjusted when straightening rails.
6. Machine should be placed on relatively level terrain.
7. Severely damaged rails should not be run through machine.
8. Caution should be exercised when towing straightener; allow additional stopping distance.
9. Make sure brake control is connected to towing vehicle, and safety chains are hooked.
10. Use jack to raise and lower machine to proper position for hook-ups.
11. Don't operate machine if observers are within area of potential harm.
12. Keep those not involved in the work clear of the machine.

Code of Safe Operating Practices

TRENCHING MACHINE

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Before digging, review Appendix D, Trenching and Excavation Safety Guide, and Appendix DD Underground Service Alert (USA).
3. Have all persons stand clear when machine is started and operating.
4. Clear area to be trenched.
5. Locate and mark any underground utilities or water lines before trenching.
6. Keep all persons out of path of machine when trenching.
7. Secure machine properly before transporting.
8. Unload machine at a location protected from traffic exposure.
9. Obtain assistance when necessary to physically handle machine.
10. Don't overwork small machine on large jobs; obtain proper size machine for respective jobs.
11. Before digging, review Appendix D, Trench and Excavation Safety Guidelines.

Revised 5/5/2020

Code of Safe Operating Practices

HEDGE TRIMMER

SAFE PRACTICE RULES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks. Be familiar with the operator's manual.
2. Use standard personal protective equipment. Gloves and long-sleeved shirts, adequate footwear, snug-fitting clothing, and cut-resistant leg protection that meets or exceeds ASTM F1414 and ASTM F1897 (chaps, leggings, pants, etc.). Hearing protection required.
3. Always use the following precautions when handling fuel and refueling the trimmers:
 - a. Store fuel in approved container.
 - b. Do not smoke while handling fuel.
 - c. Always stop engine of the trimmer to refuel.
 - d. Beware of static electricity and sparks between trimmer and fuel cans. Avoid spilling fuel and oil.
 - e. Do not remove fuel cap when engine is running.
 - f. Move trimmer at least 10 feet away from the fueling point before starting trimmer's engine.
4. Always use properly mixed fuel in trimmers.
5. Before starting engine, make sure trimmer's head is not contacting any object.
6. Do not allow other persons to be near the trimmer when starting or cutting.
7. Always hold trimmer firmly with both hands when you are operating.
8. Keep all parts of the body away from the trimmer blades when it is being operated.
9. Do not operate a trimmer that is damaged or improperly assembled.
10. All trimmers shall be equipped with a muffler and a spark arrestor.
11. Operate trimmers only in well ventilated areas.
12. Be aware of hidden objects when trimming.
13. Always keep the trimmer's handles clean of fuel and oils.
14. Do not wear jewelry when operating the trimmer.
15. Use caution when operating trimmer on rocky/uneven terrain. Watch for tripping hazards.
16. When possible, keep the trimmer in the upright position to keep from spilling fuel.
17. Operate the trimmer at full throttle when cutting hedges/light brush. Use a slow swinging motion as this will maximize the trimmer service life and avoid premature clutch failure.

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Code of Safe Operating Practices

HEDGE TRIMMER (Cont'd)

18. Do not allow blade or teeth to make contact with concrete, metal, chain link fence, cables, rocks, bottles or other objects.
19. Clean air element, also remove and clean the spark plug after ten hours of use, or sooner if recommended by the manufacturer.
20. Grease the trimmer head after every fifty hours of use, or sooner if recommended by the manufacturer.
21. Do not attempt to dislodge wedged objects with your hands.
22. Keep hands and fingers clear of pinch points.
23. Cutting teeth and wear parts are sharp, wear gloves while handling blades, watch for metal splinters and sharp edges.
24. Workers on foot shall stay out of the way of operating equipment until the area is safe and clear for hand work.
25. Allow ample space for each employee to work safely. Avoid “bunching of workers”.
26. The use of cut-resistant leg protection that meets or exceeds ASTM F1414 and ASTM F1897 (chaps, leggings, pants, etc.) is required for all ground level hedge trimming operations (not required for pole hedge trimmers). Brush pullers who are pulling vegetation out of the operator’s path shall also wear cut-resistant leg protection.
27. Only properly trained employees may operate the hedge trimmer.
28. Special program persons are not allowed to operate power equipment.
29. If it is possible for a hot muffler to come into contact with employee’s high visibility garment, then 100% cotton coveralls shall be worn with a high visibility vest.

Revised 5/26/2022

Code of Safe Operating Practices

GRASS TRIMMER

SAFE PRACTICE RULES

1. Pre-op equipment, including rental equipment. Be familiar with the operator's manual.
2. Use standard PPE, adequate footwear and hearing protection devices. A face shield is recommended. If it is possible for the hot muffler to come into contact with the employee's high visibility garment, then 100% cotton coveralls shall be worn.
3. Always use the following precautions when handling fuel and refueling the trimmers:
 - a. Store fuel in approved container.
 - b. Do not smoke while handling fuel.
 - c. Always stop engine of the trimmer to re-fuel.
 - d. Beware of static electricity and sparks between trimmer and fuel cans.
 - e. Avoid spilling fuel and oil.
 - f. Do not remove fuel cap when engine is running.
 - g. Move trimmer at least **10 feet (3 meters)** away from the fueling point before starting trimmers engine.
4. Always use properly mixed fuel in trimmers.
5. Before starting engine, make sure trimmer's head is not contacting any object.
6. Do not allow other persons to be near the trimmer when starting or cutting.
7. Always hold trimmer firmly with both hands when you are operating.
8. Keep all parts of the body away from the trimmer when the trimmer is being operated.
9. Do not operate a trimmer that is damaged or improperly assembled.
10. All trimmers shall be equipped with a muffler and a spark arrestor.
11. Operate trimmers only in well ventilated areas.
12. Be aware of hidden objects when trimming.
13. Always keep the trimmer's handles clean of fuel and oils.
14. Do not wear jewelry when operating the trimmer (rings, watches, neck chains, or key chains).
15. Use caution when operating the trimmer on rocky or uneven terrain.
16. Keep the trimmer in the upright position to keep from spilling fuel.
17. Operate the trimmer at full throttle when cutting grass. Use a slow swinging motion and cut with the tip of the trimmer line (this will maximize the trimmer line service life and avoid premature clutch failure).
18. Do not bang or bounce the trimmer head on the ground when operating the trimmer.
19. Clean air element every ten hours of use also remove and clean spark plug.
20. Every fifty hours of use grease the trimmer head.

Revised 6/1/2012

Code of Safe Operating Practices

WALK BEHIND GRASS/BRUSH MOWER

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with the operator's manual.
2. Use standard PPE, adequate footwear, eye protection, hardhat and hearing protection devices are required. A face shield is recommended. If it is possible for the HOT Muffler to come into contact with the employee's high visibility garment, then 100% cotton coveralls shall be worn under the garment.
3. Always use the following precautions when handling fuel and refueling mowers:
 - a. Always store fuel in approved containers.
 - b. Do not smoke while re-fueling.
 - c. Always stop the engine for re-fueling. Do not remove fuel cap with engine running.
 - d. Beware of static electricity and sparks between mowers and fuel cans.
 - e. Avoid spilling fuel when re-fueling and use a PIGMAT under mower being re-fueled.
 - f. Move the mower at least 10 feet (3 meters) away from the fueling point before restarting the brush mower.
4. Always use the proper fuel in mowers.
5. Before starting engine, make sure the mower's head (including rotary, flail and sickle) is not contacting any object.
6. Do not allow other persons to be near the mower when starting or mowing.
7. Make sure mower is in neutral before starting and disengage mower when not cutting.
8. Always hold mower firmly with both hands when you are operating mower.
9. Keep all parts of your body away from the mower when mower is being operated.
10. Do not operate a mower that is damaged or in need of repair. Do not make any adjustments or attempt to clean if the mower's engine is running.
11. All mowers shall be equipped with a muffler and a spark arrestor.
12. Always carry fire suppression equipment.
13. Operate mower in well ventilated areas.
14. Be aware of hidden objects when mowing. Walk the area that is going to be mowed first to assess the hazards when possible.
15. Always keep the mower's handles clean of fuels and oils. Do not tamper with or disable any safety devices or mechanisms.
16. Do not wear jewelry when operating mowers (rings, watches, necklaces, key chains).

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Code of Safe Operating Practices

WALK BEHIND GRASS/BRUSH MOWER (Cont'd)

17. Use caution when operating mower on rocky and un-even terrain.
18. Always make sure that guards, belts, chains, covers and cutters (including rotary, flail, and sickle) are in good operating condition before use.
19. Warning decals need to be maintained and legible.

New 7/28/2022

Code of Safe Operating Practices

CHAINSAW

SAFE PRACTICE RULES

1. Do not operate a chainsaw unless you have been trained and qualified to do so.
2. Never operate a chainsaw alone, make sure someone can assist if medical treatment is needed.
3. Pre-op equipment including rental equipment. Be familiar with operator's manual. Refer to the associated checklist.
4. Use standard PPE, adequate footwear, snug fitting clothing. The use of cut-resistant leg protection that meets or exceeds ASTM F1414 and ASTM F1897 (chaps, leggings, pants, etc.) is required for all ground operations. Hearing protection is required. Respiratory protection is recommended.
5. The wearing of cell phones, pagers, and jewelry is prohibited. Jewelry includes, but is not limited to, rings, watches, neck chains and key chains on belts.
6. If it is possible for a hot muffler to come into contact with employee's high visibility garment, then 100% cotton coveralls shall be worn with a high visibility vest.
7. Always use the following precautions when handling fuel and refueling the chainsaw:
 - a. Always store gasoline in an approved container.
 - b. Do not smoke while handling fuel.
 - c. Always stop the engine and let engine cool prior to refueling the tank.
 - d. Do not remove fuel tank cap when engine is running.
 - e. Beware of static electricity and sparks between chainsaw and fuel cans (metal or plastic).
 - f. Fueling should always be done on secondary containment. Avoid spilling fuel or oil. Spilled fuel or oil shall be wiped up immediately and disposed of properly.
 - g. Move the chainsaw at least 10 feet from the fueling point before starting the engine.
 - h. Keep the handles dry, clean and free of oil or fuel mixtures.
8. Before you start the engine, make sure the saw chain is not contacting any object.
9. Never start the chainsaw until you are at the location where you intend to use the saw.
10. Workers shall maintain 10' clearance from the chainsaw operator. Keep bystanders out of the work area.
11. Never start cutting until you have a clear work area and secure footing.
12. Always hold the chainsaw firmly with both hands when the engine is running. Use a firm grip, with thumb and fingers, encircling the chainsaw handles.
13. Keep all parts of the body away from the saw chain bar when the engine is running.

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Code of Safe Operating Practices

CHAINSAW (Cont'd)

14. Do not operate a chainsaw that is damaged, improperly adjusted or not completely and securely assembled. Be sure that the saw chain stops moving when the throttle control trigger is released.
15. Do not cut with the chainsaw above shoulder level to guard against kickback and to help prevent back injuries.
16. Always shut off the engine before setting down a saw.
17. Use extreme caution when cutting small size brush and saplings because slender material may catch the chainsaw and be whipped toward you or pull you off balance.
18. Use extreme caution when cutting brush adjacent to a chain link fence. If the chainsaw comes into contact with fence it can come back at you. See "kickback" below.
19. When cutting a limb that is under tension, be alert for spring back so that you will not be struck when the tension in the wood fibers are released.
20. All chainsaws shall be equipped with a spark arrestor.
21. Operate the chainsaw only in well ventilated areas.
22. Do not operate if fatigued.

KICKBACK

Kickback may occur when the nose or tip of the guide bar touches an object, or when the wood closes in and pinches the chain saw in the cut. Tip contact in some cases may cause a lightning-fast reverse reaction, kicking the guide bar up and back toward the operator. Pinching the saw chain along the top of the guide bar may push the guide bar rapidly back toward the operator. Either of these reactions may cause you to lose control of the saw, which could result in serious personal injury. Only use replacement bars and chains specified by the manufacturer.

Follow the manufacturer's instruction for sharpening and maintenance of the chain saw.

Revised 5/26/2022

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Code of Safe Operating Practices

CHAINSAW (Cont'd)

Chainsaw Daily Maintenance Checklist

Name of Inspector: _____ Date of Inspection: _____

Make: _____ Model: _____

Pre-Start Checklist:

- 1. Clean the outside of the machine. Check that nuts and screws are tight. ☐
- 2. Check air filter and clean if necessary. ☐
- 3. Check that the chain brake operates and the chain catcher is undamaged. ☐
- 4. Remove bar. ☐
- 5. Check and clean the bar groove and oil hole in the bar. ☐
- 6. If applicable, grease the sprocket tip. ☐
- 7. Check the drive sprocket for excessive wear and report if necessary. ☐
- 8. Check the saw chain for damage or wear. ☐
- 9. Refit bar upside down. ☐
- 10. Refit and tension chain. ☐
- 11. Sharpen or replace chain as required. ☐
- 12. Fill fuel and oil tanks ensuring no leaks are evident. ☐
- 13. Report any faults found. **Tag equipment out if necessary.** ☐

Operational Checks:

- 1. Check that the stop switch works correctly. ☐
- 2. Check oil flow prior to first cut. ☐
- 3. Constantly monitor chain sharpness and tension. ☐
- 4. Sharpen and tension as needed. ☐

Post-Operative Maintenance:

- 1. Clean and inspect machine. ☐
- 2. Remove guide bar and chain and clean area around clutch drum. ☐
- 3. Refit bar and chain and correctly tension. ☐
- 4. Clean work area and store Saw in a clean, dry environment. ☐
- 5. Report any faults found. **Tag equipment out if necessary.** ☐

Code of Safe Operating Practices

HAND POWER EDGER

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Use standard PPE. Operator should wear face shield. Hearing protection is required.
3. Keep feet and hands clear of blade while starting and operating.
4. Never leave unattended while running.
5. Never work around the blade without disconnecting spark plug wire.
6. Never refuel while engine is running.
7. Always check area for rocks, bottles or other objects that could be thrown.
8. Do not operate without safety devices.
9. Gas should always be stored in a clearly marked container designated for such a purpose.
10. Do not operate while others are in close proximity.

Code of Safe Operating Practices

AUGER, HAND HELD POWER

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Inspect auger for loose nuts and bolts and damaged bits (bits shall be sharp).
3. Locate underground utilities prior to digging. Underground Service Alert (USA) notification is required, see Appendix DD.
4. Do not apply direct pressure to auger. Let the auger go down by itself.
5. Use a minimum of two people to operate the auger, keep a firm grip.
6. Be sure of footing and watch for kickback.
7. Allow engine to cool before refueling.

Revised 5/5/2020

Code of Safe Operating Practices

ANGLE GRINDERS

HAZARD REVIEW

Electrical Shock
Cuts & Abrasions
Eye and face Injuries
Burns
Hearing loss
Fires
Dust & Fumes

SAFE OPERATING PROCEDURES

1. Review safe practices rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Ensure you have a suitable, safe work area free of flammable material.
3. Check that the disc, guards, and handle are secure.
4. Ensure that the safety guard covers half the disc. Adjust if necessary.
5. Examine cord for damages; do not use if cord is frayed or cut.
6. Ensure all adjustments have been made prior to plugging into outlet.
7. Do not use a disc that has been dropped, damaged or become wet.
8. Ensure your work is secured and supported.
9. Keep fingers, hands, and clothing clear of the disc.
10. Employees shall wear a face shield, safety glasses, and ear protection.
11. Employees shall wear 100% cotton coveralls and leather gloves.
12. Only the operator shall be permitted near the grinder when in use.
13. Be aware of hot sparks. Hold the grinder so that sparks fly away from you and others.
14. Allow the grinder to reach operating speed, then apply load gradually. Maintain a constant pace to avoid uneven surfaces.
15. Maintain complete control. Always operate with both hands. Keep a proper and steady footing.
16. Do not apply excessive force and avoid prolonged use.

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Code of Safe Operating Practices

ANGLE GRINDERS (Cont'd)

- 17. Violent kickback can occur, particularly when cutting.
- 18. Leather gloves must be worn when handling hot metal.
- 19. Turn off and unplug after use. Do not place the grinder down until the disc has stopped rotating.

New 12/28/2021

Code of Safe Operating Practices

CONCRETE SAW

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Check blade for flaws do not use blades with chips or cracks.
3. Use correct amount of water to keep blade cool while operating saw.
4. Check all water hoses for cuts and leaks.
5. Keep all safety guards in place while operating.
6. Check blade nuts for tightness.
7. Do not force or bind blade in slot being sawed.
8. Do not raise protective shield from around blade when operating saw.
9. Do not use blade with chips or cracks.
10. Use standard PPE. Hearing protection is required.
11. Tools/equipment used to cut, jackhammer, grind, drill or sweep silica containing material shall be equipped with a water delivery system that continuously feeds water at flow rates sufficient to minimize release of visible dust. Follow Storm Water BMP's.
12. The following activities/equipment require respiratory protection with an assigned protection factor of 10 (APF10) when performed outdoors for more than four (4) hours:
 - a. Using a handheld power saw.
 - b. Jackhammers and handheld power chipping tools.
13. Medical surveillance is required to be provided by the employer for any employee required to wear a respirator for more than 30 days a year when exposed to respirable silica dust. Incorporate the following controls to reduce/eliminate the amount of exposure to dust created during the activity:
 - a. Engineering Controls: Use equipment equipped with vacuum and/or water application capabilities.
 - b. Administrative Controls: Rotate personnel to reduce amount of time required to wear a respirator.
 - c. Respiratory Control: Require respiratory protection with an assigned protection factor of 10 (APF10) when performed outdoors for more than four (4) hours.

Revised 5/23/2018

Code of Safe Operating Practices

MIXER (CONCRETE)

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Keep clear of pinch points.
3. Use proper lifting procedures.
4. Keep mixer and tools clean.
5. Ensure that chutes are properly placed before dumping.
6. Secure mixer and attachments before moving to new locations.
7. Do not use frayed or worn power cords on electric mixers.
8. Allow ample space for each employee to work safely.
9. Never reach into drum while mixer is running.
10. Medical surveillance is required to be provided by the employer for any employee required to wear a respirator for more than 30 days a year when exposed to respirable silica dust. Incorporate the following controls to reduce/eliminate the amount of exposure to dust created during the activity:
 - a. Engineering Controls: Use equipment equipped with vacuum and/or water application capabilities.
 - b. Administrative Controls: Rotate personnel to reduce amount of time required to wear a respirator.
 - c. Respiratory Control: Require respiratory protection with an assigned protection factor of 10 (APF10) when performed outdoors for more than four (4) hours.

Revised 5/23/2018

Code of Safe Operating Practices

AIR TOOLS

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Select tool of right size and type for job.
3. Operating handles must be in off position before opening air valve on compressor.
4. Use hearing, face, hand and foot protection as necessary.
5. Inspect tools periodically for loose nuts and bolts. Inspect steel locking devices for wear and cracks. Do not use defective tools.
6. Inspect all air-lines and connections. Always use safety clips on air connections. Frayed or work air hoses shall not be used.
7. Avoid pinch points.
8. Use proper lifting methods.
9. When drilling concrete slabs, use starter blocks and get help when using long steel. Keep tool bits sharp.

Code of Safe Operating Practices

AIRLESS PAINT SPRAYER

SAFE PRACTICE RULES

1. Read and follow the operator's manual for the particular sprayer you are using.
2. Keep fingers and hands away from spray nozzle. Never direct the spray gun towards any part of your body. Paint could enter your skin, causing serious injury.
3. Do not change nozzle tip without shutting pump off and releasing the pressure. Lock spray gun trigger open.
4. Do not leave sprayer unattended unless it is shut off and the pressure released.
5. Check hoses to ensure that there are no kinks, bends or abrasions. Periodically check hose condition to ensure that ruptures will not occur.
6. When making repairs or replacements, use only high-pressure fittings designed for use with high-pressure sprayers.
7. Do not operate the gun without a tip guard.
8. When cleaning the unit, spray at minimum pressure with nozzle tip removed. Static electricity buildup may result in an explosion if flammable vapors are present.
9. Ensure that all machine guards are in place, if equipped.
10. Do not spray any paint without proper ventilation or respiratory protection.
11. No smoking or open flame within 50 feet of the sprayer when using solvent-based paints.
12. Have at least a 5-pound BC fire extinguisher nearby when using solvent-based paints.
13. Do not check for leaks with your hands. Use a piece of cardboard or wood to detect small leaks; fluid under pressure can enter your skin, causing serious injury.

Code of Safe Operating Practices

SAND BLASTER

SAFE PRACTICE RULES

Main Tank (Reservoir):

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Check all fittings for leaks and alignments.
3. Be careful not to overfill sand reservoir.
4. Make sure all valves are properly opened or closed before activating blaster.
5. Drain water from the separator.
6. Stand clear and avoid looking towards sand reservoir after filling.
7. Keep unauthorized personnel out of immediate sandblast area.
8. Check blasting hoses for rips, tears, soft spots, and any connections. Do not use detective hoses.
9. Check nozzle for wear.
10. Check nozzle shut-off for proper operation prior to sandblasting. Shut-off must be controlled by the operator.
11. Do not run over hose with tires of truck.
12. Avoid dragging hoses.

Positive Pressure Air Hood:

1. Adjust helmet headband and chinstrap to proper size.
2. Make sure hood skirting is fitted down over shoulder and snaps are fastened.
3. The waist belt for helmet air hose should be worn on the outside of skirting so the adjustment knob can be reached.
4. Supervisor shall ensure that supplied air system is operating properly.
5. Hearing and eye protection is required.
6. A positive pressure air hood is required. A cartridge type respirator (HEPA filter) may be used for jobs of less than 2 hours duration.

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Code of Safe Operating Practices

SAND BLASTER (Cont'd)

Hazardous Material Warning:

1. When removing paints from structures by sandblasting be mindful that red lead has been used in many major structural paint jobs and when removed by sand blasting the grit which results is a hazardous material and is extremely hazardous to your health. Removal work will require that workers use special respiratory protection and other protective clothing and equipment (Contact your supervisor and office of employee Safety and Health for correct guidance before doing the work!). Sand blasting grit containing any hazardous materials, shall be containerized for correct storage, pickup, transportation, and, disposal or treatment in a recycling process.
2. The employer shall comply with Title 8 standards, when applicable, such as Section 1530 of the California Code of Regulations (Ventilation), where abrasive blasting is conducted using crystalline silica-containing blasting agents, or where abrasive blasting is conducted on substrates that contain crystalline silica.
3. Medical surveillance is required to be provided by the employer for any employee required to wear a respirator for more than 30 days a year when exposed to respirable silica dust. Incorporate the following controls to reduce/eliminate the amount of exposure to dust created during the activity:
 - a. Engineering Controls: Use equipment equipped with vacuum and/or water application capabilities.
 - b. Administrative Controls: Rotate personnel to reduce amount of time required to wear a respirator.
 - c. Respiratory Control: Require respiratory protection with an assigned protection factor of 10 (APF10) when performed outdoors for more than four (4) hours.

Revised 5/23/2018

Code of Safe Operating Practices

WELDER, OXYGEN AND ACETYLENE

SAFE PRACTICE RULES

Safety in Cutting

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Never use a cutting torch where sparks will be a hazard.
3. If cutting is to be over a wooden floor, sweep the floor clean and wet it down before starting the cutting. Provide a bucket or pan containing water or sand to catch the dripping slag.
4. Keep a fire extinguisher nearby whenever any cutting is done.
5. Whenever possible, perform cutting in wide-open areas, so sparks and slag will not become lodged in confined crevices or cracks.
6. If cutting is to be done near flammable materials and the flammable materials cannot be moved, suitable fire resisting guards or partition screens must be used.
7. In areas where a dirty or gassy atmosphere exists, extra precautions should be taken to avoid explosions resulting from electric sparks or open fire during the cutting or welding operation.
8. For proper eye protection, refer to Title 8 Section 3382 Table EP-1 for specific filter lens requirements.
9. **100% cotton coveralls and leather gloves are required.**
10. Respiratory protection may be required. Do not carry lighters in your pockets.
11. Do not cut in unventilated areas.

Safety in Oxy/Acetylene Welding Cylinders

1. Never move a cylinder by dragging, sliding or rolling it on its side. Keep protective cap in place. Avoid striking it against an object that might create a spark.
2. Never permit grease or oil to come in contact with cylinder valves. Although oxygen is in itself non-flammable, if it is allowed to come into contact with any flammable material, it will quickly aid combustion.
3. Blow out cylinder valves before attaching the regulator.
4. Release regulator screw before opening valve.
5. Open cylinder valve slowly.
6. Cylinders shall not be exposed to open fires or sparks from a torch.

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Code of Safe Operating Practices

WELDER, OXYGEN AND ACETYLENE (Cont'd)

7. Cylinders shall not be allowed to lie in a horizontal position nor should the valve protector cap be used for lifting cylinders.
8. Acetylene valve should not be opened more than one-quarter turn.
9. Do not attempt to repair cylinder valves. If the valves do not function properly, or if they leak, discontinue use and notify the supplier.
10. Oxygen shall never be used as a substitute for compressed air to operate pneumatic tools, blow out pipelines, or dust clothing because a serious accident may result.
11. Cylinders shall be properly secured to prevent them from being knocked over.
12. When operating cylinder valves, always stand to one side and away from the regulator. A defect in the regulator may cause the gas to flow through, shattering the glass.
13. Oxygen and acetylene cylinders must be stored at least 20 feet apart, or separated by a two hour-fire wall.
14. Cylinders shall not be transported unless equipped with safety cap and properly secured.
15. Release pressure on regulators when welding or cutting is completed.
16. **Do not** compress acetylene in a free state of pressure higher than 15 PSI.
17. Light the acetylene gas before opening the oxygen valve on the torch.

Revised 5/23/2018

Code of Safe Operating Practices

WELDER, ELECTRIC

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. A welding machine shall be equipped with a power disconnect switch which is conveniently located at or near the machine so the power can be shut off quickly.
3. Never make repairs to welding equipment unless qualified to do so. The high voltage used for arc welding machines can inflict severe or fatal injuries.
4. Welding machines must be properly grounded. Stray current can cause severe shock when ungrounded parts are touched.
5. The polarity switch shall never be changed when the machine is under a load. Wait until the machine idles and the circuit is open. Otherwise, the contact surface of the switch may be burned and the resulting arcing could cause an injury.
6. Welding cables shall not be overloaded or a machine operated with poor connections.
7. Damp areas should be avoided, and hands and clothing shall be kept dry at all times.
8. Do not strike an arc if someone without proper eye protection is nearby. If other persons are in the work area, a welding screen shall be placed to protect them from the arc welding flash.
9. Suitable spark shields must be used in arc welding.
10. Keep the non-insulated portion of the electrode holder from touching the welding ground when the current is on. This will cause a flash.
11. Keep welding cables dry and free from oil and grease.
12. Do not carry welding cables coiled around the shoulders.
13. Welding hoods shall be inspected before use and comply with ANSI standards.
14. Protective clothing, leathers or long sleeved 100% cotton coveralls shall be worn. Leather gloves are required.
15. Hearing and respiratory protection may be required.
16. Do not weld in unventilated areas.

Revised 6/1/2012

Code of Safe Operating Practices

STEAM CLEANER

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Read instructions for specific machine before use.
3. Check general condition before and after each use.
4. Make sure all valves are properly identified.
5. Inspect hoses, gauges, fittings, water and solution tanks before operating.
6. Make sure cleaning solutions (if used) are properly proportioned and mixed.
7. To avoid overheating, be certain water is on prior to and after applying heat to boiler.
8. Wear proper protective clothing and equipment while using machine. Face shield and gloves are required. Consider use of apron and rubber boots.
9. Do not allow machine to reach excessive temperature or pressure. Check instructions for working temperature and pressure; watch gauges.
10. While machine is on, do not leave steam gun unattended. Secure properly during heat-up and cool down.
11. Water conducts electricity. Keeps wet hands from touching electrical equipment and wear Personal Protective Equipment (PPE) such as rubber gloves and boots.
12. Do not attempt repairs without training.
13. When cleaning is completed, perform housekeeping duties and properly store materials/equipment used.
14. Do not run over hose.
15. Check Safety Data Sheet (SDS) for cleaning agent used. Wear protective clothing as required by SDS. Avoid skin contact.

