

CODE OF SAFE PRACTICES



State of California Department of Transportation
Division of Construction
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About the CODE OF SAFE PRACTICES

The Code of Safe Practices (COSP) is part of the California Department of Transportation (Caltrans) Accident Prevention and Safety Program and complies with requirements of the California Code of Regulations, Title 8, Section 1509 (8 CCR 1509). The COSP defines standard safety practices for Caltrans staff and consultants working for Caltrans involved with inspecting construction activities and operations.

Each Caltrans resident engineer is responsible for ensuring that the COSP provides the required safety practices for all activities on their current project.

Caltrans Division of Construction will revise and update the COSP to keep current with new construction activities, methods, and changing construction environments. Employees should forward suggestions for improving the COSP, adding specific construction operation safety protocol, or questions concerning the COSP to the personnel responsible for maintaining the document, which can be found on the Division of Construction website:

<http://www.dot.ca.gov/hq/construc/safety/>

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SECTION 1 – OBJECTIVE

The first goal of Caltrans' mission and vision is to "Provide the safest transportation system in the nation for users and workers." Caltrans construction employees and our contracting partners are part of this strategic mission and vision.

The COSP is part of Caltrans' Accident Prevention and Safety Program, which also includes the *Caltrans Safety and Health Manual (Safety Manual)*, portions of the *Construction Manual* and *Standard Specifications*, and contract specific standard special provisions dealing with safety. In addition to the COSP, the resident engineer should be familiar with the provisions of CCR Title 8 applicable to the work to limit the potential for Caltrans' exposure to California Division of Occupational Safety and Health (Cal/OSHA) multi-employer citations.

As a Caltrans construction employee, you have multiple safety missions to complete. When performing your duties, consider your own safety and the safety of contractor personnel. Are the contractors complying with the contract safety requirements, CCR Title 8, the prime contractor's Injury Illness Prevention Program, and the prime's or subcontractors' company COSPs when doing specialty work not covered under the prime's COSP? Are their operations conducted in a manner that provides safe access to perform your duties and the public can pass safely through the work zone with minimal delay?

Accidents can be prevented. All employees should approach contractor operations with a "safety first" attitude, whether it is travel to and from the worksite, office functions, inspection procedures, observation of the contractor's operations, or any work-related activities. Remember that you are on duty and representing the State of California at all times when in a state vehicle, leased state vehicle, a personal vehicle on state business, or when working within the state right-of-way.

The Division of Construction developed the COSP as part of its safety program to provide a safe working environment for construction personnel. Following the COSP guideline and its overall intent will provide safe practices and procedures for most of our operations. Resident engineers and construction engineers should review each project for other potential safety issues. If additional safe practices are needed, supervisors must instruct employees or request assistance from district construction safety coordinators to provide instruction on unique safety issues on their projects.

SECTION 2 – GENERAL SAFETY

The resident engineer must print Sections 1 through 10 of the COSP and indicate which parts of Section 10 are applicable to the project by checking the appropriate boxes on the table of contents. Alternatively, print Sections 1 through 9 and print the individual parts of Section 10 that apply to the project, also indicating the parts that apply to the project by checking the appropriate boxes on the table of contents. The resulting document must be filed in Category 6 of the project file to comply with Section 2-105A, “Code of Safe Practices” of the *Construction Manual*.

When first assigned to the project, employees must read the COSP, and sign and date the signature sheet in Appendix 4, thereby agreeing to follow these guidelines. Employees should also review Chapter 2 of the *Construction Manual*.

Employees must minimize their exposure to potentially hazardous situations. For example, employees should not enter an area where the contractor is sandblasting or grinding yellow thermoplastic striping. Employees should wait until the contractor completes these operations before entering the area to perform inspections.

Employees must follow safety rules, laws, and procedures to ensure that their work environment is safe.

2.1 Zero Tolerance for Violence in the Work Place

Section 6.02, “Policy Statement,” of the *Safety Manual* states, “It is Caltrans policy to conduct business, provide services, and protect its employees, and the public from harm, by providing a safe, secure and healthy environment that has zero tolerance for aggressive behavior, violence, threats, harassment, intimidation, and weapons.” Report all acts of violence in the workplace to the district safety officer and report violations of this standard to the resident engineer for follow-up with the contractor, so appropriate action can be taken.

2.2 Accident and Incident Reporting

Employees are responsible for immediately reporting vehicle damage; accidents or incidents; and unsafe conditions, procedures, or work practices to their resident engineers and supervisors. Personal injuries to employees must be reported in accordance with Chapter 10, “Reporting Personal Injuries and Illnesses,” and vehicle accidents in accordance with Chapter 18, “Motor Vehicle Accidents,” of the *Safety Manual*, respectively.

2.3 Personal Protective Equipment

Chapter 12 of the *Safety Manual* discusses personal protective equipment (PPE) requirements:

- All employees must wear a white hard hat with a Caltrans decal.
- All employees must wear American National Standard Institute (ANSI) 107-2010 Class 2 garments during daytime hours or ANSI 107-2010 Class 3 garments during hours of darkness

when performing duties outside their vehicles within the state right-of-way. (Note: ANSI 107-2004 garments are also compliant during daytime hours or hours of darkness.)

- All employees must wear ANSI Z87.1-rated eye protection when working within the state right-of-way.
- Additional safety equipment, such as gloves, face protection, hearing protection, and rain gear must be used or worn when dictated by the situation, in compliance with CCR Title 8 requirements, as directed by the *Safety Manual*, or as ordered by the supervisor.
- Employees must wear clothing and footwear appropriate for the job to be performed and not shoes with soft, thin, or badly worn soles.
- Employees must follow the respirator guidelines in Chapter 15, “Respiratory Protection Program,” of the *Safety Manual*.

Employees must not drive or report to work if their abilities are impaired by fatigue, alcohol, prescription or non-prescription drugs, illness, or other causes that might expose themselves and others to injury.

By law, all employees must wear seat belts and harness devices when operating state, state-leased, or private vehicles while performing state business in accordance with Chapter 17 of the *Safety Manual*. Passengers must also wear such devices.

In active work zones, employees must not use personally owned communication devices including, but not limited to, cell phones, personal digital assistants, blue-tooth devices, or entertainment devices. Employees may use a communication device for business purposes in a work zone at a location where their safety or the safety of other workers and the traveling public will not be compromised.

SECTION 3 – FIELD SAFETY

Each construction field office must hold tailgate safety meetings at least every 10 working days to discuss potential hazards or other safety concerns with the job. They must document the meetings and post the minutes in a conspicuous place at the field office in accordance with Chapter 2 of the *Safety Manual*.