Code of Safe Operating Practices

WORK BOAT

SAFE PRACTICE RULES

Back boat into water, submerge trailer fenders, disconnect boat from trailer connection.

Before launching boat, check for the following:

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Provide a life jacket in good condition for each occupant.
3. Fire extinguisher.
4. First aid box-check for additional safety items such as boat hooks and paddle.
5. Mooring lines.
6. Portable radio.
7. Brief "first timers" on location of life jackets, fire extinguisher and everything else necessary from safety aspect.
8. Be sure drain plugs are in place.
9. Have sufficient fuel on board for trip.
10. Be sure bowline is attached to boat and secured by some means before backing down launch ramp. Use the backup person to handle this line.
11. Make radio check to maintenance yard when in water.

After launching boat:

1. When fueling, extinguishing all flames, avoid overflow.
2. Check for water leakage from hull or engine.

Boat trailer:

1. Back up to trailer with assistance of another person whenever possible.
2. Check for wear or damage to the following while securing trailer to truck:
 - a. Hitch connection.
 - b. Safety chains.
 - c. Electrical lines.
 - d. Hitch connection on the trailer for boat.
3. Check winch cable for damage and wear.
4. Check winch for locked position before moving trailer when boat is on trailer.

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Code of Safe Operating Practices

WORK BOAT (Cont'd)

5. Check for proper alignment of boat on rollers and V-block of trailer.
6. Check boat wheel bearings for problems.
7. Check that brakes work, if so equipped.
8. Report noisy, loose or unusual movement of wheels to Supervisor.
9. Always have backup person, backup operator.
10. Be sure boat is secure before moving.

Before starting engine:

1. Visual check of hull, deck, cabin, vents, and hatches.
2. Open cabin. Turn on engine room vent.
3. Visual check of cabin interior.
4. Examine life rings and life jackets to be sure there is one for each occupant.
5. Check fire extinguishers and first aid boxes.
6. Check mooring lines (deck hand).
7. Examine bilge for excess water or fuel oil.
8. Examine engine room deck for oil or grease.
9. Examine forward hole for proper stowage of gear.
10. Examine fire pump sea-suction valve and main engine sea-suction valve.
11. Examine rudder posts and propeller shafts, for leaks.
12. Check engine oil and drive oil levels.

After starting engine:

1. Observe gauges. Check radio.
2. Visual check of over-board discharge.
3. Check bilge pump.
4. Have deck hand remove mooring lines.
5. Slowly pull away from dock looking in all directions.
6. Always observe maritime safety "Rules of the Road".

When docking, secure all mooring lines.

NOTE: During storm periods, periodically check mooring lines to be sure the boat is secure.

Code of Safe Operating Practices

SPIDER STAGING

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Check the wire rope for damage or wear each time it is run out.
3. Rig properly to prevent severe pull in. Pull-in will cause extreme pressure contact of the rope against the fair lead resulting in flattening and thus weakening of the wire rope. Flattened wires will give the rope a bright and shiny appearance.
4. Lubricate the wire rope as needed to prevent rust.
5. Keep the wire rope wound properly on the drum.
6. Do not allow the wire rope to kink.
7. Do not bend the wire rope over any sharp edges.
8. Do not use sharp, snap on tools (vise grips) on the wire rope.
9. Watch the wire rope for broken wires.
10. Keep clear of all power lines.
11. Do not over-lead (1,000lb. load capacity), or over-extend. The staging has at least 125 feet of 5/16-inch wire rope.
12. Wear safety belts at all times when in the spider.
13. Use a safety wire rope to hold the spider, in case the main hoist line should break.
14. Check the oil level in the hoist--fill with Mobil-Almo oil #1 or equal.
15. Check and clean the oil filter at least once a day.
16. Check worm-gear lube level--use Mobil 600W cylinder oil.
17. Keep the floor of the spider staging clean.
18. Replace the hoist wire rope once a year, or more often if need be.
19. Do not hook the safety belt lanyard to the spider.
20. Hook the safety belt lanyard to the personnel safety- -lifeline.
21. Report any unusual noise, vibration or malfunction immediately.

Code of Safe Operating Practices

HYDROSEEDER

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Be sure all safety guards are in place and secure.
3. Only trained employees shall be authorized to operate this equipment.
4. Check packing glands/bearings on agitator shafts for leaks.
5. Ensure the safety/warning horn system is operative. If horn sounds during operation, shut down the machine immediately and troubleshoot the problem.
6. Communication between the hydroseeder operator and support vehicle operator is required at all times. Discuss, arrange and agree upon signals beforehand, including an "Emergency All Stop Signal" (communication may include; hand signals, voice, warning horn, two-way hand-held radios, etc.)
7. Hearing and eye protection shall be worn while equipment is in operation.
8. Use steps and handrails when mounting and dismounting. Use the "three-point method".
9. Do not mount, dismount, or load hydroseeder while in motion.
10. Always make sure the one-way gate is closed when working from the platform.
11. If operator is riding on machine, speed shall not exceed 5 MPH.
12. Do not open safety grate in material tank while agitator is turning.
13. Use proper lifting techniques when loading heavy materials.
14. Use caution if using cutters or knives to open bagged materials.
15. When loading, do not overfill tank. Avoid dust and splashing.
16. Keep platforms clean to avoid slipping.
17. Test pump and system with clean water before adding hydroseeding materials; either the re-circulation valve or the discharge spray gun must be open to test.
18. Never engage the clutch when the re-circulation and discharge valves are both in the closed position. Overheating may occur risking personal injury and/or equipment damage.
19. Watch for overhead obstructions. Do not spray power lines, transformers, or other electrical sources.
20. Keep personnel clear of spray gun and target area while spraying material. Point spray gun at target before engaging. Do not spray over ground personnel.

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Code of Safe Operating Practices

HYDROSEEDER (Cont'd)

21. Properly secure hydroseeder discharge spray gun before leaving platform.
22. Exercise caution while utilizing powered hose reel to avoid entanglement with hair, clothing, etc.
23. Rinse out hydroseeder at the end of the shift.
24. Lock out equipment before doing any maintenance or repairs.
25. Follow good personal hygiene practices. Wash hands and face before eating, drinking, using tobacco, or using the restroom.

Code of Safe Operating Practices

STRAW BLOWER

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Read the operator manual and safety decals. A copy of the operator manual should be with the machine.
2. Check that all safety guards and switches are in-place, secure, and working.
3. All employees operating or feeding this machine must be trained prior to working.
4. Communication between the truck driver, loader, and blower operator is required. Discuss the procedures before starting work, including an “Emergency Stop” signal. Hand signals, voice, warning horn, 2-way radios, headsets, etc. may be used.
5. Wear appropriate personal protective equipment. In addition to standard PPE, hearing protection and safety goggles are required. Dust masks may be necessary. Be careful with hay hooks, wear hay apron (chaps) if available.
6. Keep unauthorized workers away, only the operator and loader can be near the machine during operation.
7. Use steps and handrails [“Three Point Method”] when mounting and dismounting.
8. During straw blower operations follow these rules:
 - a. Survey the work area and identify obstructions, dips, and rough ground.
 - b. Limit travel speed to 5 mph or less.
 - c. Use fall protection (guardrail, harness & lifeline, etc.) to keep bale loader inside truck bed.
 - d. Keep truck bed as clear as possible of spilled straw to prevent slipping.
 - e. Maintain communication between loader and driver.
 - f. Never place hands, feet, or parts of body in feed chute during operation.
 - g. Do not wear loose clothing, watches, or rings during bale loading.
9. Use proper lifting techniques (bend knees, straight back) when loading straw bales.
10. Cut and remove bale strings or wire and other harmful materials (rocks, dirt, and metal) before the bale hits the feed chain.
11. Use cutters or knives carefully, keep fingers clear during cutting.
12. Be careful with blowing material. Do not blow towards power lines or transformers. Be careful not to cover electrical boxes and sprinkler controllers. Be careful in windy conditions near traffic. Do not blow material towards or over ground personnel.
13. Remove safety pins and point blower discharge at target before engaging clutch.
14. Keep machine clean. Remove accumulations of straw that may create a fire hazard. Shut machine off and remove key during cleaning, maintenance, or repairs.

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Code of Safe Operating Practices

STRAW BLOWER (Cont'd)

15. Feed chains and drive belts shall be adjusted and maintained according to manufacturer's instructions. Blades shall be kept sharp.
16. Properly stow and secure discharge chute before leaving operator position.
17. Be sure grounding strap has good contact before operating machine.
18. Check for proper hook-up of machine to tow vehicle. Use safety chains.
19. Straw blower shall be equipped with a 20-pound ABC fire extinguisher.
20. When disconnecting from tow vehicle, set brake, chock wheels, and remove the key.

Code of Safe Operating Practices

MULCH BLOWER

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Read the operator manual and safety decals. A copy of the operator manual should be with the machine.
2. Check that all safety guards and controls are in-place, secure, and working.
3. All employees operating, feeding, or spreading mulch with this machine must be trained prior to working.
4. Communication between the blower operator and those loading and spreading mulch is required. Discuss the procedures before starting work, including an “Emergency Stop” signal. Hand signals, voice, warning horn, 2-way radios, headsets, etc. may be used.
5. Wear appropriate personal protective equipment. In addition to standard PPE, gloves, hearing protection and safety goggles are required. Dust masks may be necessary.
6. Use water mister to reduce dust. Check nozzle for plugging on regular basis.
7. Keep unauthorized workers away, only those involved in the operation can be nearby.
8. Use steps and handrails [“Three Point Method”] when mounting and dismounting.
9. Lower the feed conveyor before using machine. Adjust legs for solid support. Properly stow and secure discharge chute and install feed hopper safety brace before moving machine.
10. During mulch blower operations follow these rules:
 - a. DO NOT KINK THE DISCHARGE HOSE – hold it firmly.
 - b. Load material into hopper slowly, avoid clumps.
 - c. Never place hands, feet, or parts of body in conveyor feed hopper or hammer mill chute during operation.
 - d. If material bridges on feed conveyor, use a shovel or pitchfork to dislodge it.
 - e. Never stick anything into hammer mill during operation.
 - f. Never feed rocks, boards, metal, etc. into this machine.
 - g. Do not wear loose clothing, watches, or jewelry during hand loading.
 - h. The hammer mill will continue to turn after power is disconnected. Be sure that movement has stopped before removing any covers.
11. Be careful with blowing material. Do not blow towards power lines or transformers. Be careful not to cover electrical boxes and sprinkler controllers. Be careful in windy conditions near traffic. Do not blow material towards or over ground personnel.
12. Point blower discharge at target before engaging clutch.
13. Keep machine clean. Remove accumulations of mulch that may create a fire hazard.

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Code of Safe Operating Practices

MULCH BLOWER (Cont'd)

14. Shut machine off and remove key during cleaning, maintenance, or repairs.
15. Feed and drive belts shall be adjusted and maintained according to manufacturer's instructions. Blades shall be kept sharp.
16. Check for proper hook-up of machine to tow vehicle. Use safety chains. A tow vehicle of 2 ton or larger capacity is required.
17. When disconnecting from tow vehicle, set brake, chock wheels, and remove key.
18. Mulch blower shall be equipped with a 20-pound ABC fire extinguisher.

Code of Safe Operating Practices

SCREEN-ALL, CV-40-D

SAFE PRACTICE RULES

1. Perform daily pre-op of equipment, fluid checks, and lube checks. Start engine, observe gauges. Be familiar with operator's manual.
2. Wear Personal Protective Equipment (PPE). Hearing protection is required while working in close proximity to the machine.
3. Check for loose, worn or damaged screens.
4. Make sure all controls are in their neutral position before starting engine.
5. Make sure all personnel are clear of machine before raising or lowering screener.
6. Do not stand on the low side of machine when it is running. This is where the spoils are deposited.
7. Do not overload the screen with material.
8. Do not drop material from high above the screen – this action could result in damage to the screen and shaker head assembly.
9. Do not hit bottom of deck with the loader bucket – this action could result in damage to the shaker head assembly and the loader bucket.
10. Do not allow screened material to build up to the bottom of the shaker head cavity. Three-fourths full works the best.
11. Stop engine before re-fueling.
12. Always remove all debris from the screener deck before moving the screener.
13. Never move screener while the deck is shaking material.
14. Make sure both axle lock bars are in place and locked before moving screener.
15. Be sure to lock all compartments prior to leaving the screener in the field unattended.

Code of Safe Operating Practices

DEWEESE ALL TERRAIN MOWER

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Check lights, tires, oil, hydraulics, gauges, blade wear, grease fittings.
3. Hearing and eye protection are required at all times while operating. If mowing where excessive dust exists, respiratory protection may be required. Hard hat required if not in an enclosed cab.
4. Always wear seat belt before starting or operating mower.
5. Never attempt to operate the mower except from the operator's station.
6. Familiarize yourself with all controls before operating.
7. Check area, clear rocks and debris before mowing.
8. Travel slowly when moving over rough terrain.
9. Never drive close to the edge of a ditch line or excavation.
10. This mower is equipped with an automatic leveling system; familiarize yourself before operating.
11. When mowing slopes always mow from side to side, never mow up or down slopes.
12. Watch for traffic when mowing around guide markers, signs, culverts, etc.
13. Don't mow too close to fences and be alert of utility pole guide wires.
14. Never allow anyone to work under raised attachments without proper safeguards in place.
15. Shut off tractor when working on mower.
16. Disengage mower when not cutting.
17. Always carry fire suppression equipment.
18. Do not dismount unless motor is off and brake is set.
19. Do not attempt to operate this piece of equipment without proper training.

Code of Safe Operating Practices

4WD/6WD ATV's/RTV's AND GATORS

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with Operator's Manual.
2. Wear standard PPE, including hard hat and hearing protection when required.
3. Use of seatbelts is required when operating RTV's, lap belts when operating Gators.
4. Use caution while on slopes/hills or when encountering obstacles while braking or during turns. Under no circumstances should you climb, descend, or traverse hills greater than 15% grade.
5. Never leave machine unattended with engine running. When parking, set brake, turn off engine and remove the ignition key.
6. Never attempt to start or operate machine except from the operator's seat.
7. Never work on or allow anyone to work under raised attachments without the proper safeguards in place and secured.
8. Travel slowly when traveling over rough terrain. Improperly crossing hills or turning on hills can be dangerous. Avoid crossing the sides of steep hills.
9. Never drive too close to the edge of a ditch or open excavation.
10. Keep feet on floorboards while operating machine.
11. Reduce speed before turning or applying brakes. Drive at speeds slow enough to ensure your safety, especially over rough/ uneven terrain. Operation on slopes and hills can be dangerous when loaded.
12. Be aware that loads reduce the machine's turning radius.
13. Do not overload. Keep loads below guards and inside of the cargo areas. Never exceed the stated load capacities for the machine. Cargo shall be properly distributed and securely attached. Allow greater distances for braking.
14. No riders in the cargo/bed areas.
15. Use caution while traveling in reverse as steering becomes more difficult. Avoid backing downhill and turning at sharp angles while in reverse.
16. Engage differential lock at low speed and disengage differential lock before turning.
17. Throttle linkage and brakes may stick in freezing weather. Dirt, mud, and water may also affect the operation of the controls on the machine.

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Code of Safe Operating Practices

4WD/6WD ATV'S/RTV'S AND GATORS (Cont'd)

WHEN USING CHEMICAL SPRAY RIG REVIEW THE FOLLOWING CSOP:

SECTION II

PEST MANAGEMENT

VEGETATION MANAGEMENT (CHEMICAL)

SECTION III

CHEMICAL SPRAY, TRUCK, TRAILER OR SKID MOUNTED

CHEMICAL SPRAY BOOM

Revised 7/12/2022

Code of Safe Operating Practices

LIGHT TOWER

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Light tower operators shall be properly trained and review this CSOP before operating this unit.
3. Prior to the daily use of a light tower, a visual inspection and operational check shall be made in accordance with the manufacturer's instructions.
4. Operators shall follow all operating instructions in the operator's manual. The operator's manual shall be available during operation, service, inspection and repair.
5. Be aware that light tower may effect steering, handling, and stability of vehicle.
6. Read safety placards before operating controls.
7. Check safety switches prior to use.
8. Prior to use, the light tower's telescoping mast shall be inspected for damage.
9. The vehicle shall be located on level terrain before raising light tower. Watch the vehicle level indicators while raising to spot instability.
10. Before and during raising or lowering the light tower, the operator shall observe the masthead and be sure that no overhead obstructions will be contacted. During darkness, the masthead will be illuminated during raising or lowering.
11. The light tower mast and head shall be kept at the proper clearance (at least 10 ft. for voltages up to 50,000) from overhead lines and obstructions. See the warning placard on the vehicle for required clearances at higher voltages.
12. If an overhead line is contacted DO NOT ATTEMPT TO MOVE THE VEHICLE. Jump free; do not contact the vehicle and ground. Stay well clear of the vehicle. Beware of step and touch potential.
13. If a downed power line occurs, STAY CLEAR, DO NOT TOUCH OR APPROACH LINE. Beware of step and touch potential.
NOTE: "Step Potential" is the voltage between the feet of a person standing near an energized grounded object, based on the distance each foot is from the "electrode". Merely standing close to the grounding point could shock a person. "Touch Potential" is the voltage between the energized object and the feet of a person in contact with the object.
14. Do not raise the light tower telescoping mast when vehicle is in motion. Do not attempt to move the vehicle while the mast is elevated or the mast alarm or warning light is on.

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Code of Safe Operating Practices

LIGHT TOWER (Cont'd)

15. Do not raise light tower during high wind, lightning, and other severe weather conditions.
16. Keep body parts away from areas where they may be pinched between the telescoping mast or the lamp fixtures and other objects.
17. Lamps are extremely hot when in use and should not be touched or allowed to touch combustible materials.
18. Do not look directly into the lights when they are illuminated. Temporary impairment of vision could occur.
19. Use care when positioning so that lights are not pointed directly towards oncoming traffic or create glare for approaching motorists.
20. In case of contact with overhead lines or other emergency, follow the established emergency contact plan for your District.

Code of Safe Operating Practices

EXCAVATOR

SAFE PRACTICES RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's Manual.
2. Before operating, read Operator and Safety Manuals.
3. Before digging, review Appendix D, Trenching and Excavation Safety Guide, and Appendix DD Underground Service Alert (USA).
4. Operator is responsible for safe operation and ground personnel.
5. Familiarize yourself with all controls before operating.
6. Be sure everyone is in the clear before operating.
7. Clear loose objects off machine before operating.
8. Check counterweight swing clearance before operating.
9. Check for high voltage lines and observe electrical proximity rules at all times.
10. Do not operate with other people on machine.
11. Never operate machine on unstable ground.
12. Never drive too close to the edge of a ditch or excavation.
13. Before moving be sure of a clear path and sound horn.
14. Never allow anyone to work under a raised boom.
15. Use a signal person if visibility is limited.
16. Only one person at a time should give signals.
17. Before adjusting or servicing, rest boom on ground, stop engine.
18. Escaping fluid under pressure can have sufficient force to penetrate the skin, causing serious personal injury. Before disconnecting lines, be sure to relieve all pressure. Before applying pressure to the system, be sure all connections are tight and that lines, pipes and hoses are not damaged. Fluid escaping from a small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands to search for suspected leaks.
19. If injured by escaping fluid, see a doctor at once. Serious infection or reaction can develop if proper medical treatment is not administered immediately.
20. Always operate engine at full throttle to keep cylinders full of oil and operating properly.
21. Before leaving cab, leave boom on the ground and shut engine off.
22. Do not attempt to operate excavator unless you have been trained.

Revised 5/5/2020

Code of Safe Operating Practices

ARK SYSTEM CONTAINMENT TRAILER

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Back up to trailer with the assistance of another person when possible.
3. After trailer is secured to truck, raise trailer stand and lock it in the up position.
4. Check for wear or damage to the following while securing trailer to truck:
 - a. Hitch connection.
 - b. Safety chains.
 - c. Electrical lines.
 - d. Air lines – Be sure there are rubber washers in air-lines and glad hands.
5. After the trailer is secured to the truck, and air-lines, electrical lines and safety chains are secured, switch air lever in the cab of truck. When proper air pressure is obtained, check air-lines for leaks.
6. Check trailer brakes, release brakes in cab and move truck and trailer and apply trailer brakes.
7. The following moving parts should be secured before transport:
 - a. Leveling jacks.
 - b. Removable extension ladder.
 - c. Hand rails.
 - d. Containment wings.
8. The auger should be free of debris when transporting trailer.
9. The generator should be off while transporting trailer.
10. When working on the ark system the following safety devices shall be implemented:
 - a. Leveling jacks are down and locked in position.
 - b. Safety rails are up and secured with accompanying pins.
 - c. Wing walls are extended.
 - d. Safety chains up.
 - e. After reaching desired height place securing pin back into hydraulic platform lifts.
 - f. Side access ladder mounted and secured with safety bar, included with ARK.
 - g. Employees working on the ARK shall wear all appropriate personal protective gear.
11. All personnel should be off the deck and on the ground while raising or lowering.
12. Never raise the front or rear lifting frames more than 12 inches ahead of each other.
13. Turn off hydraulic pump. Do not let hydraulic unit run once the platform is pinned in the working position.

Code of Safe Operating Practices

CEC SCREEN-IT, MODEL 4101

SAFE PRACTICE RULES

1. Perform daily pre-op of equipment. Start engine, observe gauges. Be familiar with operator's manual.
2. Wear Personal Protective Equipment. Hard hats and hearing protection is required when working in close proximity to the machine.
3. Note all warning labels. Observe all caution and warning signs posted on machine.
4. Carefully follow proper startup and shut down procedures as outlined in operators' manual and video.
5. Machine shall never be operated without proper guards in place.
6. When operating screen, check for loose bolts and fittings and loose, worn or damaged screens and conveyor belts.
7. Do not rely on minimum/maximum lines on auto lube system. Visually check inside for grease level and fill as needed.
8. Machine shall be placed on relatively level terrain. A level, compact site and sound hardwood blocking will avoid undue plant vibration, inefficient screening, welds breaking and down time. Shimming of blocking may be necessary during the first couple of weeks as the site settles.
9. Do not stand around hopper when it is being loaded.
10. Watch for falling rock around shaker area.
11. Check and adjust conveyor belts only when loaded with material.
12. Loader operator should only operate grizzly by remote. If operated from ground controls when loader is loading hopper, the grizzly could catch the loader bucket and flip it over.
13. Keep hands and body away from all moving parts. Be aware of pinch points.
14. Never make repairs on the unit while in operation. Use Lock Out/Tag Out Procedures.
15. Be sure to lock all compartments prior to leaving the screen-it in the field. The ignition shall be locked and the key removed whenever the unit is left unattended.

Code of Safe Operating Practices

MOWER REAR AUGER 3 POINT HITCH

SAFE PRACTICE RULES

1. Pre-op this attachment to the mower as part of the mower pre-op using the DME-0283, Pre-Operation Inspection, Post Operation Report and Repair Request (Trucks & Construction Equipment).
2. Become familiar with the vehicle's operator manual.
3. Be sure all safety guards are in place and secure.
4. Only trained employees shall be authorized to operate this equipment along with the auger attachment.
5. Before digging any holes with the auger. Underground Service Alert (USA) notification is required, see Appendix DD.
6. Let the auger do the work; don't over apply down pressure to the auger.
7. Keep employees a safe distance from the auger when it is being moved or in use.
8. To avoid damage to the mower or auger, make sure the auger is above ground level prior to moving the mower.

Revised 5/5/2020

Code of Safe Operating Practices

AIR COMPRESSOR, PORTABLE AND TRUCK OR TRAILER MOUNTED

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Review manufacturer's safety precautions.
3. Read and follow all warning labels posted on machine.
4. Use hearing protection. Wear eye, face, and foot protection as necessary.
5. Locate and observe gauges. Be sure air pressure gauges are working properly.
6. Inspect all air lines and connections for damage or leaks. Always use safety clips on air connections if equipped.
7. Note MAXIMUM air pressure on air hoses. Frayed or weak air hoses shall not be used.
8. Do not exceed manufacturer's MAXIMUM air pressures for compressor, hoses, and tools used.
9. Close air line supply valve before starting compressor.
10. Do not modify or disable regulating devices on compressor or power source.
11. Only trained personnel shall make repairs to compressor.
12. Do not use compressed air for breathing; it may contain oil.
13. Do not direct compressed air at yourself or other persons for any reason.
14. Make sure compartment doors, guards, and panels are secure.
15. Shut down engine before checking or adding fluids.
16. Do not refuel while engine is running.
17. Follow manufacturers shut down procedure.
18. Close compressor air service valves and bleed air tools before disconnecting hoses.

Code of Safe Operating Practices

SICKLE BAR TOPPER-HEDGER

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment, paying special attention to the hydraulic lines that connect between the tractor and the sickle bar. Be familiar with the operator's manual.
2. Do not start tractor from ground. Always be in the seat and check gear selector before starting, and ensure that the gear selector is in neutral.
3. Operator needs to be aware of any possible blind spots that may be present once the sickle bar is attached to a specific piece of machinery.
4. Inspect the area to be topped/hedged for obstructions prior to performing the work.
5. Watch traffic when driving around guide markers, signs, culverts, etc.
6. Do not trim brush too close to fixed objects and be alert for utility pole guide wires and power lines.
7. Use caution when trimming on steep slopes as tractor could tip over.
8. Use caution when trimming downhill on wet or green grass as brakes are less effective.
9. Do not operate in proximity to on-foot personnel. Keep workers clear.
10. Before dismounting the tractor, turn off the sickle bar and lower the overhead assembly, turn off the tractor engine and set the parking brake.
11. Do not work on the sickle bar while tractor is running. The sickle blades are very sharp, use caution.
12. Avoid working under the sickle bar. If you must, make sure it is properly secured with safety stand and/or safety chain.
13. Keep all covers and guards in place.
14. Review **Wheel Tractor** Code of Safe Operating Practices, Section III.
15. Review **Mechanical Vegetation Management** Code of Safe Operating Practices, Section II.
16. When transporting tractor with sickle bar attachment on an equipment trailer, lower attachment to the bed of the trailer and tilt the hedger bar back towards the cab of the tractor and secure with chain and binder to the deck of the trailer. Check overall height before transporting. Check proposed route for low objects/structures before transporting.

Code of Safe Operating Practices

CORE DRILL

SAFE PRACTICE RULES

1. Do a complete pre-op of the machine and cutting teeth before operating. Become familiar with the manufacturer's operating manual.
2. Inspect power cords, water lines and connections. If any damage is found to the power cord, water lines, cutting teeth or connections, do not operate until the defects are repaired or replaced.
3. The use of power cords equipped with ground fault interrupters (GFIs) for any power connection associated with this machine is mandatory. This includes power vacuums used to capture water runoff and cut material. When the machine is used outdoors, it is mandatory to use power connections marked for outdoor use.
4. Hearing and eye protection are required for the operator and those working nearby.
5. Contain long hair while operating the core driller.
6. Non-skid footwear and rubber gloves are recommended to be worn by the operator.
7. Avoid breathing dust generated during coring operations.
8. Before drilling any holes, Underground Service Alert (USA) notification is required, see Appendix DD.
9. In addition hearing and dust protection may be required. Tools/equipment used to cut, jackhammer, grind, drill or sweep silica containing material shall be equipped with a water delivery system that continuously feeds water at flow rates sufficient to minimize release of visible dust. Follow Storm Water BMP's.
10. The following activities/equipment require respiratory protection with an assigned protection factor of 10 (APF10) when performed outdoors for more than four (4) hours:
 - a. Using a handheld power saw.
 - b. Jackhammers and handheld power chipping tools.
11. Medical surveillance is required to be provided by the employer for any employee required to wear a respirator for more than 30 days a year when exposed to respirable silica dust.

Revised 5/5/2020

Code of Safe Operating Practices

TOWABLE SOLAR FLASHING ARROW SIGNS AND CHANGEABLE MESSAGE SIGNS

SAFE PRACTICE RULES

1. Review safe practice rules for applicable equipment and perform pre-operational checks.
2. Become familiar with the vehicle's operator manual.
3. Review work area protection procedures and any traffic control requirements before starting job at work site.
4. Park towing vehicle in such a manner to allow for safe exiting vehicle in traffic.
5. Use jacks to stabilize flashing arrow sign and changeable message sign and be mindful of jacks for tripping hazards.
6. When towing, check for proper hook-up of trailer to vehicle and use safety chain. Check that the board is down and secure with hold-down fasteners.
7. Keep fingers out of pinch points when raising or lowering the board or disconnecting or connecting from towing vehicle.
8. Minimize the time you are between the towing vehicle and trailer. Face traffic or use a lookout when connecting or disconnecting trailer from towing vehicle. A shadow or barrier vehicle shall be used on the shoulder; a shadow vehicle shall be used if in the traveled way with the wheels turned away from the work zone, transmission in park, with the parking brake set.
9. Be aware of over-hanging branches or structures from over-height sign before parking trailer.
10. Be mindful of correct orientation of arrow or message before leaving set-up at control panel.
11. Allow enough time to raise or lower sign (rises in approximately 47 seconds, lowers in 37 seconds).
12. Face traffic or use a lookout while setting cones for PCMS or FAS. A shadow or barrier vehicle shall be used on the shoulder; a shadow vehicle shall be used if in the traveled way.
13. Avoid placing PCMS or FAS in gore area if at all possible. If you must place a PCMS or FAS in a gore area, you shall use a shadow or barrier vehicle and a lookout (See Maintenance Manual Chapter 8 Section 8.14, 8.14.01).
14. Avoid sharp turns when towing a trailer; trailer could overturn.

Revised 8/10/2020

Code of Safe Operating Practices

MOTORIZED SHOULDER MACHINE

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual and the equipment operational guidelines.
2. Follow factory instructions when moving the spreader hopper wing. Avoid pinch points and make sure chains and hooks are properly positioned.
3. Operator only shall ride on the spreader when deadheading. Seat belt use is always recommended by the manufacturer.
4. Material feed belts should be checked for centering, adjustment and condition.
5. Check for proper function of all electrical switches and hydraulic valves prior to receiving first load of material. After approx. 5 minutes warm up at 1100 RPM then move throttle speed to 2000 RPM (at least) for normal operation.
6. Coordination between spreader operators and truck drivers is essential. A pre-job discussion will increase efficiency and reduce accident potential. One person shall be designated to direct truck drivers.
7. Caution shall be used when starting and stopping on grades.
8. Keep ground personnel clear of spreader when in operation.
9. Do not ride on front of material hopper while spreader is in motion.
10. Shut off engine and set brake when spreader is not in use. When stopping or parking for extended periods of time, lower the strike off blade to the ground.
11. Do not jump off spreader. Use steps and handrails when mounting or dismounting spreader.
12. Do not mount or dismount spreader while in motion.
13. Use caution when loading and securing on trailer. Back unit on trailer using additional ramping extension (2 X 12 X 36 lumber) to avoid unit hopper from dragging on pavement. Have a ground person for guidance during loading and unloading operations. Properly secure unit on trailer.
14. Check width and height when hauling for legal compliance.
15. Check for debris or material that could fall off during transporting.

Code of Safe Operating Practices

CUT-OFF SAW

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Use adequate footwear; snug fitting clothing, in addition to eye, hearing and head protection.
3. Always use the following precautions when handling fuel and refueling the cut-off saw:
 - a. Always store gasoline in an approved container.
 - b. Do not smoke while handling fuel.
 - c.. Always stop the engine to refuel the tank.
 - d. Beware of static electricity and sparks between saw and fuel cans (metal and plastic).
 - e. Avoid spilling fuel or oil. Spilled fuel should always be wiped up.
 - f. Do not remove fuel tank cap when engine is running.
 - g. Move the cut-off saw at least 10 feet from the fueling point before starting the engine.
 - h. Keep the handles dry, clean and free of oil or fuel mixtures.
4. Before you start the engine, make sure the saw blade is not contacting any object.
5. Never start the cut-off saw until you are at the location where you intend to use the saw.
6. Do not allow other persons to be near the cut-off saw when starting of cutting. Keep bystanders out of the work area.
7. Maintain good balance and footing at all times. Never cut while standing on a ladder.
8. Always hold the cut-off saw firmly with both hands when the engine is running. Use a firm grip, with thumb and fingers, encircling the cut-off saw handles.
9. Keep all parts of the body away from the cut-off saw blade when the engine is running.
10. Do not operate a cut-off saw that is damaged, improperly adjusted or not completely and securely assembled.
11. Do not over-reach or cut above shoulder height.
12. Always shut off the engine before setting down.
13. Operate the cut-off saw only in well ventilated areas.
14. Do not operate if fatigued.
15. Avoid loose fitting jackets, scarves, neckties, jewelry, flared or cuffed pants, unconfined long hair or anything that could become caught on any obstacles or moving parts of the unit.
16. Loose objects may be thrown toward the operator by the cutting tool.

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Code of Safe Operating Practices

CUT-OFF SAW (Cont'd)

17. Wear dust mask when cutting masonry, concrete and other materials that create dust.
18. Sparks from cutting metal can create a fire hazard. Do not cut near flammable materials such as fuel or dry brush. Keep water sprayer available in case of metal sparks causing grass fire.
19. Avoid standing in direct line with the wheel.
20. Make sure material being cut is properly secured and stable and will not move and cause saw kickback during the entire cut. Do not hold parts by hand.

PULL-AWAY, CLIMBING, PINCHING AND ROTATIONAL FORCES

When the bottom of the cutting wheel contacts the material, the cut-off saw will try to pull away from the operator. If the contact is at the front of the wheel, the wheel may attempt to climb the object being cut. Pinching occurs when the piece being cut closes on the wheel. If the wheel is severely pinched at the front, especially in the upper quadrant, the wheel may be instantly thrown up and back towards the operator with a great force in a rotational motion. Avoid cutting with the upper quadrant of the wheel where possible. Do not remove or modify the blade guard.

Code of Safe Operating Practices

ROLL OFF BODY

SAFE PRACTICE RULES

PROCEDURES

1. Pre-op equipment. Be familiar with operator's manual.
2. Avoid pinch points and make sure chains and hooks are properly positioned.
3. A minimum of two people are required for the task of changing roll off beds.
4. Do not stand behind body while loading or unloading.
5. Have spotter keep area behind body clear during loading/unloading process.
6. Tailgate sander must be removed from body before sliding body off.
7. Do not use the truck to tow the body with the winch cable.
8. Synthetic Rope Inspection shall be performed before winching a body on.

REMOVAL

1. Ensure area behind truck is clear for at least 15' behind truck.
2. Remove attenuator if equipped.
3. Check red selector switch under hydraulic tank is at 'OFF' so that dump body will function.
4. Unplug body electrical and air glad hand.
5. Stow electrical pigtail and glad hand in supplied retainers near the roller.
6. Extend hoist about 12" for better access to body lock pins.
7. Remove square body lock pins on each side of body and stow in holder.
8. Plug in winch control. Socket located under driver seat. Control stowed in tool box behind cab.
9. At this time **no one is allowed to enter within 15' of the rear** of the vehicle for the remainder of the operation.



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Code of Safe Operating Practices

ROLL OFF BODY (Cont'd)

10. Start truck and raise hoist:
 - a. Unloaded body – raise 30 degrees minimum – approximately end of second stage
 - b. Loaded body - FULLY extend hoist– an overhung loaded body will rapidly extend the hoist pulling air into the cylinder causing aeration of the oil when hoist is lowered. Aerated oil may cause tank to overflow through the vent.
11. Winch out the rope to begin lowering the body to the ground.
12. When headboard clears rollers, stop the winch and lower the body legs.
13. Continue lowering the body onto the legs.
14. Unhook cable from body.
 - a. It will be helpful to winch out a few extra feet of rope and pull the truck ahead.
 - b. Do not unwind orange portion of synthetic rope.
 - c. To unhook rope, rotate plate at end of lock pin to allow pin to slide sideways.



15. Lower the hoist.
16. Wind rope onto winch. Stow end of rope on light weight hook at end of frame.
17. Stow winch remote in tool box behind cab.

INSTALLATION

1. Ensure area ahead of body rollers is clear.
2. Back truck up to body – leave 3-4 feet for access.
3. Plug in winch control.
4. Unwind winch with sufficient length to attach thimble to body.
 - a. Do not unwind orange portion of synthetic rope.
 - b. Inspect rope.
 - c. Rotate plate at end of lock pin to allow pin to slide sideways.
 - d. Insert thimble into guide.
 - e. Slide pin through thimble. Drop end plate to secure pin.



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Code of Safe Operating Practices

ROLL OFF BODY (Cont'd)

5. Back truck up to body - on center and square with body.
6. Winch cable in to remove slack.
7. Start truck and raise hoist:
 - a. Unloaded body - raise 30 degrees minimum - approximately end of second stage.
 - b. Loaded body - FULLY extend hoist - an overhung loaded body will rapidly extend the hoist pulling air into the cylinder causing aeration of the oil when hoist is lowered. Aerated oil may cause tank to overflow through the vent.
8. Begin winching body on and stop before body legs hit mud flaps.
9. Stow body legs.
10. Continue winching body onto truck.
11. Hoist can begin to be lowered when body is pulled on more than half-way.
12. Stop lowering hoist with appx. 12" travel remaining.
13. Pull body against stops located at body lock pins.
14. Install square body lock pins and secure.
15. Finish lowering the hoist.
16. Clean body electrical and air connections.
17. Plug in body electrical and connect air glad hand.
18. Stow winch controller.



BODY LEGS DOWN FOR BETTER ACCESS
WHEN HOOKING UP CABLE/ ROPE



BODY AIR AND LIGHTING CONNECTIONS

Revised 5/23/2018

Code of Safe Operating Practices

DEBRIS REMOVAL VEHICLE (DRV)

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual and the equipment's operational guidelines.
2. This is an unusual vehicle that has complex controls and a right-hand driving position. Do not operate the DRV unless you have been properly trained.
3. Use caution when two employees are riding in the DRV. Steering, brakes, and throttle work continuously from both sides; the passenger must not touch the controls.
4. Before starting the vehicle, make sure the transmission selector switch is in the proper operating position (right or left side).
5. Check for leaks and loose fittings on the pickup assembly.
6. Before moving the pickup arm from the stowed position, ensure that there are no ground personnel or obstacles within 10 feet of the DRV.
7. Check for proper function of all electrical switches, controls, and hydraulic valves prior to operating.
8. Do not exceed load capacity of the clam or hopper while loading material and debris.
9. Use caution to secure the pickup assembly in the stowed position before entering the flow of traffic. Make sure the warning light is off.
10. Caution shall be used when starting and stopping adjacent to moving traffic.
11. Use caution while backing and before dumping hopper. Use a spotter if necessary.
12. Make sure tailgate latches are secure, there is no loose debris hanging that could fall off while driving, and that the pre-crusher door is lowered before traveling.
13. Shut off engine and set brake when DRV is not in use. Make an effort to park in an area where backing will not be necessary to leave the site.
14. Use steps and handrails when mounting or dismounting the vehicle.

Code of Safe Operating Practices

ARDVAC LITTER RETRIEVAL TRUCK

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual and the equipment's operational guidelines.
2. This is an unusual vehicle that has complex controls. Do not operate the Ardvac unless you have been properly trained.
3. Before starting the vehicle, make sure the boom and nozzle are properly stored.
4. Check for leaks and loose items on the boom and nozzle assembly.
5. Before moving the boom from the stowed position, ensure that there are no ground personnel or obstacles within 10 feet of the machine.
6. Check for proper function of all electrical switches, controls, and hydraulic valves prior to operating.
7. Secure the boom and nozzle assembly in the stowed position before entering the flow of traffic.
8. Caution shall be used when starting and stopping adjacent to moving traffic. Do not allow boom to swing into traffic while operating.
9. **Do not** retrieve/vacuum objects that appear hazardous in nature (unknown chemical containers, explosive devices, etc.); call your supervisor.
10. If the operation of the vacuum is creating excessive dust that reduces traffic visibility, stop the operation and move to a safer area.
11. If while working, the Ardvac encroaches onto the traveled way and takes up more than two feet of the adjacent traffic lane, a shadow truck shall be utilized.
12. Use caution while backing and before dumping hopper. Use a spotter if necessary.
13. Make sure tailgate latches are secure, there is no loose debris hanging that could fall off while driving, and that the boom is properly stowed before traveling.
14. Shut off engine and set brake when Ardvac is not in use. Make an effort to park in an area where backing will not be necessary to leave the site.
15. Use steps and handrails when mounting or dismounting the vehicle.

Code of Safe Operating Practices

RRU-30 FIRE SUPPRESSION UNIT

HAZARD REVIEW

Pressurized Vessel
Contact with Foam

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Face shield must be worn when operating equipment in addition to gloves, hardhat, vest and safety glasses. Avoid facial contact with foam.
3. Ensure cylinder is full of Nitrogen. Only Nitrogen is to be used.
4. Ensure that there is a full bottle of foaming agent and that the water tank is full.
5. Inspect all hoses for cracks or breaks. Frayed or worn hoses shall not be used.
6. When opening fill port valves stand aside from direct path of escaping gas or air.
7. Always maintain a firm grip of the hose and ensure solid footing while operating unit.
8. Rapid opening of nozzle on hose may cause pressure surges and loss of control of hose. Open nozzle slowly.
9. Keep Nitrogen cylinder valve closed when traveling or use is not imminent.
10. When new specialized equipment (including rental equipment) is introduced, supervisors shall ensure that employees are trained in the hazards involved in the operation of the equipment and are familiar with the safe operating procedures.

Code of Safe Operating Practices

POWER POLE PRUNER

SAFE PRACTICE RULES

1. Do not operate a pole pruner unless you have been trained and qualified to do so.
2. Pre-op equipment including rental equipment. Be familiar with operator's manual.
3. Use standard PPE, adequate footwear and snug fitting clothing. Hearing protection is required. Respiratory protection is recommended.
4. Always use the following precautions when handling fuel and refueling the pole pruner:
 - a. Always store gasoline in an approved container.
 - b. Do not smoke while handling fuel.
 - c. Always stop the engine to refuel the tank.
 - d. Beware of static electricity and sparks between pruner and fuel cans (metal and plastic).
 - e. Avoid spilling fuel or oil. Spilled fuel should always be wiped up.
 - f. Do not remove fuel tank cap when engine is running.
 - g. Move the pole pruner at least 10 feet (3 meters) from the fueling point before starting the engine.
 - h. Keep the handles dry, clean and free of oil or fuel mixtures.
5. Before you start the engine, make sure the pruner chain is not contacting any object.
6. Never start the pole pruner until you are at the location where you intend to use the pruner.
7. Check that nobody is standing within the working range and drop zone of the pruner.
Note: this could be 10'-25' or more depending on the extension of the pole. Never stand directly underneath the branch you are cutting and be wary of falling branches. Note that a branch may spring back at you after it hits the ground. The shaft should always be held at an angle of sixty degrees or less. Keep bystanders out of the work area.
8. Never start cutting until you have a clear work area and secure footing.
9. Always hold the pole pruner firmly with both hands when the engine is running. Hold the control handle with your right hand, and the shaft with your left hand.
10. Keep all parts of body away from the pruner chain when the engine is running.
11. Do not operate a power pruner that is damaged, improperly adjusted or not completely and securely assembled. Be sure that the pruner chain stops moving when the throttle control trigger is released.
12. Always shut off the engine before setting down a pole pruner.
13. When cutting a limb that is under tension, be alert for spring back so that you will not be struck when the tension in the wood fibers is released.

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Code of Safe Operating Practices

POWER POLE PRUNER (Cont'd)

14. All pole pruners shall be equipped with a spark arrestor.
15. Operate the pole pruner only in well ventilated areas.
16. The wearing of portable electronic equipment and jewelry is prohibited. Jewelry includes, but is not limited to, rings, watches, neck chains and key chains on belts.
17. Do not operate if fatigued.

KICKBACK

Kickback may occur when the nose or tip of the guide bar touches an object, or when the wood closes in and pinches the pruner in the cut. Tip contact in some cases may cause a lightning-fast reverse reaction, kicking the guide bar up and back toward the operator. Pinching the pruner chain along the top of the guide bar may push the guide bar and pole shaft rapidly back toward the operator. Either of these reactions may cause you to lose control of the pruner, which could result in serious personal injury. Only use replacement bars and chains specified by the manufacturer.

Follow the manufacturer's instruction for sharpening and maintenance of the pole pruner.

New 3/25/2010

Code of Safe Operating Practices

CONE TRUCK

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Keep windshield, side windows, and mirrors clean.
3. Keep tires properly inflated.
4. Clean windshield before wiper is used.
5. Check brake connections, pintle hook, and safety chain before towing trailer.
6. Do not overload conveyor.
7. Make sure cargo is properly loaded and secured.
8. Operator and passenger shall wear seat belt while in the cab. Passengers are not allowed to ride in the cone body seats. The rear seats shall only be occupied by employees during low speed (under 10 mph) work zone operations with the protection of an approved shadow vehicle and seat belts shall be worn.
9. Keep hands clear of conveyor while operating. Avoid entanglement; keep loose clothing, jewelry, and hair away from conveyor. Do not climb, sit, stand, walk, or ride on the conveyor at any time. Do not perform repairs on the conveyor—contact the Shop for assistance.
10. Cone Trucks shall be equipped with automatic backup alarms.
11. When mounting and dismounting, face vehicle, use handholds and steps, if equipped.

New 2/27/2012

Code of Safe Operating Practices

CONE CAROUSEL, PERSONNEL BASKET AND SPRAY BASKET

SAFE PRACTICE RULES

1. Plan work to minimize time with personnel in basket.
2. Shadow Vehicles shall be used when installing / removing lane and shoulder closures.
3. Do not use cone carousel and personnel basket for installing / removing lane closures in high ADT Metro areas unless CHP/MAZEPP traffic break is utilized.
4. Do not use cone carousel and personnel basket for installing / removing lane closures on two-lane conventional highways unless traffic is stopped in both directions utilizing CHP or other means of traffic control.
5. Do not enter any traffic lanes with operator in spray basket. If there is an obstruction on the shoulder and the lane must be entered, the spray operator shall secure the spray wand then exit the spray basket and enter the cab.
6. No spraying from personnel baskets. Use spray baskets only for herbicide application.
7. Inspect mounting frame and attachments for cracks, rust or wear.
8. Attach carousel and personnel basket securely with locking pin.
9. Do not deadhead equipment with loaded carousel mounted to frame.
10. Keep hands and fingers clear of pinch points.
11. Use safe lifting techniques when mounting / removing equipment and also when handling and setting cones.
12. Do not overload carousel. To assure that the specific vehicle is rated to carry the holder/basket system, consult the Division of Equipment.
13. Do not overload cone holders on the carousel. Maximum number of cones per holder is five.
14. Use of MAZEPP is recommended any time this method is used.

Revised 3/16/2022

Code of Safe Operating Practices

SELF PROPELLED BROOM

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Review work area protection procedures and any traffic control requirements.
3. Check frame for cracks and loose bolts.
4. When hooking and unhooking broom from tow vehicle make sure broom is in low range and engine speed is at an idle.
5. Disengage transmission and release parking brake before towing.
6. Check for proper hook-up of broom to towing vehicle and use safety chain. Check chain before leaving yard.
7. Operator shall be cautious of persons on foot during sweeping operations.
8. Keep hands and feet clear when adjusting broom angle.
9. While driving, always scan the entire area for possible hazardous situations.
10. When dead heading make sure broom is raised and locked in place.
11. Use water to control dust.
12. Keep cab clean.
13. Use hand and footholds when climbing onto and off sweeper or hopper.
14. Don't attempt to sweep an unidentified substance.
15. All repairs or adjustments should be made away from the traveled way.

New 6/16/14

Code of Safe Operating Practices

CRANE / PERSONNEL HOIST

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with operator's manual.
2. Crane & Personnel Hoist operators shall be trained and qualified.
3. Hard hat shall be worn at all times when outside of cab, regardless of location.
4. Operator and signal person shall have agreed upon clearly understandable visual and audible signal before beginning any work.
5. Workers shall not be allowed under boom operation.
6. All unauthorized persons shall be kept clear of the operation.
7. Position drop-line as near to directly over the balance point of piece being moved as possible.
8. Crane shall *never* be operated without first properly setting all outriggers.
9. Truck shall be made level before beginning work.
10. Slack shall not be allowed in drop line, slack may cause the line to become fouled on the drum. Take special care not to run drop line out when pull weight is off drop line.
11. Crane shall be operated within the limits, set by manufacturer and cable used for drop line. See load chart.
12. Make a daily check of slings, cables and chains for deformities, kinks, fish hooks, bird cages, shiny spots or frayed wire before use. They shall be properly certified for correct lifting capacity. Wire rope chokers must be tagged with load limits. Truck deck shall be kept clean and free of debris and obstructions at all times.
13. Climbing (safety) ropes and basket lanyards shall not be used to handle branches, wood or equipment of any description or weight.
14. Do not operate digger or boom within 10 feet of overhead high voltage lines.
15. Prior to the daily use of an aerial-lift device, a visual inspection and operational check shall be made in accordance with the manufacturers and owner's instructions.
16. Personnel Hoist Operators shall follow all operating instructions in the operator's manual. The operator's manual shall be available during operation, service, inspection and repair.
17. Read safety placards before operating controls.
18. Check safety switches and dead man controls prior to use.

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Code of Safe Operating Practices

CRANE / PERSONNEL HOIST (Cont'd)

19. The combined load, including workers, material, and tools, shall not exceed the rated lift capacity as stated by the manufacturer.
20. Prior to use, fiberglass booms and basket shall be inspected for cracks or damage.
21. The insulated portions of the boom and bucket shall be kept clean and free of conductive materials, including dirt, oil, and metal objects.
22. Workers shall not drill holes in aerial-lift buckets.
23. An additional person qualified in aerial rescue shall be at all work sites involving aerial tree work.
24. A ground attendant is required when using the personnel basket.
25. Wheel chocks shall be installed before using an aerial lift on an incline. Be sure brakes are set and locked before leaving cab of truck.
26. Booms shall not be operated unless outriggers, if equipped, are down. Follow operator's manual before operating on a slope of 5 degrees or more.
27. When setting outriggers, make sure the area is clear when lowering. Outriggers should be kept in sight when lowering. Use support under an outrigger that is to be put down on soft ground to prevent it from sinking.
28. All employees using aerial lift equipment shall use a personal fall protection system. See Fall Protection (Appendix G). Fall arrest systems cannot be utilized when working in aerial equipment unless that equipment is designed to support at least 5000 pounds or it can maintain a safety factor of at least two. Because most aerial equipment cannot support this load, personal fall restraint is the preferred fall protection system in aerial equipment.
29. While working in basket, have tools in proper place, tied off, or keep a secure grip on them while maneuvering.
30. When operating an aerial-lift device, the operator shall look in the direction of travel of the bucket and be aware of the booms in relation to all other objects and hazards.
31. Operate controls smoothly.
32. When booms are operated over roads, safe clearances from passing vehicles shall be maintained or traffic control shall be provided. If working in hoist over a traffic lane, the lane must be closed if you are using fall arrest.
33. Personnel hoist operators shall maintain proper clearance from overhead utility lines.
34. When moving from one area to another, the boom shall be cradled.

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Code of Safe Operating Practices

CRANE / PERSONNEL HOIST (Cont'd)

35. Riding in a basket when moving within a work area is permitted only when the boom is cradled and speed is limited to less than 3 miles per hour.
36. Before traveling, make sure the outriggers are secured and the safety hooks are in place if so equipped.
37. Do not sit or climb on edge of basket to gain height.
38. Keep a 5-pound BC fire extinguisher on unit at all times.
39. Keep body parts away from areas where they may be pinched between basket and other objects.
40. Do not overload cone holders. Maximum number of cones per holder is five.

Code of Safe Operating Practices

AIR POWERED TREE ACCESS (APTA)

HAZARD REVIEW

Moving Traffic
Utility Lines
Slipping and Falling
Faulty Ropes
Brittle Trees
Rope or Cable Blocks and Pulleys
Falling Branches
Noise
Rodents, Bird, Bat Droppings
Insects, Spiders, Scorpions
Cuts and Abrasions

SAFE PRACTICE RULES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle that does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work facing oncoming traffic.
5. Use standard personal protective equipment including gloves, eye protection and hearing protection. Operators and bystanders must wear hearing protection and eye protection at all times. See Safety Manual Chapter 22 regarding Hantavirus (adult respiratory distress syndrome) and Lyme disease.
6. Keep proper clearance from overhead utility lines. Never fell or remove a tree if it can come into contact with high/low voltage lines. If working in proximity to high/low voltage lines, a ground observer with appropriate warning device must be present (Minimum clearance is based on voltage. For example, 3 feet minimum for low voltage, 10 feet minimum for high voltage or further depending on voltage. See Chapter 8 in Maintenance Manual Volume 1, "Working Near Utilities").
7. Prior to beginning work the location of all electrical conductors and equipment within the work area shall be identified, in relation to the work being performed.
8. Operators of the APTA shall be qualified on the unit before use.
9. All work locations where APTA are used shall be under the direction of a qualified APTA operator.
10. At operations involving an APTA, a spotter shall be used to insure the work location remains free of hazards.

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Code of Safe Operating Practices

AIR POWERED TREE ACCESS (APTA) (Cont'd)

11. Follow Manufacturer Recommendations at all times:
 - a. The APTA (Air Powered Tree Access) is a tool used to set throw weights and attached throw line over tree branches.
 - b. Do not point the APTA at humans, animals, or property. Always keep the APTA pointed in a safe direction.
 - c. To be used on the ground, shooting into trees only.
 - d. The APTA uses high pressure compressed air to propel weights at high speeds.
 - e. Intended for use only with throw weights for tree climbing - do not put any foreign objects in the barrel.
 - f. Before every use, inspect the air chamber, valves, and barrel for leaks, cracks, dents or damage. If damage is found, retire the device immediately and contact TreeStuff.com.
 - g. Store the APTA with the barrel empty and valve handle in the open position.
 - h. Used improperly, the APTA can cause damage, serious injury or death. It is not a toy and should not be treated as such.
 - i. Do not allow the APTA to be accessible or used with/by children or unauthorized personnel.
 - j. What goes up, will come down. Be aware of what is below AND beyond the target area. The APTA can easily propel a throw weight 300ft or more.
 - k. Pressure exceeding 200psi is not recommended and could result in failure of the device and/or serious injury or death.
 - l. Begin with the barrel empty and the valve handle in the open position (parallel to the barrel).
 - m. Close the valve handle (perpendicular to the barrel).
 - n. Drop the throw weight with throw line attached into the barrel, ring down (towards the handle). For best results, lightly tamp the throw weight into the bottom of the barrel. A rake handle or straight stick works well.
 - o. TreeStuff.com suggests a Weaver Premium 12oz. weight. Weights with a thinner shape may not work as desired - a proper seal is important to achieve maximum height and velocity. Never use a projectile not intended for use.
 - p. Using a bicycle pump or compressor with a pressure gauge reading at least 150 psi, pressurize the tank. Pressure required varies according to the height and distance desired.
 - q. Hold the APTA by the fixed handle and the barrel, with the back of the tank held to your shoulder for stability. Do not touch the valve handle until you are ready to fire.
 - r. Ensure the projectile is securely connected to the throw line, clear any obstructions to be sure the throw line does not come in contact with any APTA components body parts or clothing during deployment.
 - s. Point the barrel of the APTA over (not at) the limb you're setting your throw line on.
 - t. Once you are aiming at your target, move your front hand from the barrel to the valve handle. Hold both handles firmly. Pull the valve handle toward you in a fast and fluid motion. Pulling slowly will not provide enough force to propel the weight properly.
 - u. Store the APTA with the barrel empty and the valve handle in the open position.