Section 5-1.01, “Control of Work, General,” of the *Standard Specifications* requires that the contractor provide the inspector safe access at all times during construction. If a contractor’s practice does not comply with contractual requirements or CCR Title 8, follow the procedures in Section 2-103, “Managing Safety Hazards,” of the *Construction Manual* and consider starting a documentation trail. Include these items in the documentation trail:

- Identified improper practices based on contractual requirements or CCR Title 8 reference.
- Documented conversations with a contractor foreman or superintendent requesting immediate correction of the safety deficiency or, as necessary, provision of a timeline for correction and potential consequences for failure to abate the deficiency.
- How and when the safety deficiency was abated.
- Contractor’s failure to abate the deficiency within a reasonable time frame. Inform the resident engineer of the actions taken, and follow up with the appropriate contractor’s representative to request abatement.
- If the safety deficiency is not abated in a timely manner based on the resident engineer’s request, or if the safety deficiency is repeated later, the resident engineer should write a letter to the contractor detailing the safety deficiency event with a timeline for correction and potential consequences for failure to correct the deficiency. All available contractual resources must be considered, including potentially stopping the operation, shutting down the job, removing personnel, and requesting Cal/OSHA enforcement visit the jobsite after consultation with the construction manager and the district construction safety coordinator in accordance with Section 2-103A, “Imminent Hazards,” of the *Construction Manual*.

Employees should minimize their exposure to hazards and stay away from work areas when their presence is not required.

Employees must face oncoming traffic unless they have a clear reason for doing otherwise and must be alert to contractor equipment in the work zone.

When inspecting or sampling in isolated areas, employees must notify their supervisors or resident engineers of their location and time of return. It is desirable that each employee is accompanied by another (known as the buddy system).

Employees should not assist contractors in performing any contract task except for resetting of cones or barricades when it is safe to do so and necessary for access.

SECTION 4 – EQUIPMENT

Work around construction equipment requires special precautions:

- Before entering a work area, determine movement patterns of the contractor's equipment.
- The contractor must ensure that the equipment has alarms, guards, lighting, and so forth installed as required by 8 CCR 1592. Notify the contractor if they are using equipment not in compliance and ask that the operation be stopped until equipment is repaired and brought into compliance.
- Employees must be sure that automatic backup alarms for mandated equipment—or appropriate administrative controls where backward movement would constitute a hazard to employees—are in operation on equipment backing in the work area as required by 8 CCR 1592. Immediately stop any equipment not in compliance, and ensure that it does not return to service until it complies with 8 CCR 1592.
- Employees must not enter into areas potentially in a blind spot of the equipment operator. Employees should follow these rules around the work area:
 1. Never assume that an equipment operator can see you.
 2. Establish eye contact with the operator and use hand signals to show your intentions.
 3. Do not proceed until the equipment operator signals you that it is safe.
 4. Face moving equipment unless there is clear reason for doing otherwise.
 5. Do not ride on or operate any contractor's equipment.

Exceptions:

1. You may cross a paving operation by walking across the screed.
 2. You may ride in a contractor work truck if the vehicle complies with state law for seating and safety belts for the driver, passengers, and occupants.
- Always position yourself away from the path of overhead operations, paying special attention to crane operations. Avoid walking or standing under overhead operations, crane booms, suspended loads, or the fall path of a snapped cable.
 - Stay clear of pile driving operations. Pieces of broken piles or hammers can fly throughout the area causing injury.

SECTION 5 – TRAFFIC CONTROL SYSTEMS

Construction personnel must exercise due care whenever working in the roadway environment including doing preconstruction surveys, working within our outside of contractor-established traffic control, or doing post-construction surveys.

- When entering or leaving a work area adjacent to public traffic, use appropriate traffic signals and proceed with the normal traffic flow.
- Face traffic unless there is clear reason for doing otherwise. Plan in advance an escape route in case an errant vehicle enters the work area. Use another employee as a lookout.
- Plan work in advance to keep employee exposure to public traffic to a minimum.
- When possible, park vehicles as a barrier between oncoming traffic and the work location.
- When required to cross traffic lanes on foot, provide enough time to walk across the lanes safely. If necessary, walk back to the beginning shoulder. ***Do not run—tripping can be deadly.***
- Employees must stay in their vehicles while in a lane closure unless inspection duties require otherwise.
- Employees must not work in or within 6 feet of the traveled way without proper signage or a lane closure.

Exception

Within 6 feet from the traveled way, brief operations may be conducted without using a lane closure or signage, if the following conditions are met:

1. Parking or working is limited to no more than 20 minutes.
 2. Traffic volume is light.
 3. Sight distance is at least 500 feet in each direction. If not, the resident engineer must work with the contractor to provide safe access for employees to work inside a lane closure.
 4. Employees feel it is safe to do so. If they do not feel safe or the above provisions cannot be met, they must speak with their resident engineer or supervisor and ask to work behind a contractor-established lane closure.
- All traffic control devices must be clean and not faded. Traffic control devices must be rated for serviceability in accordance with the American Traffic Safety Services Association’s “Quality Guidelines for Temporary Traffic Control Devices,” 2006 Edition. If a traffic control item is deemed unacceptable, the inspector must immediately inform the contractor and request replacement within an acceptable time period.

SECTION 6 – HEAT ILLNESS

Heat illness prevention is a requirement of 8 CCR 3395. 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 Chapter 23, Sections 23.04, “Requirements Vary by Temperature (°Fahrenheit),” and 23.06, “Types of Heat Illness/Symptoms and First Aid,” respectively.

6.1 Training

All employees shall receive heat illness prevention training before being assigned to a field location. The training is to be documented.

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 supervisors 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 hour**. 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 is your shade. Transportation to shade, a cool location, or medical care in an air-conditioned vehicle is a good option.
- 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.
- Employees in good physical condition tend to better acclimatize because their cardiovascular systems respond more efficiently. Regardless of physical condition, employees need to acclimatize appropriately for their work conditions.
- 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.

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- 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.

6.2 Access to Shade

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

6.3 Provisions for Water

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

Water coolers and cups are available through the state warehouse.

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

6.4 Supervisor Procedures

The supervisor (per *Safety Manual* Chapter 2.02, this includes the construction engineer and resident engineer) needs to ensure compliance with the Heat Illness Prevention Program. Supervisors need to consider having documentation on file, as part of tailgate safety meetings or the resident engineer's daily diary, that addresses key elements of 8 CCR 3395. These include:

Responsible person in charge—If multiple inspectors 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

ensure that their supervisor is aware of their working conditions and are responsible for having the items listed in Section 6.3 of this COSP.

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 Chapter 23.04 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—Ensure new employees brought on during the season have time 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 assignments working in valley areas and inland areas.

Emergency response—Ensure employees know who to call in case of emergency. Account for personnel on the call list that are not available to answer the phone (e.g. on vacation, working alternate shift, etc.) There may be areas in the region that lack cell phone reception. Identify the closest location where cell phone service may be available, or roadside assistance telephone, or the nearest business that may have a phone 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 inspectors are working by themselves and the contractor is present, coordinate with the contractor to provide assistance to our staff in an emergency. If necessary, implement emergency procedures as described in Chapter 23.06 and below, and call 911.

Emergency procedures—Call 911 and ensure employees know how to call 911. Ensure employees know how to direct emergency services to their project location. Use the project description as listed on the contract plans title sheet as a basis for project location. For projects with multiple locations, additional description may be necessary for each location. The location should reference the route number, distance, and direction from the nearest cross street, interchange, or landmark feature (for example, 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.

SECTION 7 – HAZARDOUS MATERIALS EXPOSURE

Construction projects use many different materials, either individually or in combination, to meet contract requirements. Employees encounter different conditions on construction sites because of environmental conditions, such as wind velocity or direction, and wet conditions that may affect how hazardous materials disperse. The contractor may be using known or unknown materials that require special handling if the material spills. The contractor is responsible for responding to these spills based on direction provided by the product safety data sheets and established requirements of the approved water pollution control plan (WPCP) or stormwater pollution prevention plan (SWPPP).

Do not handle or transport hazardous substances under the contractor's control unless you have been specially trained to handle or transport hazardous materials (such as a materials tester) and your duties require it.

7.1 Hazardous Substances

A copy of the Caltrans Hazardous Materials Communication Program must be posted at the field office. For more information, refer to Chapter 16 of the *Safety Manual*.

The contractor must provide the resident engineer with a list of hazardous substances present at the project site, maintain safety data sheets, and make them readily accessible to employees. Product names provided must match products in use in the field. If there is a discrepancy, ask the contractor to obtain and provide the resident engineer with the appropriate safety data sheets.

District offices must provide employees with the general information and training on hazardous substances to comply with the Caltrans Hazardous Materials Communication Program. Training must be provided for specific hazardous materials the employee may be exposed to on the job site.

7.2 Hazardous Wastes

When unknown and potentially hazardous wastes are discovered, construction work must cease immediately. The vicinity must be secured and construction personnel must not undertake any exploratory or investigative work that would result in further personal exposure.

7.3 Hazardous Spills

Employees must inform the traffic management center, district dispatch, or the radio room (after-hours California Highway Patrol) of any potential hazardous spill and must not undertake exploratory work. The resident engineer must review the WPCP or SWPPP and provide hazardous spill emergency numbers to all field staff.

SECTION 8 – VEHICLE OPERATIONS

Drive vehicles defensively. The vehicle operator is responsible for the proper care and maintenance of assigned equipment and must not operate an unsafe vehicle. The operator must also maintain the vehicle's mileage log.

Do not transport hazardous materials in state vehicles unless specifically authorized. Fuel must be carried only in approved fuel containers.

8.1 Parking

- Park vehicles in accordance with legal requirements for parking on public streets and highways.
- Stay at least 25 feet clear of the tracks when parking within railroad rights-of-way.
- Unless using vehicles as protective barriers, park them as far from traffic as possible and out of the path of construction equipment.
- Avoid parking behind or in the operating area of the contractor's equipment.

8.2 Flashing Amber Lights

Flashing amber lights include such devices as flashing incandescence, rotating beacons, and light bars.

- General use—When the vehicle is equipped with an amber light, follow these guidelines:

Lights ON:

1. Entering or leaving a closure with the appropriate turn signal.
2. Moving at slow speed in or near traffic.
3. When using a vehicle as a barrier to protect workers.

Lights OFF:

1. When parked in a closure (emergency flashers may be used).
 2. Operating in normal traffic.
 3. When no danger to employees or motorists exists.
- Night use—Use discretion so you do not blind or distract traffic needlessly.

8.3 Vehicle Backing

Employees must review and follow Section 17.13, "Vehicle Backing Policy," of the *Safety Manual*.

8.4 Vehicle Accidents

If an employee is involved in a vehicle accident with a state, leased, or privately owned vehicle used for state business, the employee must complete Form 270, “Vehicle Accident Report,” and mail it to the district safety office within 48 hours. Follow all other accident reporting procedures documented in Section 18.03, “Motor Vehicle Accident Reporting and Forms,” of the *Safety Manual*.

SECTION 9 – FACILITIES

Consider field construction facilities as including field construction offices, resident engineer offices, field labs, and adjacent areas used by Caltrans.

- Each facility must post emergency telephone numbers and services in a conspicuous place.
- Arrange field construction facilities, furniture, and supplies safely for easy entrance and exit.
- Store or dispose of hazardous flammable substances properly.
- Employees must take responsibility for immediately reporting unsafe conditions, procedures, or work practices to their supervisors for corrective action.
- Employees must be aware of the location of fire extinguishers and first aid kits.
- Avoid leaving boxes, books, miscellaneous equipment, and so forth in aisles since they can cause employees to fall and injure themselves. Avoid leaving heavy objects on cabinets, bookshelves, and windowsills. In case of an earthquake, these objects can become airborne and cause injury. Refer to Chapter 5, “Office and Field Safety,” of the *Safety Manual*.
- Keep aisles clear of stacked materials and equipment. Maintain a minimum 24-inch width around office furniture and minimum 44-inch width in hallways for walking. Be familiar with walkways and use care. Slow down at hallway intersections, especially when carrying hot beverages. Refer to Section 5.05, “Physical Safety,” of the *Safety Manual*.
- Be familiar with the location of emergency action plan exits and escape routes to use in case of fire or earthquake.
- Maintain electrical cords in good repair. Avoid laying electrical cords where they can tangle with chair legs or create a tripping hazard. If possible, reroute cords to avoid crossing pathways. If necessary, provide additional electrical outlets. Refer to Section 5.05, “Physical Safety,” of the *Safety Manual*.
- Use proper lifting and bending techniques for objects you can safely handle. If an object looks too bulky or heavy to lift—**get help**.
- Use care in opening top drawers of file cabinets, so they do not topple on you or other employees. Avoid leaving drawers open when not in use, even for brief periods of time, since open drawers create possible hazards for other employees. Secure cabinets taller than 5 feet to the wall or floor to keep them from falling.
- Provide an ergonomic workstation and use proper body posture to minimize musculoskeletal and visual problems. Refer to Chapter 7, “Ergonomics,” of the *Safety Manual*.
- Employees must not move any furniture or equipment. If it must be moved, contact the facilities coordinator to arrange for the movers.