Code of Safe Operating Practices

TRACTOR, CRAWLER

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with and read operator's manual.
2. Never leave the machine unattended with the engine running.
3. Do not leave attachments in the raised position when it is not in use. Always lower to the ground.
4. Travel slowly when moving over rough terrain.
5. Never allow anyone to work under raised attachments without proper safeguards in place and secured.
6. Never drive too close to the edge of a ditch or excavation.
7. Watch for overhead wires as well as any underground or surface utilities or other obstacles and hazards. Underground Service Alert (USA) notification may be required, see Appendix DD.
8. Reduce speed before turning or applying brakes. Drive at speeds slow enough to ensure your safety, especially over rough and or steep terrain.
9. Avoid operating on hillsides or "side hilling." Always traverse slopes by going straight up and down whenever possible.
10. Never attempt to start or operate the machine except from the operator's station.
11. Never allow anyone to ride on the machine other than the operator.
12. Do not oil, grease or adjust the unit while it is in motion.
13. Operator must always wear lap belt.
14. Employees shall wear a hard hat whenever they are operating any motorized equipment not equipped with an enclosed cab. An enclosed cab is defined as motorized equipment with a windshield, doors, and surrounding cab protection with metal components and window glass. Motorized equipment with a covered operator area, or roll-over protection only, is not considered an enclosed cab.

Revised 5/5/2020

Code of Safe Operating Practices

UNDER BRIDGE INSPECTION TRUCK

SAFE PRACTICE RULES

There are three parts to this Code of Safe Operating Practice for Bridge Personnel Hoist.

- Part # I: Operating Requirements: Extreme safety precautions must be exercised at all times while operating the Inspection Truck
- Part # II: Bucket and Platform Personnel Requirements
- Part # III: Bridge Inspection Truck Work Limits: Items personnel should consider when looking at the vehicle's work location site

Read all three parts, then concentrate on the CSOP part which relates to your type of job. Part I is for the Bridge Inspection Truck operator. Part II is for the person who will be working or operating the work bucket or platform. Part III is for the person who is scheduling the Bridge Inspection Truck to be set up and operate at specific locations.

Part # I: Operating Requirements: Extreme safety precautions must be exercised at all times while operating the Inspection Truck

1. Pre-op equipment. Be familiar with operator's manual.
2. Personnel hoist operator shall be trained and qualified.
3. Prior to daily use of personnel hoist, a visual inspection and operational check shall be made in accordance with the manufacturers and owners instructions.
4. Personnel Hoist Operators shall follow all operating instructions in the operator's manual. The operator's manual shall be available during operation, service, inspection and repair.
5. Pre-check work location site. Have crew supervisor or bridge inspector read "Safe Practice Rules, Part # III Bridge Inspection Truck Work Limits" to check and make sure no hazards exist at the work location.
6. Pedestrian sidewalks between truck and bridge rail should be closed, when practical, so pedestrians are not walking under deployed booms.
7. Pre-check under work location site. If working over traffic, traffic control shall be provided. If over a public area, make sure area is secured during work operation.
8. Read safety placards before operating controls.
9. Be sure brakes are set and locked while not moving and before leaving cab of truck.
10. Booms shall not be operated unless spring lockouts are engaged.

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Code of Safe Operating Practices

UNDER BRIDGE INSPECTION TRUCK (Cont'd)

11. Check safety switches and deadman controls prior to use. Cycle of arm movement should be run through prior to person entering basket for the initial use of the day to verify the maximum working range is available, and all the stops are functional.
12. The combined load, including workers, material and tools shall not exceed the rated lift capacity as stated by the manufacturer. 600 lbs. limit in platform.
13. During set-up operation no persons shall be allowed to be positioned between the inspection truck and the bridge rail. Only the operator setting up the rig can be on the trucks control platform, all other personnel must be a safe distance away and viewing the set-up operation.
14. All new personnel to operate inspection buckets or work platform must first be trained and coached by the Operator. They are required to read and sign the "Safe Practice Rules for Bridge Inspection Hoist Part II, Set-up and platform operation.
15. All personnel in the platform shall be secured with a safety shock absorbing lanyard and a full body safety harness. Two shock absorbing lanyards will be used if personnel will be climbing out of bucket or platform onto structure.
16. Before entering personnel hoist platform from a bridge deck or rail, workers shall first be secured with a safety shock-absorbing lanyard from the person's safety harness to the platform.
17. When operating booms during set-up, the operator shall look in the direction of travel of the bucket and be aware of the booms in relation to all other objects and hazards. Operate controls smoothly.
18. Personnel hoist operators shall maintain proper clearance from overhead utility lines. Check Cal-OSHA title 8, Electrical Safety orders notes and clearance table chart on page "6A".
19. Riding in an inspection work platform while under a bridge is permitted only in a UBIT type Bridge Inspection truck. The speed is limited to less than 1 ½ miles per hour
20. Operator must maintain communication with personnel in platform at all times.
21. When moving from one area to another, while under a bridge in the work bucket or platform, the operator must be in communication with the Bridge Truck operator before any movement takes place. No extra talk or work related noise should exist while the Bridge Truck is moving with the personnel in the platform, so the stop signal can be heard.
22. Do not use personnel hoist while the operator's pick-up is in tow.

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Code of Safe Operating Practices

UNDER BRIDGE INSPECTION TRUCK (Cont'd)

23. Operator will maintain a tailgate safety meeting schedule of at least one every 10 working days or when starting a new work activity. Meetings shall be documented and held in the Bridge Inspection Operation log, and a copy left at the home office.
24. Keep a 5 pound BC fire extinguisher on unit at all times. Check units charge during daily Pre-op of truck.

Part # II: Bucket and Platform Personnel Requirements

1. Meet and discuss the work to be performed with the Bridge Hoist Operator.
2. Must use approved safety devices, (belts, lanyards, hardhat, safety glasses, etc...) All personnel in the bucket or platform shall be secured with a safety shock absorbing lanyard and a full body safety harness. Two shock absorbing lanyards will be used if personnel will be climbing out of bucket or platform onto structure.
3. During the set-up operation no persons shall be allowed to be positioned between the inspection truck and the bridge rail. Only the Operator setting up the rig can be on the control platform, all other personnel must be a safe distance away and viewing the set-up operation. Help the Bridge Hoist operator spot any unusual conditions or situations.
4. If first time working with a Bridge Inspection Truck, personnel must be trained by Bridge Hoist Operator on how to operate the work platform
5. Read safety placards before operating controls.
6. Check safety switches and kill button prior to use.
7. The combined load, including personnel, materials and tools, (600 lbs.) shall not be exceeded.
8. When climbing into the work platform a person will first hook a safety line to the bucket then climb into it. When climbing out of a platform the person shall stay hooked to the platform until they have crossed over the bridge rail onto the bridge deck before removing the safety line.
9. While working in the platform, have tools in proper place or keep a secure grip on them while maneuvering.
10. When operating aerial device, the operator shall look in the direction of travel of the platform and be aware of the booms in relation to all other objects and hazards. Operate controls smoothly. Abrupt starts and stops are hard on the equipment.
11. Pre-check under work location site. If working over traffic, traffic control shall be provided. If over a public area, make sure the area is secured during work operation.

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Code of Safe Operating Practices

UNDER BRIDGE INSPECTION TRUCK (Cont'd)

12. Personnel hoist platform operators shall maintain proper clearance from overhead utility lines. Check Cal-OSHA Title 8, Electrical Safety orders notes and clearance table chart on page "6A".
13. Do not let any part of this unit come into contact with the bridge structure. Do not use this unit for any purpose other than what it is intended for.
14. Riding in an inspection work platform while under a bridge is permitted only in a Bridge Inspection type truck. The speed is limited to less than 1 1/2 miles per hour.
15. When moving from one area to another, while under a bridge in the platform, the operator must be in communication with the inspection truck operator before any movement takes place. No extra talk or work related noise should exist while the Bridge Truck is moving with the personnel in the buckets so the stop signal can be heard.
16. Keep body parts away from areas where they may be pinched between buckets and other objects.
17. If working low near a body of water (within 30 ft.) personnel working in the platform can use a U.S. Coast Guard approved flotation jacket or vest, instead of keeping a safety line hooked onto the basket/platform.
18. Personnel in or platform should keep eyes looking out for obstacles and clearances, as well as hydraulic line and mechanical condition during operation.
19. Platform operator is responsible for having a pre-job discussion prior to entering the platform with the bridge truck operator; this would include visual inspection of required items, knowledge of boom/platform controls and operation and work site analysis.
20. No horseplay will be tolerated.
21. Do not force personnel to work in buckets or platform if they cannot deal with working from high places or over bodies of water.

Part # III: Bridge Inspection Truck Work Limits: Items personnel should consider when looking at the vehicle's work location site

1. The UBIT Truck takes 10ft of workspace. A full traffic lane will be needed to be closed off for the operation.
2. All Chapter 7 & 8 Traffic Safety Factors will be used when working with the Bridge Inspection trucks. A shadow or barrier vehicle of at least 2-ton size, must back-up the Bridge Truck when working in a traffic control zone. The barrier vehicle should be occupied for moving operations.

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Code of Safe Operating Practices

UNDER BRIDGE INSPECTION TRUCK (Cont'd)

3. If working over traffic or a public area should have flagmen or closure in effect, so nothing is below operation, when practical.
4. Pedestrian sidewalks between truck and bridge rail should be closed, when practical, so pedestrians are not walking under deployed booms.
5. Check for certain hazards which cannot be eliminated:
 - a. Power lines; overhead or under the bridge utility lines. Cannot work within 10 feet.
 - b. Trees and brush; can interfere with boom and bucket operation. Check both above and below work location.
 - c. Sign structures which can interfere with operation.
6. The Aspen Aerial UBIT trucks cannot work on any bridges with a roadway grade of greater than 5%.
7. The Aspen Aerial UBIT trucks cannot work on any bridge with a super elevation greater than 8%.
8. Aspen Aerials UBIT trucks should not work in winds greater than 30 mph. Items like grades, super elevations, boom positions, wind direction and wind gusts will affect the stability of the unit. (Discuss with the operator to help determine if the unit should be operated.)
9. Bridge Inspections trucks cannot set up their boom assemblies for over the side work on bridges with sidewalks or curbs over 12ft. wide and or bridges with pedestrian fences over 10ft. high.
10. Railroad tracks; when working over railroad tracks within 25ft of the edge of the track, regardless of vertical clearance, the rail company has to be notified before the work is scheduled. They will furnish a flag person to be present while the work is being performed. Have to rent the railroad flag person. *Special Note* the railroad does not recognize yellow vests, only orange vests should be used. Yellow work vest should not be used.
11. Make sure all personnel that ride in platform or operate controls read the “Code of Safe Operating Practices for Bridge Personnel Hoist, Part II, Bucket and Platform Personnel Requirements:”
12. Hold a crew tailgate safety meeting with the UBIT operator before doing the work and document the meeting.

Revised 8/10/2020

Code of Safe Operating Practices

REMOTE-CONTROLLED SKID STEER EQUIPMENT (Tunnel Mucker & Mower Attachments)

SAFE PRACTICE RULES

1. Pre-op equipment. Read and be familiar with Operating Instructions as supplied by the manufacturer. Only trained persons should operate this machine.
2. Underground Service Alert (USA) notification may be required, see Appendix DD.
3. Minimize visible dust. Modify work procedures to minimize dust. Work soils wet and/or add water for dust control.
4. Wear standard protective equipment (hardhat, vest, and safety glasses). Respiratory protection is recommended.
5. Do not eat, drink, or smoke near active work operations. Store food and water so it will not be contaminated with dust. Wash hands and face before eating, drinking, or smoking.
6. Use coveralls or disposable clothing to keep contaminated soils off personal clothing.
7. Clean up when leaving work:
 - a. Remove dirt from coveralls and shoes, wipe or brush off, don't blow or shake.
 - b. Remove coveralls, throw disposable coveralls away.
 - c. Wash hands, face and neck to remove dirt. Shower if necessary.
 - d. Put cloth coveralls in laundry for cleaning, don't take home.
8. Strictly follow the manufacturer's Operating Instructions for the remote controlled crawler you're using.
9. Do not make any changes to the system that have not been approved by Division of Equipment.
10. Do not power the system other than with the specified power supply.
11. Keep the transmitter out of reach of unauthorized personnel. Remove the transmitter key when the system is not in use.
12. Before starting work each day, make certain the STOP button and all other safety measures are working. Do not use the system if failure is detected.
13. Always attach transmitter to belt and secure around operator's waist before attempting to start the machine.
14. Follow System Start Procedure as outlined in the Operating Instructions to be sure transmitter is functioning correctly before attempting to start machine engine. Do not use the system if any failure is detected.

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Code of Safe Operating Practices

REMOTE-CONTROLLED SKID STEER EQUIPMENT (Tunnel Mucker & Mower Attachments) (Cont'd)

15. When the transmitter is powered up, be sure that all persons are clear of the machine before starting engine.
16. Remember that this machine is a remotely controlled piece of machinery and will move as the switches are activated on the transmitter.
17. NEVER approach the machine while it is running in remote mode, always deactivate by pressing STOP button on transmitter.
18. All personnel must stay clear of the machine, at a safe distance, keeping in mind the swing zone of the bucket & boom. The operator should stay behind or to the side of the machine as much as possible.
19. Do not use the machine when visibility is limited.
20. If the machine is being used in a confined space, be sure to follow the C.O.S.P. for Confined Spaces when entering the area to retrieve or work on the machine.
21. After use, never leave the system ON. Always use the STOP button or turn off the transmitter key.
22. When in doubt, press the STOP button.
23. Thoroughly wash the equipment before servicing.

Revised 5/5/2020

Code of Safe Operating Practices

AUTOMATED FLAGGER ASSISTANCE DEVICE: AUTOFLAGGER

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. **Be familiar with and refer to operator's manual stored in toolbox.**
2. Trailer towing overview:
 - When towing coupled together a Commercial Class A driver's license is required.
 - The regulatory sign shall be covered while being towed.
 - Each trailer is the same. There is no designated front or rear trailer.
 - Sign head must be in the lowest position.
 - Tool boxes must be shut and latched.
 - The trailer will pull at a slight arch to prevent whipping at high speeds.
 - It is recommended to not exceed 55 MPH while towing.
 - Jacks must be in the up position before towing.
 - Solar panel must be tightened securely.
 - Hitch must have positive lock and safety pin installed, safety chains connected, and trailer plug connected.
 - **Coupling of trailers: there are two methods. Refer to operator's manual and familiarize yourself prior to towing coupled trailers.**
3. Work zone set up:
 - Place sign units at desired location. Trailer must be placed completely off roadway (placed on shoulder).
 - Set up proper cones and signs per standard plan T13.
 - Retract hitch.
 - Extend outriggers.
 - Extend the jacks. Make sure that there is positive contact between the jack pad and ground ***This will limit movement in the event of a collision.***
 - Raise mast.
 - Power on sign units; gate arm motor will initiate momentarily.
 - Power on controller and verify communication between controller and sign units.
 - Extend gate arm to desired length, this may be easier when sign is in SLOW position. Ensure that gate arm does not protrude into the opposing lane.
 - Flagger shall be stationed adjacent to roadway always visible to approaching motorists and shall maintain adequate communications with crews in the work zone in case a vehicle does not stop at flagging station.
4. Basic operation:
 - Power on sign units.

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Code of Safe Operating Practices

AUTOMATED FLAGGER ASSISTANCE DEVICE: AUTOFLAGGER (Cont'd)

- After desired sign units and controller are powered on the current sign position will be displayed.
 - To set the signs to STOP, press the STOP button.
 - To set desired sign to SLOW, press the desired SLOW button.
 - You may swap the STOP/SLOW images displayed to match the physical position using SWAP SIGN SIDES in mode selection.
5. Review Section 7.16 in Chapter 7 of the Maintenance Manual (Flagging Operations, previously Section 8.20 in Chapter 8 of the Maintenance Manual).

Revised 06/18/2020

Code of Safe Operating Practices

SKID STEER/LAND MANAGEMENT MULCHER

SAFE PRACTICE RULES

1. Pre-op equipment including rental equipment. Be familiar with the operator's manual for machine and attachments.
2. Use standard PPE, adequate footwear, safety glasses and hearing protection.
3. Inspect work area for hazards such as overhead utilities (power lines and phone lines), culverts, headwalls, phone boxes, fire hydrants, uneven terrain with sudden depressions and rock outcroppings. A Safe Work Area shall be established and maintained while mulcher is working. 300 feet in all directions is advisable as a SAFE WORK AREA. If working near traffic always mulch away from traffic.
4. It is the responsibility of the operator using the mulcher to be acquainted with the safe operation listed in the operator's manual. Before lifting or lowering the mulcher, make sure the area is clear of bystanders or objects. Bystanders should never be within 300 feet (minimum) in all directions of the mulcher when it is in operation.
5. If vehicles or personnel need to pass through the Safe Work Area, or a person needs to approach the machine, radio communication shall take place with who is on the ground and the operator of the mulcher. Operator will wait to resume work until instructed to do so or area is clear of vehicles and personnel.
6. Before each operation, be sure to check all bolts, nuts, pins, etc. for their proper location and tightness. Regularly inspect the hammers, flails, knives, and blades on the mulcher head and replace as needed. Refer to CSOP Changing Wear Parts.
7. Adjust skid plates as needed.
8. Follow the Manufacturer's Guidelines for grease intervals.
9. Never exceed the Manufacturer's Specifications.
10. Never work on raised or elevated equipment unless protective blocking or chains are in place. Never trust the hydraulic system.
11. Never attempt to work on or make adjustments to the mulcher while the engine is running. Key shall be removed from machine.
12. Do not leave the equipment unattended with the engine running or with the attachment raised off the ground.
13. Review the Caltrans Fire Prevention Guidelines. Caltrans Intranet link: [Fire Prevention Resources | Maintenance \(ca.gov\)](#)

Code of Safe Operating Practices

SKID STEER/LAND MANAGEMENT MULCHER (Cont'd)

14. If possible, pre-wet the area to be mulched. This will help reduce dust and a potential fire.
15. All shields and screens should be opened up regularly and the entire machine should be cleaned out periodically, as airborne debris can accumulate in the engine compartment and cause overheating and a potential fire hazard. Likewise, the windshields and side windows should be cleaned of all debris so as to not diminish visibility.
16. To ensure the safety of the operator in land clearing operations, the machine needs to be equipped with an impact-resistant or severe-duty door. A ½ inch thick Lexan polycarbonate cab windows and a falling object protection system (FOPS) is advisable.
17. Do not operate the mulcher if you can see the cutters. If you can see the cutters, the back of the cutter is raised too high and should be lowered to avoid debris being thrown back at the operator and causing injuries.
18. Be aware when mulching standing trees, there is a danger of the treetop falling back onto the operator's cab.
19. Do not operate the mulcher with the attachment over 18 inches above the ground for low brush and saplings. When operating on slopes, drive up and down, not across. Avoid steep hillside operation, which could cause the machine to overturn.
20. Before exiting the machine, lower the attachment to the ground, apply the brakes, turn off the machine's engine and remove the key.

New 9/8/2022

Code of Safe Operating Practices

ELECTRIC VEHICLE SAFETY

HAZARD REVIEW

Electric Shock
Explosive/Extreme Heat
Toxic Materials
Inhalation Hazards
Sparking
Equipment Charging Limitations
Visual Inspections

SAFE OPERATING PROCEDURES

1. Review owner's manual for proper operation/maintenance and charging practices for applicable equipment (including rental equipment) and perform pre/post-operational checks.
2. Battery-charging shall be located in areas designated for that purpose. **MANY NEW VEHICLES CARRY DEADLY VOLTAGE. ALWAYS CHECK OWNERS' MANUAL OR DEALER SPECIFICATIONS BEFORE SERVICING. REFER HYBRID OR ELECTRIC CAR BATTERY SERVICING TO DIVISION OF EQUIPMENT SHOP.**
3. The area shall be adequately ventilated to prevent concentrations of flammable gases.
4. Smoking and open flame shall be prohibited in battery-charging area.
5. Use only manufacture-approved charging cables.
6. Do not use damaged chargers, extension cords, or adapters. Any of these items that are damaged shall be taken out of service immediately.
7. If a portable charging station is used, make sure the outlet on the building is de-energized (turned off) prior to plugging in. The portable charging station uses 277/480v electricity which is much higher than the voltage used in your home. Make sure the "Barrel plug" (the end that connects to the building) is fully seated and that the collar, has been threaded on fully. This is to prevent arc flash injury.
8. If an off the grid portable charging station is used, be aware of the large amount of batteries on site and/or the use of a portable generator. The lithium batteries pose a risk of fire. A generator can introduce an ignition source to the off gassing produced by a compromised lithium battery.
9. In the event of a fire, evacuate the area by moving upwind/uphill then call 911. Avoid inhaling any smoke or fumes because they are toxic and can be deadly. Lithium battery fires are dangerous and burn hotter than other fires. There is a potential for an explosion during these fires. Do not attempt to put the fire out yourself.
10. Refer to owner's manual and/or DOE Shop before performing maintenance, including jacking or lifting a vehicle due to battery locations.
11. For more resources regarding electric vehicles follow this [DOE link](https://equipment.onramp.dot.ca.gov/office-maintenance-repair/ev-faqs); <https://equipment.onramp.dot.ca.gov/office-maintenance-repair/ev-faqs>

Code of Safe Operating Practices

SECTION IV

SPECIAL PURPOSE CODES

Code of Safe Operating Practices

GENERAL OPERATING PROCEDURES

FOR SPECIAL PROGRAM PEOPLE

1. Think Safety: Plan your work - report hazards to your Crew Leader/Supervisor.
2. Report any injury to Crew Leader/Supervisor immediately.
3. Safety equipment, i.e., hard hat, vest to be worn, at all times. Safety glasses and gloves to be worn when instructed by the crew leader.
4. **DO NOT** go out onto traveled way for **ANY** reason unless closed to traffic. **DO NOT** cross the freeway lanes! Do not stand behind vehicles.
5. In the event of a traffic accident, **DO NOT** try to help. The crew leaders may assist.
6. Work facing traffic whenever practical, staying as far from moving traffic as possible.
7. No horseplay.
8. No outside visitors.
9. No jumping from vehicles, or equipment.
10. Assistance should be summoned before attempting to lift excessively heavy or bulky objects.
11. Should you require assistance (water, restroom, injury, etc.), contact your crew leader. Do not utilize the porta-potty unless a protective vehicle is parked behind it.
12. All persons occupying State vehicles shall wear seat belts and/or harness when vehicle is in operation.
13. No one is authorized to ride on the running boards or in the open bed of a vehicle.
14. All electronic personal devices are not allowed when working near traffic and may also be prohibited at other times.
15. Appropriate clothing (i.e., shirt, long pants) and appropriate footwear (i.e. hard-soled work shoes - **NOT** thongs, slippers, etc.) shall be worn at all times.
16. Allow ample working space to work safely. Do not bunch up.
17. Beware of unstable terrain (gopher holes, oily spots etc.) at all times.
18. Place tools in a safe position so that sharp points are not exposed.
19. Use caution when handling bags for they may contain broken glass or other sharp objects.

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Code of Safe Operating Practices

FOR SPECIAL PROGRAM PEOPLE (Cont'd)

20. Workers shall plan escape routes when they arrive at the work zone and any time the job location changes within the work zone. Consider the following when planning and establishing an escape route:
- a. A path you can use to get out of the way of errant vehicles.
 - b. The use of vehicles, equipment, terrain, vegetation and structures to shield you from errant vehicles.
 - c. All of the possible directions that vehicles can enter the work zone.
 - d. Worksite and activity hazards such as trenches and drop-offs within or near the work zone.

HAZARDOUS MATERIALS WARNING

Beware of substances in containers that bear either hazardous placards, or no placards, that lay along the shoulders or in the landscaped areas; these may be extremely hazardous substances. Other potential hazards are pools of liquids, piles of colored powders, broken bags, residues from illegal labs, biological wastes, etc. **DO NOT** attempt to remove any such materials. Warn other workers of the possible danger and notify your Supervisor immediately.

HYPODERMIC NEEDLES

Follow district policy on who is to pick up hypodermic needles. Whoever picks up the discarded needles should follow these general guidelines.

1. Under no circumstances should you pick up discarded hypodermic needles with your hands. Use a litter-picker or other device. Needles can puncture leather gloves.
2. Place hypodermic needles in a leak-proof, rigid, puncture-resistant container ("Sharps Container" provided by your Supervisor). Do not hand hold container while placing needles inside with a litter picker; YOU MAY ACCIDENTLY PUNCTURE YOUR HAND. Place the open container on the ground before attempting to put the needle inside the Sharps container. Containers must be labeled as a biohazard.
3. Do not carry or store Sharps containers in the cab of your vehicle or anywhere where they may accidentally come in contact with another person, your clothes or foodstuffs. Your supervisor will store containers at the shift's end.
4. If you feel you may have come in contact with any item that may be infectious, notify your Supervisor. Wash the contaminated area immediately with soap and water.
5. Store containers with needles in a secure location, where they will not be disturbed or contacted by employees (suggestion: properly labeled salvage drum) until they are mailed to American Environmental Management Corporation or otherwise properly disposed of.

Towelette preps in the first aid kit may also be used to disinfect the hands.

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Code of Safe Operating Practices

FOR SPECIAL PROGRAM PEOPLE (Cont'd)

HANDLING MEDICAL AND BIOLOGICAL (HUMAN) WASTES

1. Employees shall be informed of the potential health hazards involved with contact of biological (human) wastes and should be trained regarding proper hygienic procedures.
2. Use standard personal protective equipment. In addition, impermeable (rubber) gloves, boots, and rain gear or Tyvek coveralls are required while working with biological wastes. An approved half-mask respirator with organic vapor cartridges may also be desirable.
3. Do not eat or smoke while working with biological wastes. Wash thoroughly with clean water and soap before eating, drinking or smoking. Safe drinking and wash water and soap shall be provided at the work site.
4. Plan the task to minimize public and employee contact with potentially infectious substances and to prevent environmental damage. Contain the waste with earth berms if possible, or use absorbent materials.
5. Carry spray containers (ensure that they are labeled) filled with chlorine bleach to disinfect small quantities or Hudson Sprayer size for larger quantities.
6. Use motorized equipment (loader, backhoe, vactor, etc.) whenever possible.
7. An adequate first aid kit should be available.
8. For large quantities, the services of a contractor may be warranted. Contact the Local County Health office for assistance if you are cleaning up these wastes.
9. Safe drinking and wash water and soap shall be provided at the work site. Wash thoroughly with clean water and soap before eating, drinking, smoking or using the restroom.

Code of Safe Operating Practices

GENERAL OPERATING PROCEDURES

FOR VOLUNTEER GROUPS

1. Think Safety: Plan your work: report hazards to your Crew Leader/Supervisor.
2. Report any injury to Crew Leader/Supervisor immediately.
3. Safety equipment i.e., hard hat, vest to be worn, at all times. Glasses and gloves to be worn when instructed by the crew leader.
4. **DO NOT** go out onto traveled way for **ANY** reason unless closed to traffic. **DO NOT** cross the freeway lanes!
5. In the event of a traffic accident, **DO NOT** try to help. The crew leaders may assist.
6. Work facing traffic whenever practical, staying as far from moving traffic as possible.
7. No horseplay.
8. No jumping from vehicles or equipment.
9. Assistance should be summoned before attempting to lift excessively heavy or bulky objects.
10. Should you require assistance (water, restroom, injury, etc.), contact your crew leader.
11. No one is authorized to ride on the running boards or in the open bed of a vehicle.
12. Appropriate footwear (i.e., hard-soled work shoes - **NOT** thongs, slippers, etc.) shall be worn at all times.