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- Store office supplies in areas set aside for that purpose and not where they can contribute to injury. Do not store materials on top of bookshelves or file cabinets or in walkways, hallways, or stairwells.
- Do not attempt to reach high shelves without a proper ladder or step stool. Avoid awkward reaches.
- Smoking is prohibited in all state facilities, including vehicles, stairwells, and restrooms. Smoking is allowed only in designated areas outside the building.
- It is illegal for any employee or member of the public to bring a firearm or weapon into a state facility or vehicle. Immediately report violations to your supervisor. Refer to Chapter 8, “General Health, Medical and Safety,” of the *Safety Manual*.
- All employees should use a sign-out board that provides location and approximate return time information for the office to contact them in the event of an emergency.
- Employees must take care while operating and using office equipment to ensure its future availability for all employees. Specific pieces of equipment are listed below:
 1. Desktop computer—Plug computers into an approved surge protector, and turn them off at the end of every day. Use proper ergonomics to eliminate eye strain and body aches.
 2. Alarm system—Be aware of proper operation, memorize passwords, and know emergency numbers to call during a false alarm.
 3. Copier, printer, and fax machine—Only authorized personnel must attempt to maintain and repair the equipment. Avoid hazards associated with loading paper by following the sections on “Lifting,” and “Material/Office Supply Storage,” of the *Code of Safe Work Practices*. Avoid contact with toner and ink.
 4. Paper cutter—Take extra precautions while using the paper cutter because of associated risk. Ensure that the device, especially the spring-balanced cutting arm, is in proper working order before using. Make sure the cutting arm is locked and in a closed position after use and during storage.
 6. Coffee pot—At the end of the workday, be sure the coffee pot has been turned off to avoid unit overheating and potential damage, possibly resulting in a fire hazard.

SECTION 10 – SPECIAL CONSIDERATIONS**10.1 Night Work**

Work during hours of darkness creates special hazards because of the loss of visibility.

- In addition to other required PPE discussed previously, employees must wear ANSI 107-2010 Class 3 garments at night.
- Employees must always work in lighted areas to comply with Section 7-1.02K (6) (a), of the *Standard Specifications* and 8 CCR 1523. The minimum acceptable lighting is 10 foot-candles. Section 5-1.01, “General,” of the *Standard Specifications* requires the contractor to provide employees with safe access to inspect the job.
- If employees believe the contractor is not providing sufficient light for their operations, they should call the construction safety coordinator and ask for a safety review. If the field office has a light meter, they should use it to check for compliance with 8 CCR 1523.
- Employees must not work or allow contractors to work by vehicle headlight or streetlight. If the contractor attempts to work without sufficient lighting, temporarily suspend the operation until appropriate lighting is provided in accordance with 8 CCR 1523.

10.2 Excavations

Excavations are defined as excavations, trenches, shafts, or earthwork where depths are 5 feet or greater.

- Employees must not enter an excavation unless it is necessary to perform their work.
- Employees who must enter an excavation must first determine that it is safe to do so.
- Employees must verify that required protection against ground movement and the prescribed access is in place. If the excavation is 5 feet or deeper, employees must review the excavation safety plan that the contractor prepared and resident engineer approved, as required by Section 7-1.02K (6) (b) of the *Standard Specifications* and ensure that the contractor is following the excavation safety plan.
- Employees must verify that excavated material spoils piles are placed at least 2 feet from the edge of the excavation.
- Employees must be aware that an excavation can become subject to the requirements for a confined space.
- Employees must be aware that changed soil conditions may require modifications to shoring or sloping systems, including excavations less than 5 feet deep.
- Employees must know they may encounter hazardous waste during excavation processes. If they observe suspect material, they must stop the contractor's operation, restrict the area, and follow Section 7, "Hazardous Materials Exposure," of this COSP.
- Employees must be provided with adequate protection to delineate the perimeter of the excavation when the contractor is not conducting operations at the location. Delineation can be provided in a number of ways, including using plating to cover the excavation or establishing a perimeter with tape line delineators.

10.3 Elevated Work Areas

In accordance with Chapter 12 of the *Safety Manual* and 8 CCR 1670, an elevated work area is an open-side end of all scaffolds, runways, ramps, elevated platforms, thrust-outs, surfaces, wall openings, bridge decks, or other elevations 7.5 feet or more above the ground, floor, or level underneath, or other sloped surfaces steeper than 40 degrees (such as a slope). Follow these work practices in elevated work areas for safety:

- Before employees enter an elevated work area, they must determine that proper worker protection is in place or readily available for use. This protection includes hand railings and walkways. If hand railings are used for fall protection, they must have a top rail between 42 and 45 inches measured from the top surface of the rail to the floor, platform, runway, or ramp and a mid-rail halfway between the top rail and floor, platform, runway, or ramp in accordance with 8 CCR 1620. If hand railings are not used for fall protection, a contractor-installed, fall-prevention system with proper tie-off, or a personal fall-restraint system with appropriate anchor points available must be used. If the contractor has an approved fall-protection plan established for the project, employees should review and agree to it or to Caltrans established policies, whichever is more stringent.
- Employees should not approach to within 6 feet of railings not in compliance with 8 CCR 1620 on elevated structures. In accordance with 8 CCR 1669, if work within 6 feet of railings is of short duration (non-repetitive) and limited exposure, work may proceed provided adequate risk control is recognized and maintained and at least one employee is trained as a competent person in fall protection. A spotter should be used if possible.
- Each employee must use proper safety equipment and look for openings, loose covers, or other unguarded areas. Address safety deficiencies as described in Section 2.0, “General Safety,” of the COSP.
- Contractors must provide standard fall protection (standard guardrail, catch platforms, safety nets) and use it on open sides and ends of elevated work areas.
- Before employees enter work areas where no fixed standard protection is applied, they must have the concurrence of the resident engineer or structures representative and meet the following requirements:
 1. Employee has successfully completed a course in fall protection.
 2. Employee has a fall protection harness and shock-absorbing lanyard that is the proper length for the work. This equipment must pass an inspection performed and documented and has passed an inspection prior to each use that is performed and documented by a competent person at least twice a year.
- Employees must be aware that elevated work areas may encompass deep or enclosed spaces that may meet requirements for confined space entry.
- Employees must not work or pass below elevated work areas where protection from falling objects has not been provided.

10.4 Electrical

- Before beginning any wiring inspection, employees must follow appropriate lockout or tag-out procedures. Employees must ensure that the contractor has completed work on the circuit and that the circuit is de-energized. Remember, all electrical equipment must be treated as energized until tested or otherwise proven de-energized.
- Before energizing a circuit, employees must ensure that the contractor has completed work on the circuit and all machinery operated by it.
- Most equipment with exposed metal surfaces is required to be grounded. Immediately remove from service equipment that has damaged or removed grounding prongs.
- Conductors or equipment must not be located in damp or wet conditions; exposed to gases, fumes, vapors, and liquids with a deteriorating effect; or exposed to excessive temperatures unless approved for that purpose.
- Flexible cords must be protected from accidental damage. Ensure cords are not placed at points where they can be pinched or damaged by closing a door or window edge. Also, be sure to protect them from abrasion by adjacent materials. Any flexible cord where the outer sheath is damaged such that the conductor wiring is visible must be removed from service.
- If a generator is used to power a temporary office, it must be grounded according to the Electrical Safety Orders in 8 CCR 2299 – 2289.1, or manufacturer instructions.

10.5 Confined or Enclosed Spaces

10.5.1 Definitions

Chapter 14 of the *Safety Manual* provides detailed information about confined spaces. CCR Title 8 designates two distinct types of confined spaces. Permit-required confined spaces are discussed in 8 CCR 5157 while other confined spaces operations, including construction activities, are discussed in 8 CCR 5158.

- A confined space is defined under 8 CCR 5158 by the concurrent existence of the following two conditions:
 1. Existing ventilation is insufficient to remove dangerous air contamination, oxygen enrichment, or oxygen deficiency that may exist or develop.
 2. Ready access or egress for the removal of a suddenly disabled employee is difficult due to the location or size of the openings.
- An atmosphere that contains dangerous air contamination presents a threat of causing death, injury, acute illness, or disablement due to the presence of flammable or explosive, toxic, or otherwise injurious or incapacitating substances. The following are a few examples of such atmospheres:
 1. Dangerous air contamination due to the flammability of a gas or vapor is defined as an atmosphere containing the gas or vapor at a concentration greater than 20 percent of its lower explosive (lower flammable) limit.
 2. Dangerous air contamination due to a combustible particulate is defined as a concentration greater than 20 percent of the minimum explosive concentration of the particulate.
 3. Dangerous air contamination due to the toxicity of a substance is defined as the atmospheric concentration immediately hazardous to life or health.

Oxygen deficiency is an atmosphere containing oxygen at a concentration of less than 19.5 percent by volume. An oxygen enriched atmosphere contains more than 23.5 percent oxygen by volume.

- Confined spaces include such structures or facilities as tanks, bridge cells, shafts, pits, bins, tubes, pipelines, deep trenches, tunnels, vaults, vats, pump houses or compartments, sewage lift stations, culverts, coffer dams, or elevator pits. Employees must not enter any contractor's designated permit-required confined space. If the contractor has such a work location and inspection is required, immediately contact the resident engineer and the construction safety coordinator to request assistance. No employee must enter or remain in a confined space or an area otherwise known to be deficient in oxygen and containing harmful amounts of dusts, gases, or other substances.

- Employees must not enter a non-permit-required confined space work area where the contractor is basing entry on 8 CCR 5158 provisions unless they have done all of the following:
 1. Attended a confined space course.
 2. Reviewed the procedures in Chapter 14, “Confined Spaces,” of the *Safety Manual*.
 3. Filled out the appropriate forms before entering.
 4. Obtained calibrated atmospheric testing equipment and the training to use it.

10.5.2 Confined Space Entry Procedures

Employees must follow confined space entry procedures to identify if the work location is a confined space:

- Immediately before entry, verify radio communications with the radio dispatcher, resident engineer office, or California Highway Patrol for possible emergency rescue.
- Review emergency and rescue procedures. Post at each worksite the name of and way to contact the rescue response agency.
- To the extent feasible, the space must be emptied and flushed or otherwise purged of flammable, injurious, or incapacitating substances.
- Ensure that the space has continuous natural or mechanical ventilation.
- Test the air with an appropriate device to determine whether dangerous air contamination, oxygen deficiency, and explosive hazard exist.
- Maintain a written record of the testing results at the worksite. Hazardous atmosphere is defined as an oxygen level below 19.5 percent by volume or a combustible gas content of greater than 1 percent lower explosive level (LEL); carbon monoxide greater than 25 parts per million (ppm); or hydrogen sulfide greater than 10 ppm.

If the space atmosphere tests hazardous—Stop! Do not enter!

- Maintain a log at the worksite for recording:
 1. Name of person entering enclosed space.
 2. Name of standby person.
 3. Date and time of each entry and exit.
 4. Initial percentage of oxygen, carbon monoxide, and hydrogen sulfide.
 5. Initial percentage of LEL value.
 6. Periodic meter readings or notation of the use of continuous monitoring equipment.

- Ensure that suitable lighting is provided in the work area.
- At least one standby person must remain outside the enclosed space with an effective means of communicating with anyone in the enclosed space and with the radio dispatcher, resident engineer office, or California Highway Patrol.
- Conduct testing of the atmosphere with sufficient frequency to ensure that dangerous air contamination and oxygen deficiency do not develop during the performance of an operation.

If the atmosphere becomes hazardous, everyone must vacate the closed space immediately. Do not re-enter!

- Notify the radio dispatcher, resident engineer office, or California Highway Patrol upon exiting the enclosed space.

10.6 Material Plant Sites

The materials plant site has its own potentially hazardous conditions common to this type of operation. The plant inspector will normally be the only state representative at the plant. When entering the two types of plant sites—jobsite and commercial, employees must do the following:

- Comply with plant training requirements. Plants may have specific onsite training requirements in order to comply with the Federal Mine Safety and Health Administration and CCR Title 8 requirements.
- Onsite use of the hard hat, ANSI 107-2010 compliant garments, and safety glasses is required at all times except when inside office areas. Some areas require the use of hearing protection.
- When entering or driving within the facility, be aware of access roads and their direction of travel.
- Report your presence to the plant operator before you enter the plant. Familiarize yourself with the plant operating procedures by reading the contractor’s plant COSP before beginning work, and follow the rules.
- Do not enter an unsafe work area. Specific work areas requiring inspection must have safe access and comply with CCR Title 8 requirements at all times. Be alert for overhead wires, tripping hazards, floor openings, and loose material on stairways or walkways. Look for exposed electrical sources.
- Avoid work areas where your presence is not required. Do not walk behind equipment and look before moving into “blind” areas.
- Be particularly aware of the following conditions:
 1. Conveyors that start and stop without notice.
 2. Hot asphalt lines and hot aggregate.
 3. Flammable fuel storage tanks and lines.
 4. Revolving and reciprocating parts, including chains and pulleys that should be guarded at all times.
 5. Restricted areas during time of plant operation.
 6. Loud-sounding horns, which signal that the plant is about to begin operations.
 7. Loader backing operations.
 8. Noise, dust, and no smoking areas (flammable materials hazards).