HANDLING MEDICAL AND BIOLOGICAL (HUMAN) WASTES

1. Employees shall be informed of the potential health hazards involved with contact of biological (human) wastes and should be trained regarding proper hygienic procedures.
2. Use standard personal protective equipment. In addition, impermeable (rubber) gloves, boots, and rain gear or Tyvek coveralls are required while working with biological wastes. An approved half-mask respirator with organic vapor cartridges may also be desirable.
3. Do not eat or smoke while working with biological wastes. Wash thoroughly with clean water and soap before eating, drinking or smoking. Safe drinking and wash water and soap shall be provided at the work site.
4. Plan the task to minimize public and employee contact with potentially infectious substances and to prevent environmental damage. Contain the waste with earth berms if possible or use absorbent materials.

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Code of Safe Operating Practices

FOR VOLUNTEER GROUPS (Cont'd)

5. Carry spray containers (ensure that they are labeled) filled with chlorine bleach to disinfect small quantities or Hudson Sprayer size for larger quantities.
6. Use motorized equipment (loader, backhoe, vactor, etc.) whenever possible.
7. An adequate first aid kit should be available.
8. For large quantities, the services of a contractor may be warranted. Contact the Local County Health office for assistance if you are cleaning up these wastes.
9. Safe drinking and wash water and soap shall be provided at the work site. Wash thoroughly with clean water and soap before eating, drinking, smoking or using the restroom.

Code of Safe Operating Practices

APPENDIX A

PROPANE TANK HANDLING AND USE

HAZARD REVIEW

Fire
Explosion
Eye Injury
Freeze Burn
Overfilling
Asphyxiation

1. Always wear gloves which will not absorb propane liquid when changing or filling tanks. Do not use cotton or leather. Remove any clothing that becomes saturated with propane.
2. Always wear eye protection when changing or filling tanks. Use chemical safety goggles meeting the spec. ANSI Z87.1 when connecting or disconnecting lines under pressure.
3. Smoking is prohibited within 50 feet when changing or filling tanks.
4. Tanks must be transported in the position in which they are to be used, and in a secure manner that will prevent them from falling over.
5. Before refilling, check the propane tank certification. Portable propane tanks are required to have a DOT number and the date of manufacture or last certification stamped on them. Portable propane tanks are required to be re-certified 12 years after the dated of manufacture, and again at 7 years if followed by and 'S' or 5 years if followed by and 'E'. During the required certification testing have the vendor remove and inspect the product delivery valve and the dip tube.
6. Any propane tank that leaks or has external corrosion, denting, bulging or fire damage shall be removed from service. Special attention shall be paid to the bottom of the cylinder.
7. Do not use propane tanks that are overfilled. To check for overfilling, crack open the main valve and check for vapor coming out before installing the pressure regulator. If liquid appears the tank is overfilled, and should not be used. Always point the valve opening away from your body when performing this test.
8. During the daily equipment pre-op, inspect all propane valves, hoses and connections, especially those that are located close to any ignition sources (such as the kettle burner). Look for leaks, cracked hoses, broken gauges, and damaged regulators. Use a soap and water solution to check for leaks. When replacing hoses use approved propane hoses.

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Code of Safe Operating Practices

PROPANE TANK HANDLING AND USE (Cont'd)

9. All new propane tanks must be purged before being filled for the first time; the vendor can do this.
10. All propane tanks not in use, or being transported, must have a plug or regulator installed in the product delivery valve and have the appropriate hazard warning decal.
11. Tanks being used on a towed vehicle must have the product delivery valve protective device turned toward the towing vehicle to protect the valve from damage.
12. A valve protection device shall be installed on all propane tanks that do not have a guard around the valve.
13. Regulators need to be installed at a 45-degree angle to keep water from entering the vent hole. Regulators need to be replaced after 15 years. All propane tanks shall have a regulator for product delivery.
14. Be aware of the effects that changes in temperature and elevation have on pressurized propane tanks. The pressure in a tank filled in the morning, when the ambient temperature is cool, may increase in the afternoon when the temperature increases. The pressure in a tank, which is filled at a low elevation, will also increase when the tank is transported to a higher elevation. When a propane tank is full, these pressure changes may be beyond the capability of pressure relief valve. This could cause the pressure safety valve to release propane into the atmosphere, with disastrous results if an ignition source is close. If the safety valve releases, replace the valve.
15. Employees that fill portable tanks shall receive training in tank filling procedures. This training is usually available at propane vendors.
16. Storage areas shall be well protected and secure. They shall be well ventilated, free of heat and ignition sources and at least 20 feet (6 meters) away from any combustible material such as oil, grease or adhesives. When tanks are being stored, you must indicate if a tank is empty or full with a proper tag or marking. **Short term storage of equipment with propane tanks is allowed in a truck shed if the tanks are turned off at the main valve and a 20 foot (6 meters) clearance of all ignition sources and combustible material is maintained.**
17. Review material safety data sheet for propane.
18. See Equipment CSOP for specific equipment safety instructions.

Code of Safe Operating Practices

APPENDIX B

CONFINED SPACE ENTRY PROCEDURES

CONFINED SPACES INCLUDE STRUCTURES OR FACILITIES, SUCH AS: TANKS, BINS, CULVERTS, MOBILE TANKERS, VAULTS, PUPM HOUSES, DEEP TRENCHES, BRIDGE CELLS, OR SIMILAR LOCATIONS.

HAZARD REVIEW

Explosive Hazards
Oxygen Deficient Atmosphere

SAFE OPERATING PROCEDURES

1. All employees, including standby persons, shall be trained in the operating and rescue procedures, including instructions in the hazards they may encounter. Refer to Safety Manual, Confined Spaces, Chapter 14.
2. Employees entering confined spaces should be in good physical condition and psychologically suited for the job.
3. Before entering a confined space, a "Confined Space Entry CheckList" shall be posted at the work site and must be completed and signed by all employees involved in entry into the confined space. Notify regional dispatcher prior to entry and when exiting a confined space.
4. Smoking or open flames shall not be permitted in the immediate area of the confined space.
5. Atmosphere tests using a Gastech (or equivalent) air sampling and monitoring instruments must be conducted by a trained and qualified person prior to any employee entering confined space. The instrument shall be tested prior to use by a qualified person who can ensure that the unit is functioning properly and that the batteries are not low. Low batteries will result in false readings that could be dangerous or fatal. If it is determined from the initial test, that the lower explosive level and oxygen levels are within acceptable standards, then entry may proceed. The air shall be continually monitored with an appropriate instrument for combustible gases and oxygen-deficient atmosphere. A record of such tests shall be kept at the job site for the duration of the work.
6. If the above conditions cannot be met, no one shall enter the confined space.

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Code of Safe Operating Practices

CONFINED SPACE ENTRY PROCEDURES (Cont'd)

7. The area shall be ventilated for a minimum of 15 minutes prior to atmospheric testing and entry. Culverts need not be ventilated if the crew leader determines that the natural ventilation system is sufficient and the required atmospheric tests are satisfactory. **Should the atmospheric-testing instrument's audible alarm or visual indicator, indicate a change reduction in oxygen content or increase of gas, all individuals must evacuate the area immediately.**
8. At least one person shall stand by on the outside of the confined space ready to give assistance in case of emergency.
9. An emergency rescue plan shall be devised and discussed prior to entry into any confined space.
10. For more detailed information about Confined Spaces, please refer to the Departmental Safety Manual, Chapter 14 which can be found here:
http://hs.onramp.dot.ca.gov/downloads/hs/files/Chap_14_aug_2014.pdf

Code of Safe Operating Practices

APPENDIX C

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Following are requirements/guidelines for the use of personal protective equipment. The guidelines do not reflect the **only** instances where these devices are to be used. It is not possible that an appendix such as this contains guidelines for every possible situation; unusual circumstances may call for greater protective measures than are outlined here. It is the Supervisor's responsibility to exercise prudent judgment in the application of these requirements/ guidelines and to ensure that all employees wear the appropriate personal protective equipment. The standard PPE includes a hard hat, an ANSI compliant garment and safety glasses. Non-compliance could result in needless injuries or corrective action.

Hard hats shall be worn:

1. When working within the right-of-way.
2. When there is a clear and present danger of falling objects, which may cause injury.
3. When exposed (or reasonably expected to be exposed) to falling or flying materials, contact with electrical hazards, or to hazardous chemical substances.
4. At the direction of the Supervisor.

Orange (ANSI compliant) garments shall be worn:

1. While working within the right-of-way.
2. When exposed to moving traffic.
3. Class II is required during daylight hours. Class III is required at night or anytime you are flagging.

Safety glasses shall be worn:

1. When working near moving vehicles and equipment.
2. When there is a risk of injury to the eye, such as punctures, abrasions, or contusions.
3. At the direction of the Supervisor.
4. While grinding, drilling, sawing or hammering.
5. While operating various power tools such as, but not limited to, chain saws, weed eaters, hedge trimmers, leaf blowers, lawn mowers, lawn edgers, augers. Woodworking tools, pipe cutting and threading tools, and powered metal cutting saws.
6. While operating trenching machines, pavement breakers, concrete saws, rock drills, rock splitters, chipping and roto-hammers, and concrete mixers.
7. While working on energized electrical equipment.

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Code of Safe Operating Practices

PERSONAL PROTECTIVE EQUIPMENT (PPE) (Cont'd)

Safety goggles shall be worn:

1. When in the judgment of the Supervisor their use would be more appropriate than safety glasses alone.
2. When there is a clear and present danger of a foreign object or substance entering through the side of the glasses.
3. When there is a need to protect the eye from mists and dusts.
4. While engaged in activities such as sandblasting.

Face Shields shall be worn:

1. When in the judgment of the Supervisor their use should be more appropriate than goggles. (Sandblasting, etc.)
2. When there is a possibility of injury to the face/neck area.
3. When there is a danger of splashing chemicals or other hazardous substances. (Use special splash shield)
4. When using drills or grinding equipment where safety glasses or goggles alone are not sufficient to prevent materials from injuring the employee.

Work Gloves should be worn:

1. During any operation where there is a risk of abrasion, laceration, burns, blisters, or puncture to the hands.

Note: Gloves will not protect against all hand injuries, but their use should minimize the number of minor injuries associated with hand work.

Some activities where gloves should be worn include:

- Hot mix paving or patching.
- Fence and guardrail repair (includes gore attenuators).
- Median barrier repair.
- Sign repair.
- Delineation or culvert marker repair or replacement.
- Tree trimming and associated activities.
- Pruning of shrubs and other vegetation.
- Welding and grinding.
- Picking up litter and debris.
- Weeding.
- Operating pneumatic tools.
- Using common digging tools such as shovels, picks, etc.
- Electrical work (when appropriate) example: re-lamping.
- Operating chain saws, weed-eaters and other gas powered tools.

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Code of Safe Operating Practices

PERSONAL PROTECTIVE EQUIPMENT (PPE) (Cont'd)

Impermeable gloves shall be worn:

1. When working with hazardous chemicals.
2. As directed by the SDS.
3. When using cleaning solvents.
4. When mixing and applying pesticides.
5. When mixing and applying methacrylate.
6. When working with isocyanate-based concrete repair products such as Percol or Penatron.
7. When welding or cutting.
8. When exposed to poison oak.
9. When exposed to harmful dusts.
10. When mixing and applying certain pesticides.

Impermeable coveralls or Caltrans rain gear shall be worn:

1. When mixing and applying certain pesticides.
2. When mixing and applying methacrylate.
3. When required by either a product label or the SDS.

Rubber boots shall be worn:

1. When mixing and applying methacrylate.
2. When mixing and applying certain pesticides.
3. When required by the product label or the SDS.

Fall protection devices (approved belt, body belt or body harness equipped with a safety strap or lanyard) shall be used (Safety Manual 12.25, Fall Protection):

1. When in the bucket or basket of any personnel lift.
2. While on overhead signs not equipped with safety railings.
3. While on fixed ladders over 20 feet (6 meters) in unbroken length without cage protection.
4. While working on unguarded work platforms, where you can fall more than 7 1/2 feet (2.2 meters).
5. When working in trees.

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Code of Safe Operating Practices

PERSONAL PROTECTIVE EQUIPMENT (PPE) (Cont'd)

Respirator protection (with the appropriate filters/cartridges) shall be worn:

1. When required by the product label or SDS.
2. When mixing and applying certain pesticides.
3. When handling hazardous chemicals.
4. When sandblasting lead-based paints, see your supervisor for safe guidance.

Respirator protection (with the appropriate filters/cartridges) may be required:

1. When welding or cutting on galvanized materials.

Hearing protection shall be worn:

1. When noise levels in the work environment exceed 90 decibels. Examples are:
 - Brush chipping
 - Sandblasting
 - Operating chain saws, weed eaters, blowers, etc.
 - Operating pneumatic tools (pavement breaker, etc.)
 - Operating Vactor/Jet rodder
 - Using compressed air to blow cracks
 - Operating mowers
 - Operating Sani-Vac
 - During avalanche control operations
 - Operating motorized Layton paver
 - Operating concrete saw
 - Steam cleaning

The operation of motorized equipment such as dozers, graders, loaders, snow blowers, trenchers, gradalls, self-propelled pavers, rollers, pavement grinders, tractors, backhoes, kettles, sweepers, chip spreaders, mist blowers, stump grinders, mudjack machines, and certain trucks may require hearing protection. If the noise level of a particular vehicle appears to be excessive, the actual decibel reading for that piece of equipment should be determined through testing.

A good rule of thumb is: If normal conversation at 3 feet (1 meter) cannot be understood without raising your voice, hearing protection is probably needed.

Reflective (ANSI compliant Class III) garments shall be worn:

1. While working on or near the right of way at night.
2. While flagging.

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Code of Safe Operating Practices

PERSONAL PROTECTIVE EQUIPMENT (PPE) (Cont'd)

100% cotton coveralls shall be worn while working with hot materials or when there is potential for a hot surface to come into contact with your high visibility garment. In 2008, high visibility garment standards went into effect, requiring all employees to wear ANSI compliant Class II and III garments. One of the requirements for a compliant garment is the background material must be color fast and that can only be achieved using a polyester blend. Since polyester can melt if exposed to a heat source, many Codes of Safe Operating Practices (CSOP's) were revised to require coveralls be worn when employees are working with hot materials or working with equipment where they could be exposed to hot components. Since the 100% cotton coveralls are not compliant on their own (cotton does not give the color fast requirement for ANSI compliance), the vest is worn over the coveralls. If hot material/components came into contact with the vest and it began to melt, the employee would be protected by the coveralls. This applies to all field maintenance employees with the exception of the electricians who have their own PPE guidelines.

Garments that expose bare legs (e.g., shorts and cutoff pants) do not provide adequate protection against most physical and environmental hazards. Supervisors are expected to require employees to wear clothing that is appropriate for the job assignment and that protects employees from work site hazards. Long pants are required to be worn.

Do's and Don'ts for PPE:

- Do fasten vests.
- Do not cut off / remove tags from PPE.
- Do not cut off sleeves.
- Do not wear hard hats backwards.
- Do not wear after hours.
- Do not remove reflective striping.
- Do not place non- work-related stickers on hard hats.
- Do keep your PPE clean. Soiled / damaged PPE shall be cleaned / replaced.
- Do not provide or issue Caltrans logo PPE to non-Caltrans personnel.

Clothing not appropriate for Caltrans use

- Cut-offs.
- Tank tops
- Sandals or canvas shoes
- Metal hard hats

Revised 10/15/19

Code of Safe Operating Practices

APPENDIX D

TRENCH AND EXCAVATION SAFETY GUIDELINES

These guidelines must be read and discussed before any work is to be done concerning excavations or trenching. The California Code of Regulations, Title 8, Construction Safety Orders, Section 1541-46 contains the detailed information required for shoring, sloping and benching.

1. Before disturbing the soil, determine whether and underground installations or utilities are likely to be encountered. Call Underground Service Alert (USA) at least 2 working days before. The telephone numbers for USA are as follows:

1. **Underground Service Alert – Northern California (USA)**

811 or 1-(800) 642-2444 or usanorth811.org

Serving 49 counties: Alameda, Alpine, Amador, Butte, Calaveras, Colusa, Contra Costa, Del Norte, El Dorado, Fresno, Glenn, Humboldt, Kern, Kings, Lake, Lassen, Madera, Marin, Mariposa, Mendocino, Merced, Modoc, Mono, Monterey, Napa, Nevada, Placer, Plumas, Sacramento, San Benito, San Francisco, San Joaquin, San Luis Obispo, San Mateo, Santa Clara, Santa Cruz, Shasta, Sierra, Siskiyou, Solano, Sonoma, Stanislaus, Sutter, Tehama, Trinity, Tulare, Tuolumne, Yolo, Yuba.

2. **Underground Service Alert – Southern California (DigAlert)**

811

or 1-(800) 422-4133 or digalert.org

Serving 9 counties: Inyo, Imperial, Los Angeles, Orange, Riverside, San Diego, Santa Barbara, Ventura.

2. A qualified person must supervise all work in an excavation.
3. Remove trees, poles, boulders and similar objects, which may be a hazard to workers.
4. Do not work in an area or enter a trench or excavation until a qualified person has determined that there is no hazard from moving ground.
5. Do not enter an excavation 5 feet (1.5 meters) or more in depth without shoring, benching, sloping or equivalent alternative methods of protection. Trenches or excavations in unstable ground shall be shored regardless of depth.
6. Excavated material shall be prevented from falling back into the excavation and shall be kept at least 2 feet (0.6 meters) from the edge.
7. In trenches 4 feet (1 meter) deep or more, a safe and convenient means of access must be provided within 25 feet (8 meters) of any location in the trench.
8. Install crossings with standard guardrails and toe-board when the excavation is more than 7 1/2 feet (2.2 meters) deep. Cross trenches at crossings only.

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Code of Safe Operating Practices

TRENCH AND EXCAVATION SAFETY GUIDELINES (Cont'd)

9. Adequate physical barrier protection shall be provided to prevent employees and the public from falling into excavation at remote work locations.
10. Accumulations of water in excavations, shall be controlled by dikes, ditches, or other means, before the work can continue.
11. When excavating near highways, railroads or other sources of vibration, use additional precautions and bracing to strengthen shoring.
12. Backfill or securely cover temporary excavations when the work is completed. Before back-filling, physically check to assure that no one is in the trench.

Revised 10/18/22

Code of Safe Operating Practices

APPENDIX E

CUT SLOPE SAFETY GUIDELINES

Cut Slope Safety

The following advisory is the product of an agreement between the Department of Transportation and the Division of Occupational Safety and Health.

A "Qualified Person" must determine what hazards are present at the cut slope work area. The Construction Safety Orders state that a qualified person is a "person designated by the employer who by reason of experience or instruction is familiar with the operation to be performed and the hazards involved."

When considering who is a qualified person, Supervisors should consider the following factors:

1. Previous work experience in slide and rock removal and slope maintenance.
2. The person's understanding of the general effects of rain, temperature changes, wind and freeze-thaw cycles on slope stability and terrain conditions.
3. The person's familiarity with geographical areas, where work is to be conducted.

Orientation required to cover 1, 2, and 3 above.

It is the Supervisor's responsibility to designate which workers are qualified. This designation may be informal or formal.

Work shall be preplanned. Preplanning means that routine work in rock active areas should be conducted so as to minimize the adverse effects of rain, freeze-thaw, temperature change, traffic conditions, and light conditions. Work crews should be briefed on the operations to be performed and the conditions involved; personnel and equipment appropriate for the work activity should be scheduled and provided.

When working at night, sufficient illumination shall be provided throughout the work area and immediately above the work in rock active work locations.

What is sufficient illumination is dependent on each particular work situation considering the scope of the operation, material involved, and equipment involved. In most cases, normal vehicular headlight and/or spotlight illumination would be considered sufficient.

Safe work practices for moving equipment operations such as snow removal and rock patrol.

Personnel operating rock plows, snow removal equipment, or other moving equipment operations need not make formal visual inspections of each slope as they pass by. They must, however, be alert to conditions around them and take appropriate precautions to ensure safety to themselves, their equipment, and the public. This may include road closures.

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Code of Safe Operating Practices

CUT SLOPE SAFETY GUIDELINES (Cont'd)

Occasional surveys (e.g., road condition patrol) of areas requiring moving operations shall be made by Supervisors to ensure that appropriate action is taken to safeguard employees in the work activity.

As an additional precautionary measure, units performing moving equipment operations will maintain periodic radio or telephone contact when possible with their base station.

Note: All appropriate work crews should be briefed on these provisions and be re-briefed as needed.

If you have questions regarding the application of these provisions to a specific work location or work activity, contact your local District Safety Officer.

Questions regarding broad policy application should be directed to Headquarters Safety or Headquarters Maintenance.

Code of Safe Operating Practices

APPENDIX F

INSTRUCTIONS FOR DEVELOPING INDIVIDUAL AND SITE-SPECIFIC CSOP'S

The following instructions will assist you in developing a Code of Safe Practices, which will be specific to your individual needs. Conditions and situations vary; different geographical locations or physical conditions may require additional safeguards. As you identify the site or situation-specific items, note them for inclusion in the CSOP.

Step number one:

Title the "Code" as to task or location.

Example: "Patching potholes on the Cuesta Grade": or "Spraying double fence lines."

Step number two:

Identify the hazards inherent to the particular task or location. List them in order of perceived severity, most severe at the top, utilizing standard CSOP format.

Step number three:

Using the standard CSOP format, identify the methods or equipment, which will be used to minimize or eliminate the hazards mentioned in step two. Hazards identified must have a corresponding resolution listed.

List the type of traffic control procedure, if any, which must be used.

List any personal protective equipment (PPE) that is required or recommended in addition to the standard PPE.

Submit a draft copy to your line managers. Retain a copy in your Code of Safe Practices Manual in the Supervisors office. If the CSOP has an application for statewide use, submit a copy to Headquarters Maintenance for review.

Code of Safe Operating Practices

APPENDIX G

FALL PROTECTION

Approved personal fall arrest, personal fall restraint or positioning systems shall be worn by those employees whose work exposes them to falling in excess of 7 1/2 feet from the perimeter of a structure, unprotected sides and edges, leading edges, through shaft ways and openings, sloped roof surfaces steeper than 7:12, or other sloped surfaces steeper than 40 degrees. **All employees using aerial lift equipment shall use a personal fall protection system.**

§3276. Portable Ladders.

(e)(15)(A)

The employee shall climb or work with the body near the middle of the step or rung and shall not overreach from this position. When necessary to avoid overreaching, the employee shall descend and reposition the ladder. **When it is not practical to work with the body near the middle of the step or rung, the ladder shall be secured to the top support, and the employee shall be protected by a personal fall protection system** in accordance with Article 36 of the High-Voltage Electrical Safety Orders, Article 24 of the Construction Safety Orders, Article 12 of the General Industry Safety Orders, or Article 1 of the Telecommunication Safety Orders. Operations or conditions not specifically covered by Article 36 of the High-Voltage Electrical Safety Orders, Article 12 of the General Industry Safety Orders, or Article 1 of the Telecommunication Safety Orders shall comply with the fall protection provisions of Article 24 of the Construction Safety Orders.

Standard Guardrails

These are the preferred method of fall protection. They prevent the employee from falling.

1. Standard guardrails consist of a top rail and mid rail, must be between 42 to 45 inches high, and must protect the edge on all open sides.
2. Refer to 8CCR § 3209 for specific construction requirements.

Personal Fall Restraint System

A personal fall restraint system consists of:

1. A body belt (or body harness with side D-rings).
2. An anchorage point capable of supporting 4 times the intended load.
3. A 2-foot lanyard (for situations where a 2-foot lanyard is too short for the employee to reach their work, a longer lanyard may be used but must be rigged to prevent the employee from falling).

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Code of Safe Operating Practices

FALL PROTECTION (Cont'd)

4. If the fall restraint cannot be rigged in such a way to prevent a fall, a personal fall arrest system is required.

Personal Fall Arrest System

A personal fall arrest system consists of:

1. A body harness with D-ring at the center of the back.
2. A decelerating/shock-absorbing lanyard rigged to limit a maximum free fall to 6 feet; or a self retracting lifeline.
3. Adequate clearance to ensure the employee cannot contact the ground, obstructions below, passing traffic, etc. in case of a fall.

Note: A shock- absorbing lanyard will lengthen approx. 4 feet during a fall, for a total length of approx. 8 feet (if rigged to allow for only a 4-foot fall as required). If the employee is 6 feet tall, at least 14 feet of clearance is required.

4. An anchorage point designed to hold a minimum of 5000 pounds, 3000 pounds for a self retracting lifeline or, installed as part of a complete personal fall protection system designed under the supervision of a professional engineer with a safety factor of at least two.

Note: Fall arrest systems cannot be utilized when working in aerial equipment unless that equipment is designed to support at least 5000 pounds or it can maintain a safety factor of at least two. Because most aerial equipment cannot support this load, personal fall restraint is the preferred fall protection system in aerial equipment.

Additional Fall Protection Requirements

1. Fall arrest system use requirements
 - a. Make provisions for prompt rescue in case of a fall. At least one additional person on site, trained in use of fall arrest equipment, aerial lift, emergency lowering procedures, and the emergency rescue plan shall be provided. If an outside agency (i.e. fire department) will provide rescue, advance contact to confirm availability is required.
 - b. Position equipment to allow adequate clearance. Park the vehicle so that it will not interfere with passing traffic.
 - c. If working over a traffic lane, the lane must be closed if you are using fall arrest.
 - d. Employees shall be secured from falls at all times.
2. Standard guardrails are not an acceptable anchorage point for personal fall restraint or fall arrest systems, unless designed for that purpose. **(Standard guardrails mounted on Caltrans sign structures are not designed for that purpose.)**

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Code of Safe Operating Practices

FALL PROTECTION (Cont'd)

3. Knots tied in lanyards to shorten the length are not permitted.
4. Lanyards shall not be clipped together.
5. All personal fall protection equipment shall be inspected daily, before each use, and defective equipment shall not be used.
6. All personal fall protection equipment must meet ANSI standard A10.14-1991, or Z359.1-1992.

See the Safety Manual Chapter 12, section 12.16 for additional specific information, and requirements on equipment used when working in trees and on cut slopes.

Revised 2/12/15

Code of Safe Operating Practices

APPENDIX H

NATURAL OCCURRING ASBESTOS (NOA)

HAZARD REVIEW

Asbestos Containing Dust
Shoulder Backing, Bench Cleaning, Slide Removal, Mowing, Pull Broom,
Soil Disturbing Operations

NOTE: This CSOP is based on the current exposure testing information, and takes a conservative approach to protect employees. As additional testing is conducted, additional modifications may be made.

This CSOP does not apply to activities such as snow removal, pesticide application, paving, and guide marker replacement. If in doubt, contact the District Safety Officer for assistance.

Before Work:

1. Determine if soil to be disturbed is expected to contain more than 1 % asbestos by weight. Use actual soil sampling data if possible. Otherwise, refer to the Headquarters GIS NOA post mile database or the District NOA maps to determine where NOA may be expected.

If Asbestos is Present:

1. Notify the District Safety Office before work starts.
2. Notify the local Air Quality Management District (AQMD) as required.
3. Employees shall be given Asbestos Awareness Training including discussion of asbestos hazards, work procedures, and policy. Training will be renewed annually.
4. Review the applicable Storm Water activity cut sheets with crew prior to work.
5. Establish control over the work area--Keep all unauthorized/untrained workers away.
6. No eating, drinking or smoking in the area while soil is being disturbed, in the equipment, or at the disposal site.
7. Use work procedures and equipment that will minimize employee exposure to dust.
 - Schedule work when material is naturally wet or after rain/snow – or apply adequate water to keep all NOA material damp during all operations.
 - “NO VISIBLE DUST” – call for more water.
 - Keep speeds in work area below 15 MPH, including pilot car.

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Code of Safe Operating Practices

NATURAL OCCURRING ASBESTOS (NOA) (Cont'd)

- Use improved water system on pull brooms and mobile brooms to eliminate dust. [Contact Equipment Shop for necessary upgrade modifications.]
 - Keep broom on paved surface; avoid brooming unpaved shoulders or gutters.
 - Consider using a water wash-off instead of brooming if possible – but remember Storm Water requirements.
8. Use personal protective equipment to minimize asbestos exposure.
- Wear standard protective equipment (hardhat, vest, and safety glasses).
 - Use disposable or cloth coveralls to keep NOA off personal clothing.
 - Wear cleanable shoes to minimize “take home” NOA.
 - If there is NO visible dust, the use of respiratory protection is not required.
 - If dust cannot be controlled, then the appropriate respiratory protection [A half-face cartridge respirator with N-100/P-100 cartridges.] must be worn when doing these moderate exposure tasks: loader operator, self-propelled or pull broom operator, dozer operator, pilot car driver.
 - Respirators will be provided to any employee who wishes to wear one during NOA operations.
 - All respirator users will follow the Caltrans Respiratory Protection Program – (medical evaluation, training, fit test, approved equipment, no facial hair, etc.). See Chapter 15, Caltrans Safety Manual.
9. Decontaminate employees to minimize exposure and “take home” NOA before leaving site or eating, drinking, or smoking:
- Provide onsite washing facilities, including water, soap & towels.
 - Clean shoes first, and then remove protective clothing and respirators.
 - Do not blow off or shake out coveralls, which could create NOA dust.
 - Put paper coveralls in trash. Place cloth coveralls in plastic bag for transport or storage.
 - Clean respirator and store properly.
 - Wash hands, face, and neck before leaving.
10. Clean NOA dirt and mud from equipment before it leaves the site.
- Use minimal water or wipes.
 - Minimize dust.
 - Observe Storm Water requirements.

Code of Safe Operating Practices

APPENDIX I

LEAD CONTAMINATED SOILS

Testing of soils along California highways indicates that they contain elevated levels of lead (<3000ppm). This Code of Safe Practices addresses the possible health risk this contamination poses, and outlines prudent safety measures for employees working in these areas.

Lead enters the body through inhalation or ingestion; it is not readily absorbed through the skin. Based on soil lead levels and expected dust, employee exposures to airborne lead while working with contaminated soil are not expected to exceed 10 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$), well below the Cal-OSHA permissible exposure limit of 50 $\mu\text{g}/\text{m}^3$ (averaged over 8 hours). The main concern is exposure through ingestion. An additional concern is the spread of lead contaminated soil into vehicles, offices, or homes and possible exposure to others, particularly children.

Ingestion typically occurs from eating, drinking or smoking with a dirty face or hands while working in a lead contaminated area. If food, cigarettes, chewing tobacco, makeup, or drinks get contaminated or are handled with dirty hands or utensils, lead ingestion can happen.

Lead is a potent systemic poison that serves no known useful function. It can cause both short and long term health effects, and is of particular concern to young children and women of childbearing age. Once in the body, most lead is filtered out and removed, but it can be stored in the bones and soft tissues, often for extended periods.

To minimize the ingestion of lead and the spread of lead contamination; follow these work practices when working along shoulders and medians of highway:

1. Provide employees with lead awareness training discussing the hazards, regulations, and work procedures applicable to lead contaminated soil.
2. Minimize visible dust. Modify work procedures to minimize dust, if possible. Work soils wet and/or add water for dust control. Use water spray systems on equipment if available.
3. Do not eat, drink, or smoke near active work operations. Store food and water so it will not be contaminated with dust. Wash hands and face before eating, drinking, or smoking.
4. Use coveralls or disposable clothing to keep contaminated soils off personal clothing.
5. Clean up when leaving work:
 - a. Remove dirt from coveralls and shoes, wipe or brush off, don't blow or shake.
 - b. Remove coveralls, throw paper ones away, put cloth ones in plastic bag to control dirt.
 - c. Wash hands, face, and neck to remove dirt. Shower if necessary.
 - d. Put cloth coveralls in laundry for cleaning, don't take home.

Note: Notify laundry facility that coveralls contain lead.

LEAVE CONTAMINATED SOIL AT WORK -- NOT AT HOME!!!

6. Contact your supervisor if there are any questions.

Revised 2/2/2017

Code of Safe Operating Practices

APPENDIX J

DUST MASK GUIDELINES

1. Dust masks are respirators. (Correct term: "filtering face piece respirator".)
2. If employees want to wear dust masks (Voluntary Use), they must:
 - a. Be trained in their proper use, fit, limitations, storage, and disposal (See Below 4.)
 - b. Be familiar with the Caltrans facial hair policy and understand that any facial hair interfering with a mask's seal and/or one-way valve (if equipped) may render the mask ineffective.
 - c. Use only NIOSH (National Institute of Occupational Safety and Health) approved dust masks.
 - d. Read and sign the Voluntary Use Acknowledgement form. This form may be found in [Chapter 15, Appendix B](#) of the Caltrans Safety Manual.
3. If employees are required to wear dust masks (Mandatory Use), they must also:
 - a. Pass a respirator medical evaluation.
 - b. Comply with the Caltrans facial hair policy. All facial hair that interferes with a face-to-respirator seal, or valve, shall be shaved prior to fit test and use.
 - c. Pass a respirator fit test with the dust mask they will wear. A fit test is required for each different brand or model of dust mask.
4. Dust Mask Training:
 - a. Dust masks are respirators. You must follow these guidelines if you wear one.
 - b. Dust masks only filter the air. They do not provide oxygen. They work only for particulates (dust or smoke particles) and will not filter out solvents, vapors, gasses or liquids.
 - c. Dust masks are only good for non-toxic dusts and particulates. They do not provide adequate protection for lead, asbestos, or pesticides.
 - d. Use only NIOSH approved dust masks. They will have a "TC" number on the face piece or straps.
 - e. Never modify your dust mask by cutting or knotting straps, poking holes, etc. Any modification voids the approval.
 - f. An N-95 dust mask will filter out 95% of particulates down to .3 microns, and a P-100 mask will filter out 99.97% of particulates down to .3 microns. Either are adequate for non-toxic dusts and smoke.
 - g. Wear the mask correctly - before donning (putting on) bend nose strip over finger - this causes a better fit around bridge of nose - put upper strap over crown of head- lower strap on neck- check fit and re-position if necessary. A User Seal Check must be performed each time a mask is donned.
 - h. If you have breathing problems or exposure symptoms while wearing a dust mask, leave the area immediately. Replace the dust mask before re-entry. If you still have problems, contact your supervisor. Additional protection may be necessary.

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Code of Safe Operating Practices

DUST MASK GUIDELINES (Cont'd)

- i. When you are done using a dust mask, discard it in the trash. Do not fold it for later use. Store unused masks in a clean location with ample space so they are not crushed or deformed.
 - j. Training must be renewed annually. If required, fit testing must also be completed annually or whenever there are changes in the employee's physical condition that could affect respirator fit. Medical evaluations do not need to be renewed except when recommended by a physician, management, or Respiratory Protection Program administrator, there is a change in workplace conditions, or when the employee reports medical symptoms that may affect their ability to wear a respirator.
5. Document Dust Mask training and review of these guidelines. Use a tailgate safety meeting form or other documentation.
6. If there are questions about appropriate dust mask use contact your District Safety Office of the Headquarters Office of Health and Safety at (916) 227-2640 or HQ.Health.Safety@dot.ca.gov. For additional information on Caltrans Respirator Policy, see Chapter 15 of the Safety Manual.

Revised 07/09/2024

Code of Safe Operating Practices

APPENDIX K

AC/PCC PAVEMENT REPAIR USING HAND-MIXED ISOCYANATE-BASED PRODUCTS

HAZARD REVIEW

Hazardous Materials
Inhalation Hazard
Contact Hazard

SAFE OPERATING PROCEDURES

1. Review CSOP for PCC Surface Repair before beginning work.
2. Use standard personal protective equipment (PPE). In addition, use the following PPE when mixing or applying isocyanate-based products:
 - a. Rubber boots.
 - b. Nitrile gloves.
 - c. Full face shield.
 - d. Tyvek or paper coveralls.

NOTE: Tyvek suits increase heat stress. Take frequent breaks, drink plenty of cool water, unzip suit when away from material.

SPECIAL NOTE: Use these products only in well ventilated areas. DO NOT USE INDOORS. DO NOT HEAT MATERIAL.

3. Specialized safety training is required before using isocyanates. Training includes the hazards and health risks of isocyanates, proper protective equipment, and safe work procedures. Contact the Office of Health and Safety Services or the District Safety Officer for assistance. Crew must have the Safety Data Sheets (SDSs) for the material being used at the work site.
4. Provide wash water and soap, emergency eyewash station, and decontamination shower at the work site, immediately available to applicators. The shower is not required if a plentiful supply of wash water {50+ gallons} is available.
5. Inhalation exposure during AC/PCC repair is minimal, but isocyanates can be absorbed through the skin. Wash hands and exposed areas thoroughly before eating, drinking, smoking or using toilet facilities. If material gets on skin, wash with soap and water immediately. Remove clothing immediately if contaminated with unmixed material. Change Tyvek coveralls daily.

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Code of Safe Operating Practices

AC/PCC PAVEMENT REPAIR USING HAND-MIXED ISOCYANATE-BASED PRODUCTS (Cont'd)

6. Follow the manufacturer's instructions for mixing and applying. During mixing limit drill speeds to 350 rpm or less to minimize splashing. Use caution when opening containers, internal pressure may build up during warm weather.

● WARNING ●

7. You may become allergic to this material and exposure to it could cause asthma. Do not breathe vapors or let material stay on your skin. If you experience chest tightness, shortness of breath, wheezing, or coughing, leave the area immediately and get to fresh air. If the symptoms persist, contact your supervisor and seek medical treatment. Symptoms may be delayed.
8. Do not rely on your sense of smell to warn you of exposure to isocyanates, they have poor warning properties. Eye irritation is a strong indication that you are being overexposed; leave the area.
9. Overheating during storage will cause a build up of vapors in the container. Open containers in well ventilated area.
10. Dispose of waste material properly. Allow unused mixed material to harden, and then return it to the Haz Waste Shed for proper disposal. Side 'A' and 'B' empty containers are hazardous waste. The preferred method of disposal would be "recycled by vendor", or stored in the Haz Waste Shed for proper disposal. Follow the SDS.

Code of Safe Operating Practices

APPENDIX L

YELLOW TRAFFIC PAINT/STRIPE/MARKINGS REMOVAL

Yellow traffic paint, thermoplastic stripe, and permanent marking tape use lead chromate pigments to achieve their yellow color. White markings do not contain lead. Although some of the new yellow paints do not contain lead, all of the older yellow materials do. When these markings are removed by grinding, scraping, burning, abrasive blasting, or other mechanical methods - the dust that is created can contain lead. The purpose of this Code of Safe Practices is to address the possible health risk this dust poses to Caltrans employees, and to outline the prudent safety measures necessary to protect employees who are exposed to this lead containing dust.

Lead enters the body through inhalation or ingestion of lead-containing materials and is not readily absorbed through the skin. An evaluation of the expected dust levels and the lead content indicates that airborne lead exposures should be well below the Cal-OSHA permissible exposure limit (average of 50 micrograms of lead per cubic meter of air for 8 hours). The primary concerns are exposure through the ingestion or inhalation of contaminated dust, or exposure to others from clothing or shoes that contains lead-contaminated dust from the work area. **Eating, drinking, or smoking in lead contaminated areas or with hands or faces that are contaminated with lead-containing materials is the way ingestion occurs.** If you use food, cigarettes, chewing tobacco, makeup, or drinks that have lead contaminated dust in them or handle these items with lead dust contaminated hands, you could ingest lead.

Once in the body, lead is a potent systemic poison that serves no known useful function. It can cause serious short and long term health effects, including damage to the nervous and blood forming systems, reproductive system, kidneys, and digestive system. Young children absorb lead much easier than adults and can suffer additional severe delayed effects, including slow learning and behavioral problems, from exposure to lead. The length of time lead stays in the body varies, most is eliminated within days or weeks, but some can be stored in tissues or bones for extended periods of time and then released into the body.

To minimize the potential for lead exposure, the following work practices will be adopted for job sites where yellow traffic paint/markings/stripe is being removed by grinding, scraping, burning, abrasive blasting, or other mechanical methods:

1. Minimize visible dust. Use water or vacuum attachments to keep dust down. [Vacuums need a HEPA filter on the air discharge to catch lead dust.] Because the dust contains lead, less dust equals less lead exposure. If dust cannot be minimized, grinder operator and others exposed to dust will wear a half-face cartridge respirator with P-100 (magenta color) filter cartridges. Respirator use will follow the requirements of the Caltrans respirator program (Chapter 15 in the Safety Manual.) which requires medical evaluation, training, fit testing, NIOSH approved equipment, and compliance with the facial hair policy.

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Code of Safe Operating Practices

YELLOW TRAFFIC PAINT/STRIPE/MARKINGS REMOVAL (Cont'd)

2. Minimize contamination of personal clothing and shoes. Stay away from the dust generation process as much as possible. Use cloth coveralls or Tyvek disposable paper coveralls to keep dust off clothes. Remove coveralls at job site before leaving. Put in plastic bag to prevent spread of contamination. Clean shoes and personal clothing before leaving work area.
3. Prevent dust ingestion by not eating, drinking, or smoking in contaminated areas. Observe basic hygiene; wash hands and face before eating, drinking, or smoking. Clean hands, clothing and shoes before entering vehicles or buildings. Store food and water so it will not be contaminated.

Hazardous Waste Concerns:

Under the California EPA regulations, materials that contain over 1000 parts per million (ppm) or 5 milligrams per liter (mg/l) soluble lead are to be handled, stored, transported, and disposed of as Hazardous Waste. Waste materials with 350 parts per million (ppm) of lead are to be disposed of as "Hazardous Waste". This could include materials generated from yellow paint/stripe/markings removal. Contact your District Hazardous Waste Coordinator or Environmental department for assistance with this issue.

Code of Safe Operating Practices

APPENDIX M

EMERGENCY EYEWASH/SHOWER INSPECTION PROCEDURES (PORTABLE AND STATIONARY)

DEFINITIONS:

1. **Combination Unit:** An interconnected assembly of drenching and flushing equipment that is supplied by a single flushing fluid source.
2. **Emergency Shower:** An assembly that utilizes a valve that remains open during use to enable the user to have water cascading over the entire body while the hands are free.
3. **Eye/Face Wash:** A device used to irrigate and flush both the face and the eyes.
4. **Flushing Fluid:** Potable (drinkable) water or other medically acceptable solution.
5. **Personal Eyewash:** A supplementary eyewash that supports plumbed or self-contained eyewash equipment by delivering immediate flushing for less than 15 minutes.
6. **Plumbed Eyewash:** An eyewash unit permanently connected to a source of potable water.
7. **Self-Contained Eyewash:** An eyewash device that contains its own flushing fluid that must be refilled or replaced after each use.

PROCEDURES:

1. Immediate and proper use of emergency drenching and flushing is essential to minimizing injury upon injurious chemical contact. It is therefore imperative that proper maintenance and inspection is performed on emergency eyewash/shower units, both portable and stationary.
2. Each unit is to be free from clutter so access is not blocked. The ANSI (American National Standards Institute) standard requires units be accessible within 10 seconds or less of the hazard. In terms of distance it can be calculated as approximately 55 feet.
3. Each unit is responsible for making sure that flushing, inspection, and repair of the emergency eyewash/shower units within their area(s) occurs. This includes changing flushing fluid in portable units at the frequencies recommended by the manufacturer.
4. Individuals in each work area should be designated responsible for the testing and inspection of the (stationary) eyewash unit. The testing and inspection of the (portable) eyewash unit will be part of the equipment pre-op and post-op. The individual is responsible to perform the maintenance and keep a dated and initialed written record.

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Code of Safe Operating Practices

EMERGENCY EYEWASH/SHOWER INSPECTION PROCEDURES (PORTABLE AND STATIONARY) (Cont'd)

5. When testing and inspection is performed, any deficiencies will be reported to the supervisor, who will ensure steps are taken to correct.
6. All individuals assigned maintenance tasks for emergency eyewash units are to be trained in the use and care of the unit.
7. Each supervisor will ensure that personnel who may need to use an eyewash/shower unit are trained on its location and use.
8. Each supervisor is responsible for assigning responsibility to maintain eyewash units and ensuring that procedures are followed. (Checklist attached.)

The following are key specifications from ANSI Z358.1 – 2009:

1. Plumbed and self-contained emergency showers:
 - a. Must supply at least 20 gallons per minute (gpm) of flushing fluid at a velocity low enough to be non-injurious to the user.
 - b. At least a 15-minute supply of flushing fluid must be available.
 - c. The flushing fluid supply valve must stay open without the use of the operator's hands.
 - d. Shower head height must be between 82 and 96 inches (84" is optimal) from the user's standing surface.
 - e. Protection from freezing or freeze protected equipment is required where the possibility of freezing exists.
 - f. Shower enclosures (if used) require at least a 34-inch diameter unobstructed area to provide adequate space for the user.
2. Plumbed and self-contained eyewash:
 - a. Must supply at least 0.4 gpm of flushing fluid at a velocity low enough to be non-injurious to the user.
 - b. At least a 15-minute supply of flushing fluid must be available.
 - c. Eyewash units must supply flushing fluid to both eyes simultaneously.
 - d. The flushing fluid supply valve must stay open without the use of the operator's hands.
 - e. Nozzles must be protected from airborne contaminants. Nozzle protective device removal must be automatic (not require a separate motion by the user) when the unit is turned on.
 - f. Eyewash units must be placed between 33 and 45 inches from the user's standing surface and at least 6 inches from the nearest wall or other obstruction.

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Code of Safe Operating Practices

EMERGENCY EYEWASH/SHOWER INSPECTION PROCEDURES (PORTABLE AND STATIONARY) (Cont'd)

3. Eye/face wash equipment:
 - a. Plumbed and self-contained eye/face wash units must supply at least 3.0 gpm of flushing fluid and at a velocity low enough to be non-injurious to the user.
 - b. At least a 15-minute supply of flushing fluid must be available.
 - c. Eye/face wash units must supply flushing fluid to both eyes simultaneously.
 - d. The flushing fluid supply valve must stay open without the use of the operator's hands.
 - e. Nozzles must be protected from airborne contaminants. Nozzle protective device removal must be automatic (not require a separate motion by the user) when the unit is turned on.
 - f. Eyewash units must be placed between 33 and 45 inches from the user's standing surface and at least 6 inches from the nearest wall or other obstruction.
4. Combination units:
 - a. Units such as an eyewash and shower combination are ideal in many situations. Installation and performance requirements for these units are as presented for the individual components.
5. Personal eyewash equipment:
 - a. Personal eyewash equipment, such as bottles and small portable units, are designed for immediate flushing of the eyes without being injurious to the user. These support plumbed and self-contained units, but does not provide adequate replacement.
 - b. Operator instructions must be maintained on personal eyewash equipment.
 - c. Water must be changed out at least once per week when it is used without a preservative. An expiration date must be maintained according to the manufacturer's specifications on equipment containing flushing solutions or preservatives.

FLUSHING/INSPECTIONS:

The General Industry Safety Orders §5162 Emergency Eyewash and Shower Equipment requires activation of a plumbed station on a **monthly** basis and defers to the manufacturer's recommendations for other units (such as mobile units).

1. Plumbed eyewash and eye/face wash stations must be activated and flushed at least once per month. Flush for at least three minutes.
2. Inspect unit while flushing to make sure that water rises to approximately equal heights, and that fluid flow is sufficient to flush both eyes simultaneously while at a velocity low enough to be non-injurious to the user.

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Code of Safe Operating Practices

EMERGENCY EYEWASH/SHOWER INSPECTION PROCEDURES (PORTABLE AND STATIONARY) (Cont'd)

3. In terms of water temperature it should be “tepid”. As a general rule, 100-degrees Fahrenheit is the highest temperature and the lower end should be 60-degrees Fahrenheit. However, each application and situation must be evaluated on a case by case basis.
4. Water in self-contained units must be replaced with fresh potable water at least once per week. Follow the manufacturer’s recommendations for functionality tests and solution replacement when a preserved solution is used in these units.
5. The self-contained eyewash unit should be filled with flushing fluid and then activate. Record the time needed to fill a gallon container. Verify that the water gently flows at 0.4 gpm at similar heights. After 15 minutes of operation, use the water collected to refill the container. Activate the unit again. Beginning 12 minutes after the flow, the time it takes to fill the gallon container must be 2 minutes or less.
6. Each unit must be reviewed monthly to make sure components are in place, the unit is readily accessible, and that flushing solution has not passed its expiration date. Also verify that bottles with seals/tamper indicators are sealed, replacing those that are not.
7. Plumbed emergency shower stations must be activated and flushed for 15 minutes at least once per month.
8. Each eyewash or shower unit not passing inspection or requiring repair, must be signed to warn people that the emergency flushing station is not functioning properly. Repair of defective units must be expedited. Alternate measures must be in place until repairs are made.
9. Records of each flush/inspection must be kept. These records may be recorded on tags that are attached to drenching and flushing equipment, by means of a checklist, or by both.

REFERENCE:

Departmental Safety Manual, Chapter 12, Personal Protective Equipment (PPE),
SECTION 12.07, EMERGENCY EYEWASH AND SHOWER REQUIREMENTS.

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Code of Safe Operating Practices

EMERGENCY EYEWASH MAINTENANCE CHECKLIST

Location: _____
Name: _____
Date: _____

**Eyewash stations are to be used exclusively for eyes only.
Separate wash water is required for hands and face.**

PLUMBED AND PORTABLE UNITS:	Yes	No	N/A
Is unit clean for use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is the area surrounding the eyewash station free of all obstructions?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is the unit free from sharp projections in the operating area of the unit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is the eyewash easily activated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are the nozzles equipped with protective covers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is the water flowing from both eyepieces?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is the flow of water of equal height?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is the flow of water clear?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the spray pattern deliver a steady stream of water or is the flow further divided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the water drain properly from the basin/sink?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is the water temperature constant and tepid?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has the unit been flushed and inspected at least once a week?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note: Review Storm water Manual for compliance when flushing systems.

PLUMBED (FIXED) UNITS ONLY:

Are the covers removed by activation of the eyewash?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If water not initially clear, does flow become clear after 2 minutes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the water flow continue until the unit is returned to its resting position?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PORTABLE UNITS ONLY:

Is unit positioned on equipment to be readily accessible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are fasteners with pull-down mechanism in good working order?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note:(For extremely high heat areas) If water could become too hot to apply in eyes (above “tepid”), consider adding ice or very cold water at the beginning of shift to control temperature.

Code of Safe Operating Practices

APPENDIX N

ENCAMPMENT REMOVAL

HAZARD REVIEW

Moving Traffic
Moving Equipment
Dust/ Particulate Matter
Working with Contractors
Hidden Obstructions
Overcrowding of Workers
Unidentified Materials
Infectious Substances
Hypodermic Needles
Body Wastes
Contact with Unknown Persons
Contact with Domestic Animals
Environmental Hazards
Drug Labs
Weapons

1. Review and follow Maintenance Policy Directive (“MPD”) 1001, Maintenance Manual Vol. 1, section 1.07.3.
2. Prior to assigning any work, the Supervisor or designee shall conduct a field review/assessment of the area with the California Highway Patrol (“CHP”). Do not enter an encampment without CHP.
3. For encampments within construction projects, the Superintendent or designee shall work directly with the resident engineer in advance of the project start date to discuss active construction operations and specific project safety hazards during the encampment assessment.
4. Prior notice must be posted at the encampment in accordance with MPD 1001 and the “Interim Guidance on Encampments.” However, any health or safety hazard, such as an encampment inside of a bridge cell or other confined spaces, may be removed immediately.
5. The District Hazmat Manager (DHM) or qualified designee shall be present at the posting to evaluate the site for public health hazards that may require immediate remediation or abatement.
6. No one shall be permitted to begin removal work while encampment occupants are still present. CHP shall be present to perform an initial assessment to confirm all occupants have left, and to remove or arrest remaining occupants.

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ENCAMPMENT REMOVAL (Cont’d)

Code of Safe Operating Practices

7. Caltrans maintenance workers shall not pick up encampment trash/litter until the site has been cleared of hazardous materials.
8. Pre-op equipment including rental equipment. Be familiar with operator's manual.
9. Review other applicable Codes of Safe Operating Practices prior to starting the work. Other applicable Codes may include: Litter Removal Roadside, Handling and Disposing of Urine Waste, Handling and Disposal of Hypodermic Needles, Confined Space Entry Procedures, Disposal of Animal Carcasses, Unidentified Highway Spills and Graffiti Removal.
10. Review work area protection procedures and any traffic control requirements.
11. While on foot, make every effort to perform work facing oncoming traffic.
12. Park in an area suitable for safe entering or exiting of vehicle that does not cause a hazard to yourself or others.
13. Use appropriate personal protective equipment and gear, required by the applicable Code of Safe Practices, including pesticide-use safety glasses (brow and side shields required) or chemical goggles. In addition, impermeable (rubber) boots, nitrile or other impervious gloves and Tyvek coveralls or other splash resistant clothing (i.e. raingear) are required while working at encampments. A NIOSH approved N-95 or P-100 dust mask and/or face shield may also be used. If a dust mask is used, comply with the Caltrans Dust Mask Guidelines—see Appendix J.
14. Do not eat, drink, or smoke while performing encampment operations. Wash hands with soap and water after performing any encampment operations before eating, drinking, or smoking.
15. Use motorized equipment to perform the work, if possible. Keep workers on foot clear of moving equipment.
16. Beware of hidden obstructions both below and above ground such as trip wires, traps in grassy areas, ground covers, hidden electrical wiring, and rodent burrows on unstable terrain.
17. Be alert and watch for weapons, stashed and/or hidden. Immediately report any discovered weapons to the onsite supervisor. Do not touch or move them. Call CHP to investigate and remove any weapons.
18. Be observant of any electrical hazards such as temporary/hidden electrical wiring that may have been connected illegally. Contact your Electrical crew for assistance in disconnecting charged wiring.
19. If using plastic bags to dispose of non-hazardous trash or debris, do not overload the bags. Do not place sharp objects in bags that may cause them to rupture and possibly injure a coworker. Do not place hypodermic needles in bags; needles shall be placed in approved Sharps containers only.

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Code of Safe Operating Practices

ENCAMPMENT REMOVAL (Cont'd)

20. Be careful while lifting; lift using the large muscles of your legs instead of your back.
21. An approved first aid kit shall be available on site (See Safety Manual Chapter 9).

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Code of Safe Operating Practices

APPENDIX O

WILDFIRE RESPONSE GUIDELINES

HAZARD REVIEW

Moving Traffic
Moving Equipment
Workers On Foot
Debris on Roadway
Weather Conditions
Airborne Contaminants
Flying Particles
Hot Materials
Aircraft Operating in Area
Downed Power Lines

1. Caltrans personnel do not fight wildfires unless they are trained and authorized to do so.
2. Caltrans personnel will assist fire-fighting agencies as directed by Caltrans chain of command.
3. Review safe practice rules for all applicable equipment, including rental equipment.
4. Perform pre-operational check.
5. Make sure other equipment and your personal protective devices are in good working order. Repair or replace any non-working items before leaving yard or staging area.
6. Dress appropriately for the job. Use standard personal protective equipment. Use Class III reflective garments. When directed and as a protective measure, employees may be required to wear Nomex fire-fighting jacket, pants, face shields and/or fire goggles.
7. Be vigilant of low flying aircraft that may be dropping fire retardant or water. This includes helicopters and fixed wing aircraft.
8. Review work area protection procedures and any traffic control requirements.
9. Stay informed of and base all actions on current fire behaviors as well as weather predictions and forecasted fire behaviors from Calfire or other suppression authority. Identify escape routes in the area if needed in the event of changes in fire behavior.
10. Park in an area suitable for safe entering and exiting of your vehicle. Do not block emergency vehicles, escape routes, or other identified emergency responders.
11. While on foot, make every effort to perform your work facing oncoming traffic.
12. When working on foot, be alert for out-of-control vehicles. Be prepared to take evasive and/or escape action at a moment's notice.