10.7 Field Testing

10.7.1 Testing Portland Cement Products

Portland cement based concrete products become alkaline when exposed to moisture. Exposure can dry the skin, cause alkali burns, and affect the mucous membranes. Dust can irritate the eyes and upper respiratory system. Excessive exposure to skin and eyes, especially when the concrete products are mixed with water, can cause caustic burns as severe as third degree. Prior to handling concrete samples and in accordance with *Standard Specifications* Section 5-1.01, ensure that the contractor provides facilities necessary for the inspection. This includes an ANSI Z358.1-compliant eyewash station, in compliance with 8 CCR 5162; and a hand washing station with soap, water, and paper towels, in accordance with 8 CCR 1527. Based on information in a generic portland cement-based concrete product safety data sheet, prepared for the following first aid measures if exposed:

- Eyes: Immediately flush eyes thoroughly with water. Continue flushing eyes for at least 15 minutes, including under lids, to remove all particles. Call a physician immediately.
- Skin: Wash skin with cool water and pH-neutral soap or mild detergent. Seek medical treatment if irritation or inflammation develops or persists. Seek immediate medical treatment for burns.

10.7.2 Testing With Nuclear Gauges

The field lab has unique conditions that require special attention for radioactive sources. Only trained personnel may use specialized equipment. Nuclear gauges and microwave ovens are normal items of equipment in this operation.

- Operators of radioactive sources must work within all safety regulations.
- Operators must get training in the proper use, transportation, and storage of nuclear gauge devices.
- Operators must wear film badges when operating gauges or are within 10 feet of the gauges. Instruct all other persons to keep away.
- Use the three-lock system on transportation and storage of devices. Keep transportation or shipping papers within reach of vehicle operators.
- This job often requires the lifting of heavy objects. Use proper lifting methods by balancing the load and lifting with the legs. Do not risk back injury. If necessary, get help.
- Do not, under any circumstances, attempt to repair, modify, or open the nuclear sealed source.
- Operators must notify radiation safety officers and their supervisors in the event of an accident with the gauge.
- Follow manufacturer's specifications when using microwave ovens.

- In case of a vehicle accident with a vehicle transporting a nuclear gauge, the following emergency procedures must be implemented by the employee:
 1. Move the vehicle off the traveled way to the nearest onsite parking area. The vehicle must not be moved again until a radiation survey has been conducted, if deemed necessary, by responsible authorities.
 2. Move a safe distance from the vehicle and call the 24-hour emergency contact number listed on the shipping papers. Be sure to state that a nuclear gauge is involved. Be prepared to provide the emergency contact with your location. The location should reference the route number, distance, and direction from the nearest cross street, interchange, or landmark feature (i.e. 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.
 3. Review the “Contact in Case of Nuclear Incident” in the nuclear gauge binder and call the district radiation safety officer or alternates, if necessary.

10.7.3 Other Test Methods

- In the case of laboratory equipment or procedures, follow the applicable directions in the *California Test Method Manual*.
- Maintain proper safeguards on equipment.
- Use proper protective gear.

10.8 Safe Work Practices for Bridges With Bats

Bats may be inside bridges and abutments. Although normally docile and shy animals that avoid human contact, they can pose a health risk to workers from direct contact and from contact with the feces (guano) and urine left behind.

Live bats may carry rabies. A virus can be transmitted to humans through bat bites, direct bat saliva, and nervous tissue contact with open wounds, abrasions, or mucous membranes. Human infection from bat contact is extremely rare (as of 1993 there were 28 cases worldwide). The guano from bats in the mid-western and eastern states may contain *histoplasma capsulatum*, a fungus that causes the respiratory illness histoplasmosis. The California Department of Health Services indicates that no cases have occurred in California. Bat guano may also contain *cryptococcus neoformans*, encapsulated yeast that the Department of Health Services says is primarily a hazard to immune suppressed individuals.

Follow these work practices to protect employees from the hazards of bats at locations where bats or bat guano is present:

- If work procedures will disturb bats, remove or exclude them from the work area before starting work. Contact the local Caltrans district environmental branch for guidance about removal or disturbance.
- Train employees in the hazards of bats and the requirements of these work procedures. Employees who enter confined spaces or wear respirators must comply with Chapter 14, “Confined Spaces,” and Chapter 15, “Respiratory Protection Program,” of the *Safety Manual*. Training, medical evaluation, and testing are required before respirator use is allowed. Individuals with facial hair that interferes with the facepiece seal may not wear respirators. The supervisor should contact the district safety office for more information and training on the use of respirators.
- Do not touch, handle, or allow personal contact with live, sick, or dead bats. Do not harass, capture, or kill bats. They are protected under state and federal law.
- Use work procedures that minimize airborne dust and wet guano, or cover it with a tarp to control dust.
- Avoid contact or inhalation of bat guano or urine and contamination of personal clothing by using the following personal protective equipment:
 1. Cloth or Tyvek coveralls.
 2. Rubber or disposable boots.
 3. Gloves and safety glasses or goggles.
 4. National Institute for Occupational Safety and Health-approved high efficiency particulate air (HEPA) dust mask or half-face respirator with HEPA cartridges.

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5. Do not eat, drink, or smoke in the contaminated work area.
6. Use good personal hygiene practices. Provide wash water, soap, and towels onsite. Wash hands and face before eating, drinking, or smoking.
7. When leaving the contaminated work area, follow these procedures:
 - Wash boots and remove boot covers.
 - Remove coveralls.
 - Remove gloves.
 - Remove respirator.
 - Wash face and hands with soap and water.
 - Place coveralls in a plastic bag for disposal or washing.
 - Have coveralls commercially laundered.

10.9 Lead-Contaminated Soils

Two purposes of the COSP are to address the possible health risk that lead contamination poses to Caltrans employees and to outline safety measures to protect employees exposed to the contaminated soil.

Lead enters the body through inhalation or ingestion of lead-containing materials and is not readily absorbed through the skin. The primary concern is exposure through ingestion of contaminated soil. Another concern is that shoes or clothing contaminated with lead-containing soils will enter vehicles, offices, or homes and provide a source for lead contamination and exposure to others.

Recent testing of soils along some urban freeways has revealed that the soils contain low levels (< 3000 ppm) of lead. An evaluation of the soil contamination levels and expected dust levels indicates that exposure to airborne lead should be well below the Cal/OSHA permissible exposure limit (average of 50 micrograms of lead per cubic meter of air for 8 hours).

Eating, drinking, smoking with hands or faces contaminated with lead-containing materials is the usual way that ingestion occurs. If you eat food, drink, or use cigarettes, chewing tobacco, or makeup with lead-contaminated soils in them or handle these items with soil-contaminated hands or utensils, you could ingest lead.

Lead exposure can cause serious short-and long-term health effects, including damage to the nervous and blood forming systems, kidneys, reproductive system, and digestive system. Young children absorb lead much easier than adults and can suffer additional severe and delayed effects, including slow learning and behavioral problems from exposure.

Once in the body, lead is a potent systemic poison that serves no useful function. Some leads are quickly filtered out and excreted, but some remain in the blood and other tissues, often for a long time.

Jobsites with elevated lead levels must adopt the following work practices to minimize the potential for contamination and ingestion of lead-contaminated soils:

- Do not permit visible dust. Work on soil when it is wet, or use approved dust-reducing agents.
- Minimize contamination of personal clothing and footwear. Stay clear of operations that generate dust. If contamination cannot be avoided, use protective or disposable clothing and footwear to keep personal clothes clean. So contamination will not spread, store or dispose of used protective clothing by leaving it at the jobsite or placing it in a plastic bag. Clean your shoes before leaving the jobsite. If contaminated clothing must be laundered, wash it separately.
- Prevent soil ingestion by not eating, drinking, or smoking near work operations. Wash your hands and face before eating, drinking, or smoking. Clean your hands, clothing, and shoes before entering vehicles or buildings. Store food and water to avoid exposure to dust.

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- Read and review the contractor's written compliance plan (health and safety plan and code of safe practices) for the project. Know who the contractor's site safety person is, and report problems to them. If you have questions about the compliance plan, ask!

NOTE: Follow the contractor's requirements for the site if they are more restrictive than the COSP. However, as a minimum, Caltrans employees will follow this Caltrans COSP for lead-contaminated soils.

10.10 Yellow Paint Stripe and Markings Removal

10.10.1 Dust and Debris Handling

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 older yellow paints do. When the markings are removed by grinding, scraping, burning, abrasive blasting, or other mechanical methods, the dust created can contain lead. This section of the COSP addresses the possible health risk this lead-contaminated dust poses to Caltrans employees and outlines safety measures to protect employees exposed to it.

To minimize the potential for lead exposure, when removing yellow traffic paint marking or stripe by grinding, scraping, burning, abrasive blasting, or other mechanical methods, jobsites will adopt the same work practices as those outlined for lead-contaminated soils in the previous section.

10.10.2 Hazardous Waste Concerns

Under California Environmental Protection Agency regulations, materials that contain over 1000 ppm or 5 milligrams per liter of soluble waste must be handled, stored, transported, and disposed of as “Hazardous Waste.” Waste material with 350 ppm of lead is also hazardous waste. Removal of yellow paint stripe or markings could include these materials. Contact the district hazardous waste coordinator or environmental department for assistance with this issue.

10.11 Rubberized Asphalt Concrete

10.11.1 Background

Rubberized asphalt concrete (RAC) is composed of petroleum asphalt, ground tire, natural rubbers, and aggregate. In the creation of RAC, the asphalt and rubber are mixed and heated until the rubber swells and blends with the asphalt. The mixture is applied to the heated aggregate to create RAC. Diluent or extender oils are sometimes added to the rubber-asphalt mixture to lower viscosity and improve aggregate coverage. Materials temperature is important at all stages. Caltrans specifications require a rubber-asphalt reaction temperature between 375°F and 425°F for at least 45 minutes before application to the aggregate. The aggregate is heated to 325°F before mixing. RAC cannot be heated above 325°F.

RAC is sticky and requires care in handling. Because of the rubber content, many not familiar with RAC assume it is too cold and apply heat. This action causes the rubber-asphalt to break down and creates excessive emissions and smoke. Typically, if the RAC is smoking and stinking, it is too hot. Caltrans specifications call for a maximum windrow and mat temperature of 325°F.

Caltrans collected extensive industrial hygiene air-monitoring data during paving operations using RAC. Materials monitored included asphalt, volatile organic compounds, polynuclear aromatic hydrocarbons, and cyclohexane extractable particulates. Results showed paving worker exposures to be low for all materials and well below established Cal/OSHA limits for materials with a limit. Unfortunately, local incidents of nausea, irritated throat, headache, and irritation continued to occur on isolated RAC paving jobs. Most of these incidents have been accompanied by reports of excessive smoke and RAC temperatures in excess of 325°F.

10.11.2 Handling Procedure

Before starting paving work involving RAC, follow these rules to work with and inspect RAC paving jobs:

- Obtain and review the safety data sheet for RAC supplied by the RAC manufacturer (hot plant). Be sure to include sheets for diluents or extender oils if used.
- Review project specifications and note allowable temperatures for RAC manufacture and paving.
- Review the COSP.
- Minimize personal contact with RAC and RAC smoke. Stay upwind and out of the smoke if possible. If irritation or other symptoms occur, move farther away from the smoke. Wear a half-face cartridge respirator with P-100 (HEPA) or Organic Vapor combination cartridges (magenta and black). Respirator use must comply with Chapter 15, “Respiratory Protection Program,” of the *Safety Manual*, which requires a medical exam, training, fit testing, clean-shaven wearers, and National Institute for Occupational Safety and Health-approved equipment and documentation before respirators are issued or worn. Contact the local district safety officer or construction safety coordinator for assistance.

- Use personal protective equipment to minimize contamination of clothing and skin. Wear coveralls if necessary, and wear gloves if handling RAC. Remove contamination from shoes and clothing when leaving the site and before entering vehicles or offices.
- Monitor windrow and mat temperatures regularly, and take appropriate action. If smoke is present, measure temperature more often.
- Prevent ingestion by observing good personal hygiene. Do not eat, drink, or smoke near the paver. Wash hands before eating, drinking, smoking, and entering vehicles or offices.
- Notify the supervisor and obtain medical treatment if RAC ingestion or RAC smoke occurs. File a Report of Minor Incident (PM- S-0066) with the supervisor, who will immediately notify and send a copy to the local construction safety coordinator and district safety officer. The district construction safety coordinator tabulates these reports and submits an annual summary on January 1 to the Division of Construction safety coordinator. If the contractor's personnel are affected, document the occurrence and notify the district construction safety coordinator.

10.12 Naturally Occurring Asbestos

You may encounter asbestos at a construction site in the following areas or during the following operations:

- Excavations where asbestos-bearing rock outcroppings are at or near the surface.
- Demolition, salvage, alteration, repair, or maintenance of structures where asbestos is present.
- Transportation, disposal, storage, and containment involving asbestos activities or materials containing asbestos.
- Pipe and boiler insulation.
- Insulators of electrical conductors, plaster, cement, drywall, and taping compounds.