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Code of Safe Operating Practices

WILDFIRE RESPONSE GUIDELINES (Cont'd)

13. When operating equipment or driving during fire conditions, employees should exercise extreme caution to allow for unexpected actions on the part of other motorists.
14. Be careful when working around non-Caltrans personnel (law enforcement, fire departments, EMS ambulance crews, media crews, etc.) as their safety procedures may differ from ours. If in doubt, ask.
15. If employees want to wear dust masks (Voluntary Use), they must:
 - a. Be trained in their proper use, fit, limitations, storage and disposal (See Below).
 - b. Complete and sign the Voluntary Use Acknowledgement Form. This form may be found in [Chapter 15, Appendix B](#) of the Caltrans Safety Manual.
 - c. Use only NIOSH (National Institute of Occupational Safety and Health) approved dust masks labeled N-95, N-99, N-100, R-95, P-95, or P-100.
16. Respiratory protection must be provided for employees working in locations where the pm2.5 Air Quality Index (AQI) is above 150, or when designated by local air quality management districts as “Very Unhealthy,” “Unhealthy,” or “Hazardous.” See Appendix J of the CSOP for instructions.
17. All employees shall maintain radio contact with Caltrans base station/dispatch or CHP dispatch. Employees on foot should have a hand-held radio to maintain contact.
18. Use extra caution when driving through areas of smoke and flame. Roll up windows; turn off A/C and outside air vent, or switch vent to recirculate. Turn on headlights and use warning lights as needed. Do not stop adjacent to burning vegetation or other debris; it may cause injury to you and others, or damage your vehicle.
19. Use extreme caution while plowing debris, as it may be hot. Be alert for fire crews. SLOW down as needed.
20. Be extremely vigilant for downed power lines; ALWAYS consider them to be live!
21. For further information, refer to Chapter 26 of the Caltrans Safety Manual. Questions may be directed to the Headquarters Office of Health and Safety at (916) 227-2640 or HQ.Health.Safety@dot.ca.gov

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WILDFIRE RESPONSE GUIDELINES (Cont'd)

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SUPERVISOR CHECK OFF BOX AS EACH ITEM IS COVERED

- ☐ Implement engineering and administrative controls whenever feasible.
- ☐ Use caution and patience while dealing with motorists. Do not try to stop them from driving past a Flagger's Station. If they ignore your directions and drive past, immediately notify the CHP or other nearby law enforcement.
- ☐ Use caution when plowing around obstructions. They are usually marked with reflectors, but some may have been burned away. The best way to avoid accidents is to be familiar with the area in which you are working.
- ☐ If possible, do not stop in the traveled way to work on equipment. Pull off the road in a safe location.
- ☐ Be careful while backing during adverse conditions (i. e., flames, smoke, etc.). Avoid backing altogether if possible. If available and practicable, use a spotter and work out hand signals with the spotter before you start the backing process. .
- ☐ Extreme care must be exercised while trimming branches or removing trees, material may be hot. (Reference: Chain saw, Tree trimming or removal, General Instructions, Equipment Section.)
- ☐ Do not breathe toxic vapors (i. e. burning galvanized rail, treated rail post, and sign post).
- ☐ Use proper lifting techniques to avoid back injuries.
- ☐ Workers on foot should stay out of the way of operating equipment until the area is clear for handwork. Stay well clear of moving equipment.
- ☐ Position yourself where the operator can see you. Make eye contact with the operator so they will know you are there.
- ☐ Don't crowd the worksite. Allow ample space for each employee to work safely.
- ☐ Cooperate with the on scene commander and follow the commander's method of communication. Communicate, Communicate, and Communicate!

Revised 5/23/2018

Code of Safe Operating Practices

APPENDIX P

LOOKOUT GUIDELINES

A lookout is a worker that is assigned to the sole purpose of watching for errant vehicles entering the workspace. If a vehicle appears to be entering the workspace the lookout will yell or sound an alarm to instruct the workers to move out of the way of the errant vehicle.

1. A lookout shall be assigned if **all** of these conditions exist:
 - a. Work occurs on a roadway with a posted speed limit of 55-mph or more.
 - b. Workers are without physical protection.
 - c. Two or more people working close to each other.
 - d. Working within 30 feet of moving traffic.
 - e. A person is on foot.
2. A lookout shall not be assigned to any other duties.
3. Lookouts have the authority to clear the area or stop work at any time.
4. A lookout should be posted at a location where they can detect errant drivers or other hazards and provide an effective warning to other workers. Lookout observation locations should not be allowed where the lookout person will be placed in unnecessary danger.
5. Lookouts shall have pre-planned escape routes which will be reviewed and changed as necessary.
6. Lookouts shall have adequate communications with other workers at all times. When using voice communication devices with optional voice actuated and push to talk modes, the lookout shall use the voice actuated mode and the workers shall use the push to talk mode. If voice communications are used, an alternate alarm system shall be provided, e.g., hand held air horn, etc. Should communications not work properly, the lookout shall stop the operation until the situation is corrected.
7. The lookout shall continuously watch approaching traffic for errant vehicles. Lookouts shall not engage in conversation with bystanders, nor shall they use any communication or entertainment device that would distract them from their duty.
8. If trouble is suspected, the lookout shall warn the workers by shouting or using an audible handheld alarm capable of communicating the warning. This warning is intended to give the workers the time to use a planned escape route to avoid the errant vehicle.
9. Lookouts should be rotated often to keep them alert.

New 3/9/2010

Code of Safe Operating Practices

APPENDIX Q

PPE FOR WORKING ON ELECTRICAL SYSTEMS

Electrical systems shall be de-energized prior to the start of work, unless de-energizing the system: 1) creates a significant hazard to the employee or to the public, 2) is unfeasible due to the design or operation of the systems (such as traffic signals), 3) or prevents the effective diagnosis of fault or error.

All cabinets and work spaces shall be considered to be energized unless the energy source has been de-energized, and locked and labeled with a suitable lockout-tagout device.

Personal Protective Clothing and Equipment Requirements for Access to Energized Electrical Facilities and Cabinets.

No person shall open or enter an energized cabinet or workspace without clothing and foot wear that is compliant with California Code of Regulations Title 8, Sections 2320.2 and 2940.6, that is clothing that is made of natural fiber, or clothing that has been treated to be flame retardant. This restriction applies to clothing made from, either alone or in blends, acetate, nylon, polyester, and rayon, unless it can be shown that the clothing has been treated for flame resistance. This applies to all field locations including service cabinets, traffic signal cabinets, etc.

Following the recommended clothing and equipment for Hazard/Risk Category 0 in Article 130.7 of NFPA 70E, Standard for Electrical Safety in the Workplace, 2009 Edition shall be considered sufficient for the purposes of compliance with the California Electrical Safety Orders. This use of leather gloves is not required when operating equipment such as a traffic signal controller (or similar equipment) to check status or change configuration.

Personal Protective Clothing and Equipment requirements for Electrical Work

No person shall work inside an energized traffic signal cabinet, ITS equipment cabinet, utility service cabinet, electrical pull box, or similar facility without the minimum clothing and equipment. As an example, work inside a traffic signal cabinet includes (but is not limited to) testing, troubleshooting, replacing modules or equipment, and checking or inspecting the wiring. Accessing the front panel of a traffic signal controller (or similar equipment) to check status or change configuration does not constitute as work (see requirement for access above).

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Code of Safe Operating Practices

PPE FOR WORKING ON ELECTRICAL SYSTEMS (Cont'd)

Minimum Clothing and PPE for Energized Electrical Systems 50 V to 250V (between ungrounded conductors or to ground)

- arc rated shirt (minimum arc-flash rating of 8 cal/cm²)
- arc rated pants (minimum arc-flash rating of 8 cal/cm²)
- arc rated coverall (minimum arc-flash rating of 8 cal/cm²) (in place of shirt/pant combo)
- arc rated or fire resistant reflective vest
- leather boots (already required by Chapter 12 of the Caltrans Safety Manual)
- leather work gloves (see requirements)
- safety glasses
- ear protection
- insulated tools (if insulated tools are not used, insulated gloves are required)
- hard hat with arc rated face shield (if there is sufficient space)
- all metal jewelry (including rings and watches) shall be removed or covered prior to the start of work

Minimum Clothing and PPE for Energized Electrical Systems 251 V to 600 V (between ungrounded conductors or to ground)

In addition to the requirements for systems below 250V, the additional requirements are:

- hard hat with arc rated face shield (mandatory)
- arc rated hood sock (or balaclava)
- insulated gloves (appropriate for the voltage)

The equipment recommended in NFPA 70E, Standard for Electrical Safety in the Workplace, 2009 Edition, Article 130.7, may be substituted.

Minimum Clothing and PPE for Energized Electrical Systems Above 600 V

The recommended equipment in NFPA 70E, Standard for Electrical Safety in the Workplace, 2009 Edition, Article 130.7 shall be standard for work on these energized systems.

Refer to Chapter 8 of the Maintenance Manual, Volume I, Section 8.27.01, for more information.

Revised 8/10/2020

Code of Safe Operating Practices

APPENDIX R

TEMPORARY RUMBLE STRIPS

1. Review applicable Standard Plan for Temporary Traffic Control (T Plate).
2. Wear all required PPE, including hard hat, safety glasses, high visibility garments and gloves.
3. Temporary Rumble Strips shall only be used in locations where there is a shoulder available for bicycles to use so they do not have to cross over rumble strips.
4. Park in an area suitable for safe entering or exiting of vehicle.
5. While on foot, make every effort to perform work facing oncoming traffic.
6. If using modular type rumble strips, assemble on shoulder. Use a two by four or other similar material to lift edge of one section off the ground, making it easier to insert the end tabs of the adjacent section into the receptacles.
7. Place all advance warning signs first, then flaggers should hold traffic while assembled strips are moved into place. Utilize CHP traffic breaks if necessary.
8. Two people should be used to move the assembled strips. Use handles at the ends of the strips when moving them and use proper lifting techniques-lift with your legs, not your back. Assembled strips may be dragged into place.
9. Ensure that beveled edge is facing traffic.
10. Review manufacturer's recommendations regarding temperature ranges that temporary rumble strips can be used in.
11. Temporary rumble strips are recommended for routes with posted speeds of 65 MPH and lower.
12. Pull strips out of lane and onto shoulder for disassembly while traffic control is still in place.
13. When stacking rumble strip sections in vehicle, use proper lifting techniques-lift with your legs, not your back. Modular sections may be stacked flat on top of one another.

New 12/13/2011

Code of Safe Operating Practices

APPENDIX S

LONE AND ISOLATED WORKERS

HAZARD REVIEW

Limited Means of Communication
Unable to Secure Assistance

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review Code of Safe Operating Practices (CSOP) of assigned task and identify hazards.
3. Review work area protection procedures and any traffic control requirements.
4. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
5. While on foot, make every effort to perform work *facing* oncoming traffic.
6. Wear standard Personal Protective Equipment (PPE) for the assigned task and work area.
7. Determine the conditions or a circumstance which requires someone to work alone in a remote location. Consider other options; i.e., Plan work for another day/time, assign another employee to meet up with lone employee at specified location.
8. Minimize the identified risk arising out of working alone and isolated.
9. Create a work plan that describes where the work is being performed and the time project will start and finish.
10. Develop methods of an effective communication system with the employee such as personal check by another person, radio communication with dispatch or CHP, or communication with a cell phone.
 - a. Identify specific times during the work shift for “call-in” to others.
 - b. Determine frequency of “call-in checks”.
11. If planned work is known to be in the immediate vicinity of unsheltered residents, then the Supervisor shall assign at least one other person to accompany the employee and/or request MAZEPP if determined to be necessary. If an employee is working alone and feels threatened by individuals at the worksite, they should leave the area, inform their Supervisor, and request CHP to provide a safety escort prior to performing any work.

Revised 9/21/2020

Code of Safe Operating Practices

APPENDIX T

MAJOR RIGGING OF QUIKDECK™ PLATFORMS

HAZARD REVIEW

Slipping and Tripping
Dropping Objects
Structure Overload
Falling

SAFE OPERATING PROCEDURES

When access for beginning rigging procedures is limited, i.e., there is no access from the ground, then a platform truck or Personnel Lift (JLG) with an articulating boom will be used to install the first section of the QuikDeck platform. It can also be used to remove the last platform section when de-rigging the job. Employees that are performing these rigging/de-rigging tasks shall have their own independent safety lines, separate from the QuikDeck™ platform.

Until the QuikDeck™ platform has been secured to the super-structure and is no longer attached to the rigging lines, employees shall not work from the platform.

Prior to installing QuikDeck™ on a structure, the plans and details for the first and subsequent sections must be inspected by the Rigging Engineer. The Rigging Engineer must review and confirm that all sections of the QuikDeck™ scaffolding system meet the current Standard Specifications for scaffold installation.

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Notify not less than 15 days in advance the District's/HQ Permits Liaison and/or Coast Guard of any vertical or horizontal clearance changes.
3. Review pre-job work plan with Management and Crew
4. Review work area protection procedures and any traffic control requirements.
5. Hold a tailgate safety meeting so everyone knows what to do and how to do it.
6. Use (standard) appropriate personal protective equipment.
7. Rig life lines first, and secure to proper anchoring points.
8. Tie all ropes with the proper knot.
9. Lift objects using proper lifting methods.
10. Secure tools and equipment to prevent from falling.

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Code of Safe Operating Practices

MAJOR RIGGING OF QUIKDECK™ PLATFORMS (Cont'd)

11. Use portable radios for communication when possible.
12. Never place chains, chokers or standing wire rope over sharp edges; use softeners.
13. Use proper size chains, chokers and wire rope for job and wire all shackles.
14. Tie back all chains, chokers, hooks, blocks and outriggers to prevent slippage.
15. Tie/secure airlines together at CP connections and wire all CP fittings.
16. Secure all bull hose and large supply air lines per manufactures instructions.
17. Perform daily inspections of all connection points and decking per Official Quick Deck Manual Chapter 9.0 Platform Inspection and Maintenance, Section 9.1. "Daily Inspection."
18. Distribute equipment and materials evenly to prevent structural overload and follow manufactures pounds per square foot load ratings.

Please be aware of the requirement to notify the Transportation Permits Branch at least 15 days in advance of implementing proposed changes in vertical clearances, horizontal clearance, or both (such as erecting scaffolding). You must provide the proposed clearance changes and the duration of the changes.

For questions regarding clearance notification, please contact the HQ Permits Office at (916) 654-5548 or go to <http://www.dot.ca.gov/hq/traffops/permits/contact-liaisons.htm>

New 8/28/2014

Code of Safe Operating Practices

APPENDIX U

DIESEL EXHAUST FLUID (DEF) HANDLING AND USAGE

HAZARD REVIEW

Potentially Hazardous When Heated or Mixed with Certain Chemicals
Potential Respiratory Hazard
Potential Eye/Tissue Irritant
Can Render a Vehicle Diminished or Immobile

POTENTIALLY HAZARDOUS INCOMPATIBILITIES:

1. Decomposes on heating above melting point producing toxic gasses.
2. Reacts violently with strong oxidants, nitrates, inorganic chlorides and perchlorates causing a breathing hazard as well as fire and explosion hazard.
3. Melting Point 269°F / Freezes @ 12°F / Boils @ 212°F

SAFE OPERATING PROCEDURES

1. Follow all manufactures instructions and safety precautions.
2. DEF is a corrosive; avoid contact with skin and eyes.
3. Wear safety glasses and nitrite gloves when handling.
4. Never mix or allow DEF fluid to combine with other fluids.
5. Clean up immediately with mild soap and pure water, never use bleach.
6. Store at room temperature in corrosion proof locker, never store with other chemicals.
7. Do not overfill DEF vehicle tank, do not allow DEF to freeze.
8. Use approved (corrosion proof) clean vessel for filling and do not allow contaminants in system.
9. Beware that a DEF equipped vehicle can de-rate and become immobile when the DEF tank is empty.

Code of Safe Operating Practices

APPENDIX V

SULPHUR POST ANCHOR REMOVAL

Sulfur is a flammable substance in both the solid and liquid states. The dust is characterized by a very low ignition point of 190°C compared to other combustible dusts, and dust clouds are readily ignited by weak frictional sparks. Dusts containing 25% or more elemental sulfur may be almost as explosive as pure sulfur.

Explosive mixtures may be formed if sulfur is contaminated with chlorates, nitrates or other oxidizing agents.

Sulfur has excellent electrical insulation properties and under the right conditions will readily pick up static electricity which if discharged can result in ignition.

Handling Combustible Dust Safely

PPE

- Fire Resistant Coveralls
- Dust Tight Safety Goggles
- Dust Masks
- Heat Resistant Gloves (If employee whose skin is sensitive to sulfur dust should wear PVC or rubber gloves.)

Have a carbon dioxide extinguisher on job site.

Always keep in mind sulfur is very flammable in powdered state.

Identify repair area. While wearing PPE's carefully use a chipping gun to chip out concrete to expose sulfur. Then proceed with a brass punch to chip out sulfur. While chipping keep face and body parts away from post pocket area.

As the sulfur pocket is exposed lightly spray water onto sulfur using a squirt bottle. Use water sparingly we want to avoid any water runoff.

Once the sulfur is damp remove sulfur from pocket with brass punch and brass putty knife. Place into container and transport to maintenance facility label and place into hazmat lock box.

When sulfur is removed abrasive blast repair area. (Use proper PPE's for abrasive (sand) blasting).

Once area is abrasive blasted saw cut repair area, chip out loose concrete, abrasive blast again, form repair area and pour post back solid with fast setting concrete.

Code of Safe Operating Practices

APPENDIX W

PALM FROND REMOVAL

HAZARD REVIEW

Moving Traffic
Utility Lines
Falling Fronds and Skirts
Slipping and Falling
Faulty Ropes
Brittle Trees
Dull Climbing Gaffs
Rope or Cable Blocks and Pulleys
Brush Fires
Noise
Working Above Ground
Rodents, Bird, Bat Droppings
Insects, Spiders, Scorpions
Cuts and Abrasions

SAFE OPERATING PROCEDURES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle that does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work facing oncoming traffic.
5. Use standard personal protective equipment. Hearing protection is required during chainsaw and chipper operation. See Safety Manual Chapter 22 regarding Hantavirus (adult respiratory distress syndrome) and Lyme disease.
6. Keep proper clearance from overhead utility lines. Caltrans employees shall not perform tree pruning work for electrical line clearance. If working in proximity to high/low voltage lines, a ground observer with appropriate warning device must be present (Minimum clearance is based on voltage. For example, 3 feet minimum for low voltage, 10 feet minimum for high voltage or further depending on voltage. See Chapter 8 in Maintenance Manual Volume 1, "Working Near Utilities").

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Code of Safe Operating Practices

PALM FROND REMOVAL (Cont'd)

7. Prior to beginning work the location of all electrical conductors and equipment within the work area shall be identified, in relation to the work being performed.
8. All work locations where aerial palm frond removal is to be performed, shall be under the direction of a qualified Tree Worker.
9. At operations involving aerial palm frond removal, a second qualified Tree Worker shall be at each work location to render immediate assistance. At operations involving palm frond removal from the ground level a person shall be available to render immediate assistance.
10. Each qualified Tree Worker shall be issued ANSI approved climbing gear. A complete set consists of tree saddle, climbing gaffs, safety strap and climbing line for their exclusive use.
11. Prior to use, all equipment, (including climbing gear) and safety devices shall be inspected and if found defective, immediately repaired or removed from service.
12. The work area shall be cleared to permit safe working conditions and an escape route shall be planned before any cutting is started.
13. When working aloft, employees shall be required to wear tree worker saddles and tie-in with an approved safety strap and climbing rope.
14. Methods of verbal or visual communication shall be established and reviewed during the job briefing, prior to the start of palm frond removal operations. The verbal or visual communication system shall use an established command and response system or pre-arranged, two-way hand signals. The communication method shall be clearly understood and used during all palm frond removal operations. The command "stand clear" from aloft and the response "all clear" from the ground are some terms that may be used for verbal communications.
15. A drop zone shall be established prior to the start of palm frond removal operations. Employee(s) not directly involved in the palm frond removal operations shall stay out of the pre-established drop zone until it has been communicated by a qualified Tree Worker directly involved in the operation that it is safe to enter the drop zone. Employee(s) shall be positioned and their duties organized so that the actions of one employee will not create a hazard for any other worker.

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Code of Safe Operating Practices

PALM FROND REMOVAL (Cont'd)

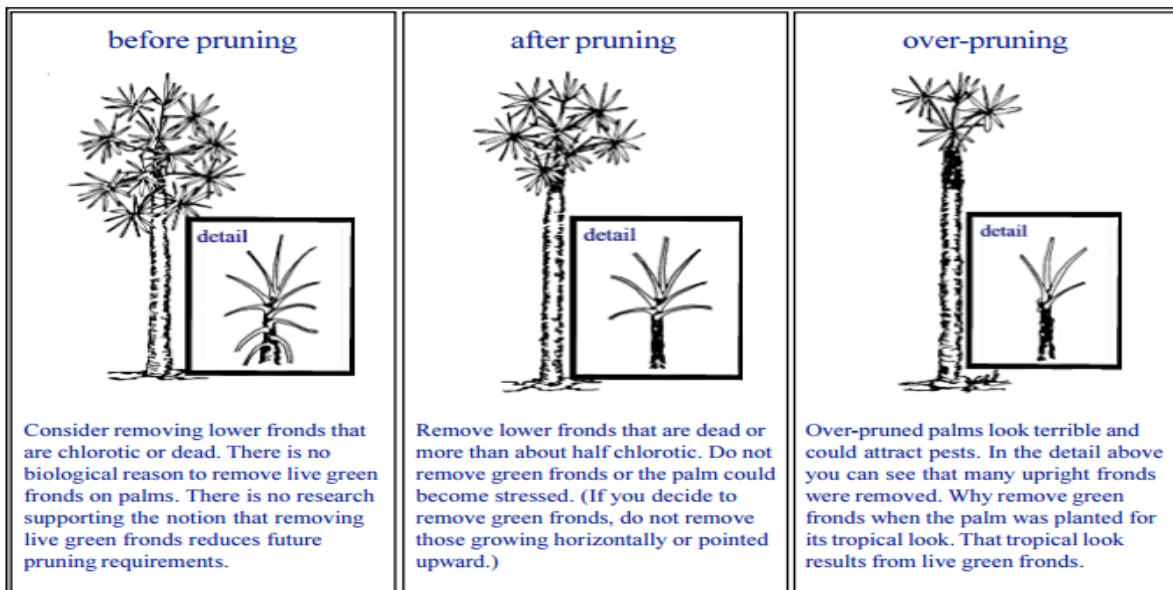
16. Palm frond skirts have the potential of unexpectedly releasing onto a worker below. ANSI Z133.-2012 standard “Arboricultural Operations – Safety Requirements” states: *“Palm frond skirts that have three years growth or more shall be removed from the top down (see item number 25 for proper pruning method). Qualified Tree Workers performing this work shall be supported by an arborist climbing line and a false crotch. Qualified Tree Workers shall never attempt to remove skirts of three years or more by positioning themselves below work areas while being supported by a lanyard.”* This work shall be done level to or above the top of the Palm frond skirt or work shall be performed from an aerial device.
17. Climbing ropes shall be a minimum of ½ inch first grade State approved (by a Tree Maintenance Supervisor) synthetic tree surgeon’s rope with a minimum breaking strength of 5,400 lbs:
 - a. Rope made unsafe by damage, defect or any other reason shall not be used.
 - b. Climbing ropes shall never be used for lowering limbs.
 - c. Rope shall be stored away from all cutting edges and sharp tools. Corrosive chemicals, gas, and oil shall be kept away from rope.
 - d. Rope shall be coiled, piled or suspended so that air can circulate through the coils.
 - e. Climbing rope ends shall be dressed, melted or back spliced to prevent raveling.
 - f. Climbing and safety rope shall not be spliced to lengthen or repair.
 - g. Safety snaps may be rotated from one end or rope to other as needed and the worn end cut off.
18. Climbing gaffs shall be of the tree-climbing type and shall have gaffs of the proper type and length suitable for the tree being climbed.
19. Prior to climbing the palm tree, the palm tree shall be visually inspected to determine the safest method of entry. Make sure the palm tree will support your weight.
20. When dry conditions exist, no employee shall smoke in or near dead palm fronds. All chainsaws used under such conditions shall have mufflers and spark arresters in proper working condition.
21. Tools or chainsaws shall be sterilized after each palm tree to prevent the spread of disease by certain species as follows:
 - a. The fungus *Thielaviopsis paradoxa*, Sudden Crown Drop, a lethal disease that affects primarily Canary Island date palms and, to a lesser extent, date palms. As the name implies, the entire crown of leaves and upper part of the trunk, which can weigh several tons, will fall from the top of the remaining trunk, crashing to the ground with little or no warning. Serious injuries or fatalities may occur if crown drops suddenly.

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Code of Safe Operating Practices

PALM FROND REMOVAL (Cont'd)

- b. The fungus *Fusarium oxysporum* f. sp. *canariensis* causes [Fusarium wilt](#), a lethal, vascular disease of Canary Island Date Palms.
 - c. The fungus *Nalanthamala vermoeseni* (previously called *Penicillium vermoeseni* or *Gliocladium vermoeseni*) causes the disease [pink rot](#). Pink rot affects nearly all outdoor landscape and indoor Palms in California, including king palm, bamboo palms, some date palms, Chinese windmill Palm, kentia Palm, Queen Palm, and California and Mexican Fan Palms.
22. Chainsaw and chipper operators must be trained and qualified.
23. Safety belts and lanyards are required when operating aerial equipment (See Appendix G, Fall Protection).
24. The use of cut-resistant leg protection that meets or exceeds ASTM F1414 and ASTM F1897 (chaps, leggings, pants, etc.) is required for all ground level chain saw operation.
25. Proper palm frond removal method for palm trees.



Revised 5/26/2022

Code of Safe Operating Practices

APPENDIX X

HIGH TENSION CABLE BARRIER

HAZARD REVIEW

Moving Traffic
Cable Under Tension
Pinch Points Between Cables
Heavy Lifting
Removing Damaged Posts

SAFE PRACTICE RULES

1. Review safe practice rules for applicable equipment (including rental equipment) and perform pre-operational checks.
2. Review work area protection procedures and any traffic control requirements.
3. Park in an area suitable for safe entering or exiting of vehicle and which does not cause a hazard to yourself or others.
4. While on foot, make every effort to perform work *facing* oncoming traffic.
5. Use standard personal protective equipment.
6. Caltrans personnel with cable repair experience should be on site before any vehicle removal or cable manipulation take place.
7. Inspect area for hidden hazards before beginning work.
8. Use proper lifting techniques to avoid back injury.
9. Cable system tension can range from 1400 lbs to 8800 lbs. Use caution when working around cable under tension.
10. After vehicle impact near terminal ends inspect terminal posts and shear bolts to make sure that they have not been compromised.
11. Three employees recommend for changing damaged posts out under tension. One employee pulling cables away from post for hand clearance and two employees lifting cable into post.
12. There may be an occasion when the cables become entangled with a vehicle and needs to be removed before it can be towed away. An option maybe to lift the cables one at a time up and over the vehicle. **During this operation if any posts entangled in the cable start to lift, the lifting should be stopped and the post(s) should be removed.**

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Code of Safe Operating Practices

HIGH TENSION CABLE BARRIER (Cont'd)

13. The cable shall not be cut unless an immediate life-threatening situation exists. Cutting the cable exposes employee's and by standards to possible injury. If cutting the cable is the absolute last option these steps should be followed. If the cable was put under additional tension due to accident, the tension should be reduced at the turn buckles. The cable should be cut at a location between two posts and at the furthest point away as possible from the entangled vehicle. Turn buckles are the preferred area to cut. Even though the cable should only move a short distance in each direction, caution should be used when cutting the cable.
14. The preferred method for releasing tension on the cable is to release the cable at the terminal end at the furthest point away from the incident. A truck front mounted winch in conjunction with cable pulling jaw grip is recommended to mechanically release the tension under control. A back hoe is another alternative for releasing tension and re tensioning. (Never remove turn buckles or anchor bolts without pulling tension off of the device.)
15. Once cable and terminal posts are reconnected use turn buckles to set proper tension on cable. Use of vendor supplied tension meter and chart is required.

Code of Safe Operating Practices

APPENDIX Y

COCCIDIOIDOMYCOSIS (VALLEY FEVER)

HAZARD REVIEW

Dust and Soil Disturbing Operations
Including But Not Limited to: Shoulder Backing, Bench Cleaning,
Slide Removal, Mowing, Grading, Pull Broom, Sweeping
and Culvert Cleaning Operations

Valley Fever is an illness caused by inhaling airborne fungal spores found in semi-arid soil throughout California. When soil containing this fungus is disturbed the fungal spores get into the air. When people breathe the spores into their lungs, they may get Valley Fever. The illness is not spread from one person to another.

This CSOP does not apply to activities such as snow removal, pesticide application, paving, and guide marker replacement. If in doubt, contact the District Safety Office for assistance.

Before Work:

Employees shall be given training including discussion of Valley Fever exposure, symptoms of Valley Fever, work procedures, and this CSOP. Training will be renewed annually. LMS course code 101974. Contact District or HQ Safety Office for training material.

At the Jobsite:

Avoid eating, drinking or smoking in the area while soil is being disturbed, in the equipment, or at the disposal site.

1. Use work procedures and equipment that will minimize employee exposure to dust.
 - a. Schedule work when material is naturally wet or after rain – or apply adequate water to keep material damp during operations.
 - b. “NO VISIBLE DUST” – call for more water.
 - c. Position yourself out of naturally blowing and/or generated dust when possible.
 - d. If ongoing communication is needed, provide two-way radio communication to encourage operators to keep equipment windows closed.
 - e. Stabilize spoil piles by tarping or other methods by following departmental Storm water BMPs.
 - f. Where possible reduce speeds in work area below 15 MPH, including pilot car.
 - g. Use water system on pull brooms, mobile brooms, and broom attachments to reduce dust.
[Contact Equipment Shop for possible upgrade modifications.]

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Code of Safe Operating Practices

COCCIDIOIDOMYCOSIS (VALLEY FEVER) (Cont'd)

- h. In a moving operation involving a mobile sweeper or mowing operation that could create dust clouds, all vehicles assigned to that operation (i.e. Shadow trucks, advance and early warning vehicles) shall be equipped with filtered climate controlled enclosed cabs, with the ventilation system in recirculation mode and the windows closed.
 - i. Keep brooms on paved surface, avoid brooming unpaved shoulders or gutters.
 - j. Consider using a water wash-off instead of brooming if possible – continuing to comply with Storm Water requirements.
 - k. Suspend work during heavy winds.
2. Use personal protective equipment to minimize dust exposure.
 - a. Wear standard protective equipment (hardhat, vest, safety glasses).
 - b. Use disposable or cloth coveralls to minimize dust collecting on personal clothing.
 - c. Wear cleanable shoes to minimize the possibility of “take home” Valley Fever.
3. When operating open cab equipment and/or performing other activities where dust control is not possible, employees must be enrolled in the Caltrans Respiratory Protection Program in accordance with Safety Manual Chapter 15 and wear appropriate respiratory protection to minimize inhalation of dust.
4. For all other activities the Supervisor will determine whether mandatory use of respirators is required based on the following:
 - a. Respirators are not required when environmental or soil conditions will prevent the creation of dust (e.g., rain, saturated soil, etc.) or when a water truck is used so that visible dust is kept to the minimum possible for existing environmental conditions.
 - b. Respirators are not required when performing low exposure tasks, such as, but limited to: flagging, equipment operation in enclosed cab, or haul truck driving.
 - Exception to Flagging – Environmental conditions must be observed, if the wind is blowing dust to the flagger station then the flagger station shall be relocated outside the dusty zone or else the flagger should be required to wear respiratory protection.
 - Requirement for enclosed cabs and haul trucks - to be compliant, all windows must be closed, and if available, air flow on recirculating mode.
5. If an employee voluntarily elects to wear a particulate filtering face piece respirator (or dust mask), they will need to comply with Safety Manual Chapter 15, “Caltrans Guidelines for Dust Masks”.
6. Employees shall have clean water and soap available at the work site.
7. Workers shall be instructed to wash their hands thoroughly before eating, drinking, smoking, or going to the bathroom.
8. Clean shoes first, then remove protective clothing and respirators.

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Code of Safe Operating Practices

COCCIDIOIDOMYCOSIS (VALLEY FEVER) (Cont'd)

9. Do not blow off or shake out coveralls.
10. Put paper coveralls in trash. Place cloth coveralls in plastic bag for laundering.
11. Store in accordance with manufacturer's recommendations.
12. Decontamination of tools and equipment.
 - a. Use wash rack to clean dust and mud from equipment and tools before parking in the barn.
 - b. The supervisor or responsible employee delivering the equipment to the shop or field mechanic must complete the Hazardous Material Decontamination form. (See next page.)

New 5/23/2018

Code of Safe Operating Practices

HAZARDOUS MATERIAL EXPOSURE DECONTAMINATION RECORD

Before servicing or repairing this equipment, check the following:

C No. _____ ITEM No. _____

Cleaned and flushed on _____, by _____.

At _____ Maintenance Station.

The last exposure/chemical used was _____

Toxicity Rating: CATEGORY I, II, or III / NOA / Valley Fever Area (Circle One)

Please Change Cab Filter using adequate precautions YES _____ NO _____

Maintenance employee delivering equipment to Shop _____

Maintenance Supervisor responsible for equipment _____

Telephone No. _____

Shop employee receiving equipment _____

Shop Supervisor of employee assigned to make repairs _____

Telephone No. _____

Observe the following precautions (from pesticide label / NOA / Valley Fever COSP):

Symptoms:

Weakness, headache, sweating, sick stomach and vomiting, uncontrollable drooling, pinpoint pupils that affect vision, dizziness, rapid heart rate, stomach cramps, diarrhea, difficulty in breathing, loss of ability to use muscles, loss of ability to control bowels, unconsciousness. The last four symptoms are seen only in advanced or severe cases of exposure.

If you experience any of the above symptoms, inform your supervisor and get medical assistance.

Date released from Shop: _____ Repairs completed _____

Cab Filter Changed _____

Shop Mechanic _____

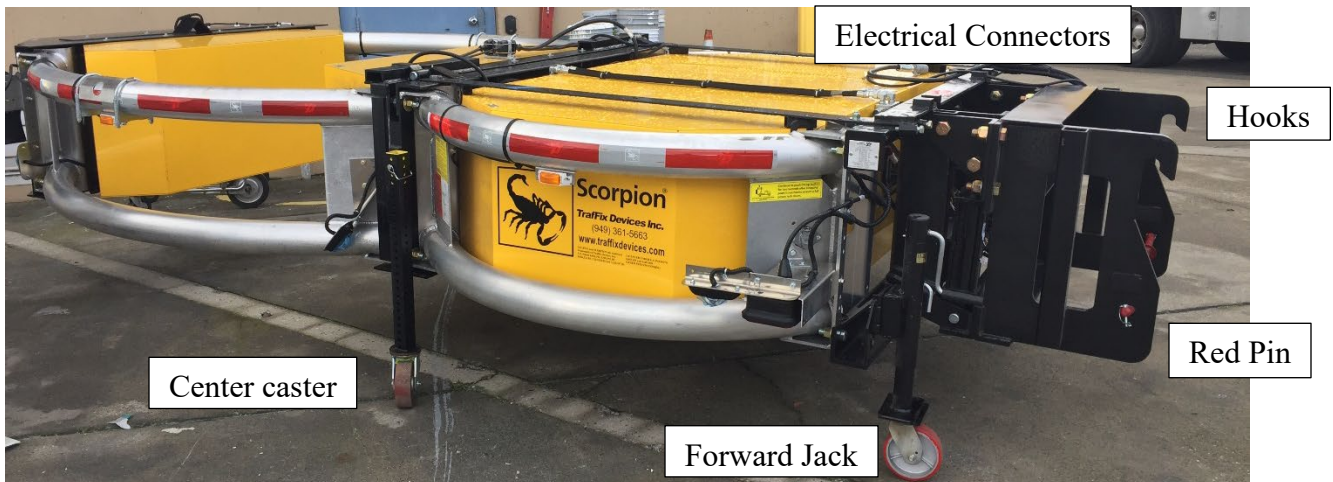
Code of Safe Operating Practices

APPENDIX Z

SCORPION TL-3 TRUCK MOUNTED ATTENUATOR

Scorpion TL-3 Attenuator Removal

1. Ensure 15' area behind the truck is clear.
2. Lower attenuator most of the way using one of following:
 - a. Truck cab controller.
 - b. Wired remote (stored in tool box) can be plugged into attenuator (pass side) if desired.
3. Unpin center caster stands and lower until top of tube is flush with top of socket. Pin in place.
4. Crank forward jacks down until lower red pins are unloaded.
5. Remove red pins.
6. Rotate Red selector switch under hyd tank to 'OFF' so that dump body will function.
7. Unplug power to attenuator.
8. Unplug truck 4-pin control harness and 7-wire pigtail.
9. Unplug and store wired remote if used.
10. Continue cranking forward jacks to lift upper hooks off of truck.
11. Attenuator supports on truck can be removed and securely stowed.
12. Roll attenuator away from truck or drive truck away.



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Code of Safe Operating Practices

SCORPION TL-3 TRUCK MOUNTED ATTENUATOR (Cont'd)

Scorpion TL-3 Attenuator Installation

1. Follow safe backing policy.
2. Back truck up to within a few inches of the attenuator.
3. Roll attenuator to align hooks with truck mounts.
4. Adjust forward jacks and roll attenuator so that hooks will move over pins on truck mounts.
5. Plug in attenuator power.
6. Rotate Red selector switch under hyd tank to 'ON' which locks-out dump body and provides power to the attenuator.
7. Plug in 4-pin control harness and 7-wire pigtail.
8. Crank the forward jacks up, hooking upper pin on truck and install red pins in lower holes.
 - a. Lowering the attenuator may help hooks and pins engage.
 - b. Stow forward jacks.
9. Install attenuator-stowed supports on vehicle.
10. Raise attenuator until center casters are off the ground.
11. Unpin and raise center caster stands.
12. Stow attenuator.
13. Hold stow button for 2 seconds after contact for full power lock.
14. Adjust supports on body for proper alignment.
15. If wired remote was used, unplug and store in tool box.
16. Check lights on attenuator for proper function.



Loosen U-bolts and adjust
For full saddle contact

New 5/23/2018

Code of Safe Operating Practices

APPENDIX AA

USE OF ROAD FLARES

No activities that have the potential of starting a fire should begin before Maintenance staff consult daily distribution of Caltrans Daily Fire Danger Ratings and localized weather reports to ensure that all parameters of this policy are followed.

Before Road Flare Use

1. Road flares should be inspected prior to their use. Read and follow manufacturer's instructions prior to use. Point away from body and face when striking; do not hold flare in upright position as molten material may drip and cause burns to your hand. Once flare has ignited, carefully place on the ground; do not drop.
2. Loose caps should be tightened.
3. Road flares that are wet, leaking, expired, missing any portion of the paperboard covering, cap or cap wings, or otherwise damaged should not be used.
4. Separate damaged road flares for immediate disposal.
5. Dispose of damaged road flares in hazardous waste storage for proper disposal of perchlorate-containing substances, in accordance with the Caltrans Memorandum, "Perchlorate Best Management Practices," (May 2006).
6. If longer-duration, 15-minute road flares are applicable, the Maintenance Superintendent and Supervisor shall ensure that each member of the Maintenance crew has received instruction on the proper inspection, deployment and disposal of road flares before use on the job site following the Maintenance Policy Directive and the Code of Safe Operating Practices (CSOP), "Use of Road Flares."
7. If shorter-duration, 5 or 10 minute fusees are applicable, the Maintenance Superintendent and Supervisor shall ensure that each member of the Maintenance crew has received instruction on the proper inspection, deployment and disposal of road flares before use on the job site following the Code of Safe Operating Practices (CSOP), "Truck Mounted Fusee Igniter."
8. Annually, all Maintenance Superintendents and Supervisors shall ensure that each member of the Maintenance crew has received instruction on the Code of Safe Operating Practices (CSOP), "Wildfire Response Guidelines."

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Code of Safe Operating Practices

USE OF ROAD FLARES (Cont'd)

During Road Flare Use (24/7)

1. Use the minimum number of road flares and fusees as possible without compromising safety; for static operations, consider alternate products such as electronic flares. For moving operations/closures, consider MAZEED, additional shadow vehicles or PCMS instead of flares.
2. When road flares are used, Maintenance Supervisor shall assign an operator to patrol and directly monitor the entire area of the job site to ensure that road flares remain on the pavement and are extinguished. The patrol must continue for 30 minutes following the cessation of maintenance activities.
3. If you choose to use road flares during any operation, include a skid-mounted or similar self-contained pump and tank unit, mounted on a vehicle and capable of carrying and pumping 200 gallons of water, as part of the operation.
4. Partially-burned flares that are extinguished before they burn out completely as manufactured may contain perchlorate. Partially-burned flares shall be retrieved from the job site and disposed of in hazardous waste storage.
5. Use alternative, non-flammable and non-toxic signal aids, such as high-visibility LED light pucks, in lieu of road flares where practicable.

Special Instructions When Fire Weather Watch Warning Categories are **Very High** (orange) and **Extreme** (Red / "Red Flag")

1. Cancel planned maintenance activities in areas with combustible material adjacent to the roadway if road flares are planned to be part of the operation, or use non-flammable signal aids. Combustible material includes trees, brush and grasses in sufficient quantity to start and maintain a fire.
2. During emergencies, use the minimum number of road flares possible without compromising safety; crews are authorized and encouraged to use MAZEED, where applicable.
3. Call 9-1-1 and radio the local Traffic Management Center (TMC) to inform dispatch and request emergency fire response when a fire incident occurs that cannot be immediately resolved with fire suppression equipment on hand or readily available.

Revised 9/22/2021

Code of Safe Operating Practices

APPENDIX BB

RESPIRABLE CRYSTALLINE SILICA EXPOSURE CONTROL PLAN

Crystalline silica is an important industrial material found abundantly in the earth's crust. Quartz, the most common form of silica, is a component of sand, stone, rock, concrete, brick, block, and mortar. Materials containing quartz are found in a wide variety of workplaces.

Silica dust is hazardous when very small (respirable) particles are inhaled. These respirable dust particles can penetrate deep into the lungs and cause disabling and sometimes fatal lung diseases, including silicosis and lung cancer, as well as kidney disease.

Occupational exposure to respirable crystalline silica occurs when cutting, sawing, drilling, and crushing of Portland Cement Concrete (PCC), brick, ceramic tiles, rock, and stone products. Occupational exposure also occurs in operations that process or use large quantities of sand, such as foundries and the glass, pottery and concrete products industries.

Respirable Silica Dust Sources:

- Bridge demolition
- Sawcutting
- Use of powder actuated tools (Hilti Guns)
- Jackhammering or chipping of PCC or AC
- Masonry work
- Grinding on PCC/AC, both by hand and machine
- Horizontal or downward drilling on PCC
- Sandblasting
- PCC/AC production
- Sweeping after grinding on PCC or AC
- Various Materials testing methods in our District and Field labs

Tools/equipment used to cut, jackhammer, grind, drill or sweep silica containing material shall be equipped with a water delivery system that continuously feeds water at flow rates sufficient to minimize release of visible dust.

The following activities/equipment require respiratory protection with an assigned protection factor of 10 (APF10) when performed outdoors for more than four (4) hours:

1. Using a handheld power saw
2. Jackhammers and handheld power chipping tools

Medical surveillance is required to be provided by the employer for any employee required to wear a respirator for more than 30 days a year when exposed to respirable silica dust.

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Code of Safe Operating Practices

RESPIRABLE CRYSTALLINE SILICA EXPOSURE CONTROL PLAN (Cont'd)

Respiratory protection program. Where respirator use is required by this section, the employer shall institute a respiratory protection program in accordance with Section 5144. Information on the Department's Respiratory Protection Program can be found here:

https://hs.onramp.dot.ca.gov/downloads/hs/files/SM_Chap_15-May2009.pdf

CCR T8 §1532.1 requires identification of a Competent Person to make frequent, regular inspection of the worksite, materials, and equipment necessary to implement the written Exposure Control Plan.

Competent Person - individual who is capable of identifying existing and foreseeable respirable crystalline silica hazards in the workplace and who has authorization to take prompt corrective measures to eliminate or minimize them. The competent person must have the knowledge and ability necessary to fulfill the responsibilities.

Abrasive blasting. In addition to the requirements of subsection (d)(3)(A), the employer shall comply with other Title 8 standards, when applicable, such as section 1530 (Ventilation), where abrasive blasting is conducted using crystalline silica-containing blasting agents, or where abrasive blasting is conducted on substrates that contain crystalline silica.

To minimize the exposure to silica; follow these work practices:

1. Provide employees with silica awareness training discussing the hazards, regulations, and work procedures applicable to working with materials containing silica. Document in an **annual** Tailgate Safety Meeting.
2. Minimize visible dust. Modify work procedures to minimize dust. Use water spray systems on equipment.
3. Do not eat, drink, or smoke near active work operations. Store food and water so it will not be contaminated with dust. Wash hands and face before eating, drinking, or smoking. If you are not involved with the active work operation involving silica, stay clear of the activity.
4. Use coveralls or disposable clothing to keep dust containing silica off personal clothing.
5. Clean up when leaving work:
 - a. Remove dust from coveralls and shoes, wipe with water, don't blow or shake.
 - b. Remove coveralls, throw paper ones away, put cloth ones in plastic bag to control dust.
 - c. Wash hands, face, and neck to remove dust. Shower if necessary.
 - d. Put cloth coveralls in laundry for cleaning, don't take home.
6. The supervisor is the individual who is capable of identifying existing and foreseeable respirable crystalline silica hazards in the workplace and who has authorization to take prompt corrective measures to eliminate or minimize them. The supervisor or their designee shall provide direction on site when work with silica is being conducted, and restrict access to work areas, when necessary, to minimize the number of employees exposed to respirable crystalline silica and their level of exposure, including exposures generated by other employers or sole proprietors.

New 5/23/2018

Code of Safe Operating Practices

APPENDIX CC

HEAT ILLNESS

Heat illness prevention is a requirement of Title 8 California Code of Regulations (CCR) 3395, “Heat Illness Prevention in Outdoor Places of Employment.” All employees should review Chapter 23, “Heat Illness Prevention Program,” of the Safety Manual to better understand Caltrans’ program requirements to meet 8 CCR 3395. Employees need to pay special attention to Sections 23.04, “Caltrans Heat Illness Prevention Plan,” and 23.06, “Types of Heat Illness/Symptoms and First Aid,” of the Safety Manual, respectively.

Training

All employees must receive heat illness prevention training before being assigned to a field location. The training is to be documented in the employee’s training record. Supervisors are responsible for confirming that their employees are trained in accordance with Chapter 23 of the Safety Manual.

Supervisors and employees should be aware of the health risks associated with working and performing work activities in environments that may contribute to heat illness. Knowing what factors can increase risk will enable you to take steps to reduce problems while working in the heat. The following are steps that supervisor and employees can take to help prevent heat stress:

- Discuss the increased risks when working in high heat exposure areas such as exposure to radiant heat from mechanical sources or on hot days.
- Drink plenty of water – **1 quart per employee per hour for drinking**. Thirst is not a good indicator of how much water the body needs. Drink more water or other fluids than needed to satisfy thirst. It is best to regularly replenish the water lost from sweating by drinking small amounts frequently throughout the work shift.
- Take preventive recovery periods. Depending on conditions, (for example, air temperature, sun exposure, physical exertion) more recovery periods may be needed. A preventive recovery period means taking time to recover from working in the heat in order to prevent heat illness. This period will be no less than 5 minutes. If *not in* the right-of-way, use available or provided shade for recovery. If *in* the right-of-way, your vehicle can be your shade and relocating to a cooler location should also be considered.
- Wear PPE to guard against heat exposure. When possible, wear comfortable, loose, lightweight clothing that allows body heat to be released. Cover your head.
- Acclimatize to hot work. This usually requires several days working in the heat for short periods, gradually increasing work time and intensity. Consider alternative work schedules (work earlier or later) to avoid the times when heat is most severe. Regardless of physical condition, employees need to acclimatize appropriately for their work conditions.

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Code of Safe Operating Practices

HEAT ILLNESS (Cont'd)

- Eat light meals. It is better to eat light during the workday when exposed to heat because hot, heavy meals add heat to the body and divert blood to the digestive system.
- Avoid drinks with alcohol, caffeine, and large amounts of sugar as these can contribute to dehydration. Remember that personal risk factors such as acclimatization, age, and health affect the body's water retention and physiological responses to heat. Follow the doctor's or pharmacist's instructions regarding medications taken, including any for using the medicines in heat or sun intensive environments.
- Know the symptoms and first aid for stages of heat illness.

Access to Shade

As a maintenance employee, you have been or will be assigned a state vehicle. This vehicle with the air conditioner running is your area for shade.

Provisions for Water

Potable drinking water is available at all supervisor offices and at all state maintenance facilities. It is your responsibility to obtain a sufficient amount of water (1 quart per employee per hour for drinking) for the entire shift.

Water coolers and cups are available through the state warehouse. **Be sure to label cooler contents. For example, "Drinking Water" or "Electrolyte/Sports Drink".**

2-gallon cooler:

Item Number	Name	Unit	Description
7240 0065 2	CAN	EA	WATER COOLER CAN 2 GALLON, PLASTIC W/FLUSH MOUNTED SPIGOT

5-gallon cooler:

Item Number	Name	Unit	Description
7240 0075 3	CAN	EA	WATER COOLER CAN 5 GALLON, PLASTIC W/FLUSH MOUNTED SPIGOT

Paper drinking cup:

Item Number	Name	Unit	Description
7350 0010 9	CUP	TU	PAPER DRINKING CUP, 3.5 OZ

Supervisor Procedures

The supervisor needs to ensure compliance with the Heat Illness Prevention Program. As part of tailgate safety meetings, supervisors need to consider having documentation on file that addresses key elements of 8 CCR 3395. These include:

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Code of Safe Operating Practices

HEAT ILLNESS (Cont'd)

The supervisor needs to ensure compliance with the Heat Illness Prevention Program. As part of tailgate safety meetings, supervisors need to consider having documentation on file that addresses key elements of 8 CCR 3395. These include:

Responsible person in charge – If multiple supervisors are assigned to an operation, designate one person as the responsible person to remind employees to drink small quantities of water, even if not thirsty, increase the number of water and rest breaks, observe them for alertness and signs of symptoms of heat illness, and increase communication with employees. If working alone, the employee should confirm that their supervisor is aware of their working conditions.

Temperature check – Check the forecasted temperature prior to start of each day's operations. If temperatures are expected to exceed 95 degrees Fahrenheit, inform the responsible person in charge to closely monitor other Caltrans staff as described above and in Section 23.04, "Caltrans Heat Illness Prevention Plan," of the Safety Manual.

Water supply – Inform employees where they may obtain water and discuss procedures for refilling their water supplies during the shift, as necessary.

Acclimatization – Supervisors must allow time for new employees brought on during the season to acclimatize to working in the outdoor environment. Pay special attention to employees: when there are increases in temperatures; who move from an office environment to the field during the season; or to employees who may have been working in mountainous or coastal areas who are temporarily or permanently reassigned to work in valley or inland areas.

Emergency response – Confirm employees know who to call in case of emergency. Account for personnel on the call list that are not available to answer the phone (on vacation or working an alternate shift). There may be areas in the region that lack cell phone reception. Identify the closest location where cell phone service, roadside assistance telephone, or the nearest business phone is available to use in case of emergency. When notified by an employee that they may be suffering from a heat-related illness, maintain communication with the employee. If symptoms do not dissipate, respond or assign another employee to respond to the affected individual's location to obtain medical assistance or provide assistance, as necessary. If necessary, implement emergency procedures as described in Section 23.06, "Types of Heat Illness/Symptoms and First Aid," of the Safety Manual and below, and call 911.

Emergency procedures – Call 911 and confirm employees know how to call 911. Confirm employees know how to direct emergency services to their location. The location should reference the route number, distance, and direction from the nearest cross street, interchange, or landmark feature (Highway 101 in Mendocino County, 2.5 miles north of Redwood Valley Drive). Do not use post miles for location as emergency responders are not always familiar with county post mile numberings. If the location is inaccessible, plan ahead on how employees will be transported to a point where they can be reached by emergency medical service personnel if necessary. Options include ensuring a vehicle is available to transport the affected person to a predetermined location that is accessible to emergency medical service personnel.

New 5/23/2018

Code of Safe Operating Practices

APPENDIX DD UNDERGROUND SERVICE ALERT (USA)

These guidelines must be read and discussed before any work is to be done concerning excavation. 4216 (g) “Excavation” means any operation in which earth, rock, or other material in the ground is moved, removed, or otherwise displaced by means of tools, equipment. Or explosives in any of the following ways: grading, trenching, digging, augering, tunneling, scraping, cable or pipe plowing and driving, or any other way.

1. Before disturbing the soil, determine whether and underground installations or utilities are likely to be encountered. Call Underground Service Alert (USA) at least 2 working days before.

The telephone numbers for USA are as follows:

1. **Underground Service Alert – Northern California (USA)**

811 or 1-(800) 642-2444 or usanorth811.org

Serving 49 counties: Alameda, Alpine, Amador, Butte, Calaveras, Colusa, Contra Costa, Del Norte, El Dorado, Fresno, Glenn, Humboldt, Kern, Kings, Lake, Lassen, Madera, Marin, Mariposa, Mendocino, Merced, Modoc, Mono, Monterey, Napa, Nevada, Placer, Plumas, Sacramento, San Benito, San Francisco, San Joaquin, San Luis Obispo, San Mateo, Santa Clara, Santa Cruz, Shasta, Sierra, Siskiyou, Solano, Sonoma, Stanislaus, Sutter, Tehama, Trinity, Tulare, Tuolumne, Yolo, Yuba.

2. **Underground Service Alert – Southern California (DigAlert)**

811

or 1-(800) 422-4133 or digalert.org

Serving 9 counties: Inyo, Imperial, Los Angeles, Orange, Riverside, San Diego, Santa Barbara, Ventura.

2. Follow the USA five steps
 1. Survey and Pre-mark the area.
 2. Contact 811 at least 2 working days before up to 14 days before work starts.
 3. Wait the required time.
 4. Confirm all members have responded.
 5. Respect the marks & work with care.
3. The regional center accepts emergency notifications. California Government Code Section 4216 (f) defines an emergency as a sudden, unexpected occurrence, involving a clear and imminent danger, demanding immediate action to prevent or mitigate loss or, or damage to, life, health, property, or essential public services.
4. Prior to starting work, examine the site for physical evidence (access holes, valve covers, water meters, fire hydrants, sewer cleanouts, storm drains, utility maintenance boxes, pole risers, etc.) that would indicate the existence of subsurface installations.
5. Caltrans and operators of non-pressurized sewer lines, storm drains, and drain lines are exempted from USA.

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Code of Safe Operating Practices

UNDERGROUND SERVICE ALERT (USA) (Cont'd)

6. Notify the Caltrans Electrical and Landscape crew before the start of work.
7. A ticket is active in California for 28 calendar days from the date of issuance. If the work continuing beyond the 28th day, and markings on the ground are still clearly visible, your ticket can be renewed online with the E-Ticket Program or by calling USA North 811 by the end of the 28th day.

New 5/5/20

Code of Safe Operating Practices

SECTION V

ALPHABETICAL INDEX

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