Cal/OSHA regulates exposure and removal of asbestos containing construction materials subject to 8 CCR 1529. Employees need to know the following:

- Training is required for employees engaged in work where they are likely to be exposed to asbestos in excess of the permissible exposure limits.
- Ensure that the contractor is compliant with his asbestos compliance plan and dust control plan.
- The employer must provide appropriate respirators and have a written respiratory protection program available onsite.

APPENDIX

Appendix 1—Respirators in Caltrans Construction

Employees must comply with Section 15.12, “Recommended Respirators,” of the *Safety Manual* for the following operations:

Asbestos—Asbestos removal or disturbance requires special training and equipment. A specific work plan or COSP is required, and the plan will indicate what type of respirator is required. Dust masks may not be used for asbestos protection.

Asphalt paving—Respirator use is not required, but a cartridge respirator with organic vapor (black) or organic vapor-P100 combination cartridges will provide adequate protection from the offensive odors and fumes. Dust masks may not be used.

Galvanized metals—Welding or cutting on galvanized metals can release toxic fumes. Follow the appropriate COSP. Use a cartridge respirator with N or P100 filters if welding or cutting for more than 30 minutes continuously. For less than 30 minutes, no respirator is required, but an N95 dust mask may be used.

Lead—Respirator selection for operations that disturb lead-containing paints or materials will follow the lead compliance plan for that particular operation. Any operation that disturbs lead-containing materials requires special lead training and protective equipment. Dust masks may not be used for protection from lead.

Methacrylate road or bridge sealers—Respirator use is not required, but a cartridge respirator with organic vapor (black) or organic vapor-P100 combination cartridges may be used. These materials sometimes have an offensive odor. Dust masks may not be used.

Pesticides—Cartridge respirator with P100-organic vapor cartridges required. Dust masks cannot be used for pesticides. Follow the pest control advisor’s use recommendations—a respirator is required for mixing or loading loose (not packaged) powders.

Polyester concrete—Employees working with or around (within 50 feet) polyester concrete construction projects need to wear cartridge respirators with organic vapor (black) or organic vapor-P100 combination cartridges. Dust masks may not be used.

Silica dust—Contractor operations such as PCC grinding and slab removal, respectively, or sandblasting with silica-based materials can produce silica dust. Employees need to minimize their exposure to contractor work operations which produce visible silica dust and need to consider delaying inspection of these operations until they are complete. If it is necessary to perform inspection in a contractor work area where there is visible silica dust, the inspector **MUST** comply with Safety Chapter 15, Appendix B of the *Safety Manual*.

Spray painting—Respirator use is required for solvent-based paints but not for latex-based paints. Use a cartridge respirator with P100-organic vapor cartridges. Dust masks are not appropriate for spray painting.

Treated wood—Respirator use is not required during sawing and drilling on treated wood, but a cartridge respirator with N or P100 cartridges may be worn. An N95 dust mask may also be worn.

Appendix 2—Sample Confined Space Entry Checklist (HS-0040) (page 1 of 2)

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION
CONFINED SPACE ENTRY CHECKLIST
 HS-0040 (REV. 5/2013)

**FORM FOR ONE SHIFT ONLY. NEW FORM MUST
 BE COMPLETED FOR EACH SUBSEQUENT SHIFT.**

Page 1 of 2

This form must be readily available at the confined space while the work is in progress. After work is completed, give to your supervisor for retention.

DESCRIBE WORK TO BE DONE

DATE	TIME	FROM	TO
_____	_____	_____	_____

LOCATION OF CONFINED SPACE	<input type="checkbox"/> Pumping Plant	<input type="checkbox"/> Culvert
_____	<input type="checkbox"/> Bridge Cell	<input type="checkbox"/> Other

LOCATION OF WORK WITHIN CONFINED SPACE (DRAW SKETCH BELOW, ESTIMATE AND SHOW DISTANCE AND DIRECTION FROM WORK ACCESS)

NOTE: If more space is needed use back of form.

CHECKLIST BELOW MUST BE COMPLETED BEFORE ENTRY

NOTE: THE RESPONSIBLE PERSON IN CHARGE INITIALS ITEMS 1-4 AND 6-8. ENTER SPACE ONLY AFTER THE PROCEDURES LISTED BELOW HAVE BEEN COMPLETED.

INITIAL

- Review Code of Safe Practices for entry and work in confined spaces.

- Review emergency/rescue procedures and list contact information. _____
- Notify nearest Traffic Management Center or Responsible Person and list contact information. _____
- Complete at least 2 tests of atmospheric conditions in the confined space using a four gas meter. Additional testing may be necessary depending on the depth and configuration of the space.

- Testing of atmosphere conditions -- pre-entry

SIGNATURE OF TESTER	TIME	LOCATION OF SAMPLED AIR	METER READING				
			OXYGEN (%)	COMBUSTIBLES (%Lower Explosive Limit - LEL)	CARBON MONOXIDE	HYDROGEN SULFIDE	OTHER
PRINT NAME	_____	_____	_____	_____	_____	_____	_____
SIGNATURE	_____	_____	_____	_____	_____	_____	_____

NOTE: If more lines are needed use back of form.

- Suitable lighting provided in work area.
- Effective means of providing continuous communication between the attendant and entrants.
- Assure that atmosphere will be tested during work within confined space. NOTE: If atmosphere becomes hazardous, all workers shall STOP WORK and LEAVE CONFINED SPACE IMMEDIATELY - DO NOT RE-ENTER; contact Responsible Person in Charge.

AUTHORIZED PERSONS

	PRINT NAME	INITIAL	PRINT NAME	INITIAL
RESPONSIBLE PERSON IN CHARGE	_____	_____	_____	_____
ATTENDANT	_____	_____	_____	_____
ALTERNATE ATTENDANT	_____	_____	_____	_____
ENTRANTS	_____	_____	_____	_____
	_____	_____	_____	_____

I have determined that the above procedures have been completed and it is safe to enter and work in this confined space.

RESPONSIBLE PERSON IN CHARGE SIGNATURE	DATE
_____	_____

ADA Notice For individuals with sensory disabilities, this document is available in alternate formats. For information, call (916) 654-6410, TTY 711, or write to Records and Forms Management, 1120 N Street, MS-89, Sacramento, CA 95814.

Appendix 3—Project Team Acknowledgement and Signature Sheet

The following employees have read, understood, and will abide by the Division of Construction Code of Safe Practices for the project:

DISTRICT - EA: _____

Construction Engineer/
Senior RE

Print Name _____

Signature _____

Project RE

Print Name _____

Signature _____

PRINT FULL NAME, SIGN, AND DATE

Inspectors _____

File original in Category 6
cc to Construction Safety