

CENTRAL CONTRA COSTA SANITARY DISTRICT

DISTRICT SAFETY REQUIREMENTS

FOR

TREATMENT PLANT AND PUMPING STATION PROJECTS

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I. CONTRACTOR DUTIES

The Contractor expressly assumes any and all duties to assure safety on the job site and all areas affected by the work-related activities. Contractor and its subcontractors shall comply with all applicable federal, state, and local safety rules, regulations, requirements, and orders in the performance of the contract work. In addition, Contractor and its subcontractors shall comply with all requirements and procedures in this manual. Contractor shall take any additional precautions necessary to prevent injury to all persons (District and contract employees, subcontractors and the public), property (both public and private), or processes.

Contractor has the duty to inform all employees, subcontractors, suppliers, and invitees of Central Contra Costa Sanitary District (District) and of Contractor of the safety requirements on its job site and shall enforce these requirements. Contractor shall not allow employees or subcontractors to begin work on District projects without a safety orientation specific to the potential hazards of the project.

II. GENERAL SAFETY REQUIREMENTS

A. POTENTIAL HAZARDS

1. Treatment Plant

- a. Hazardous chemicals, such as dry and hydrated lime, sodium hydroxide, calcium thiosulfite, hydrogen peroxide, sodium hypochlorite, acids, caustics, and others, and volatile fuels, such as natural gas, propane, gasoline, methane (landfill gas), diesel fuel, steam and others are used for various prime movers and processes and are stored upon or piped to and around the premises.
- b. The Contractor and all subcontractors bringing their own chemicals on site shall post (and inform those working in the area) MSDS at the job site for as long as the chemical remains on the job.
- c. Ultraviolet radiation is used as a part of the treatment disinfection process.
- d. Underground and exposed piping and duct systems in the project area may contain high and low pressure natural gas, methane (landfill gas), high voltage and low voltage energized electrical conductors, sewer gases (hydrogen sulfide and methane), and other hazardous substances.
- e. Within the treatment plant site are buried petroliferous materials generally classified as hazardous materials. There is an on-site management plan for this material.

- f. Tank trucks deliver various treatment chemicals within the treatment plant daily. Contractor personnel need to be alert to movements of large tank trucks while on the plant site.
- g. Contractor personnel need to be alert to movements of carts and pedestrians while on the plant site.

2. Pumping Stations

Caustic soda, hydrogen peroxide, sodium hypochlorite, diesel fuel, motor oil, anti-freeze, and various biological enzymes are routinely stored and handled at the pumping stations.

B. BASIC RULES

- 1. Work shall not begin until all Contractor personnel have been informed of potential hazards and the applicable safety procedures required at each job site.
- 2. The Contractor shall not operate any District equipment, compressed air, switches, valves, or other controls. The Engineer or District representative shall be contacted should operation of District equipment be necessary.
- 3. Drinking water shall be supplied by Contractor.
 - a. Do not drink water from hose connections located throughout the treatment plant. Most of these supply treated wastewater and are posted with signs reading "Do Not Drink."
 - b. Water from hose connections should not be used to wash hands or equipment.
 - c. Water lines throughout the treatment plant are labeled as follows:
 - 1W -- city water (Contra Costa Water District) is OK at a few pump stations
 - 2W -- wastewater (Filter Plant effluent)
 - 3W -- wastewater (Plant effluent)
 - d. Never make any cross-connection to any water line without verifying with the Engineer that contamination of the city water supply will not occur.
- 4. Only tools designed for the task shall be used. Makeshift tools or tools in poor repair shall not be used.

5. Horseplay shall not be allowed.
6. Smoking is strictly prohibited inside and outside of all District buildings, treatment plants, pumping stations, and facilities, except where "SMOKING AREA" signs are posted.
7. Use of alcoholic beverages and/or illegal drugs are strictly prohibited. Workers who use prescription and non-prescription drugs that may interfere with the ability to work safely are prohibited from the work site.
8. The Contractor shall maintain all portions of the job site in a neat, clean, and sanitary condition at all times.
9. On larger jobs, toilets shall be furnished by the Contractor for use of its employees.
10. The Contractor shall not make use of the District's sanitary and shower facilities.

C. POWER TOOLS

1. Electric-powered hand tools shall be protected by approved ground fault circuit interrupters, or shall be double insulated.
2. Fixed electric power tools, such as table saws, pipe threaders, etc., shall be properly wired and grounded.
3. Pneumatically-driven power tools shall be disconnected from air lines when not in use. Air lines shall be properly clipped together.
4. Power-actuated tools (e.g., Hilti gun) shall be used only by certified personnel who have a valid license in their possession.

D. TRAFFIC CONTROL

1. All contractors doing work on District projects shall:
 - a. Install and maintain required traffic control devices.
 - b. Provide appropriately equipped and trained flagpersons when required.
 - c. Schedule and expedite the work to cause the least inconvenience to District operations and activities.
 - d. Provide adequate safeguards for workers and District personnel.

- e. Wear appropriately colored warning garments such as vests, jackets, or shirts outfitted with reflective material for nighttime work.
- 2.
 - a. All work on streets, roadways, or similar thoroughfares shall comply with the State of California Department of Transportation's "Manual of Traffic Controls for Construction and Maintenance Work Zones" and any local ordinances.
 - b. No work may be performed in any public right of way without permission from the authorizing agency (i.e., local traffic engineering, public works department, and/or police).

E. ISOLATION OF WORK AREAS

Upon request by the Contractor to the Engineer, active construction areas may be restricted to only those persons engaged in the work and to District personnel who are required to have access to controls or equipment in the work area.

F. HIGH VOLTAGE SYSTEMS

All work on high voltage electrical systems shall be done in accordance with the State of California, Division of Industrial Safety, High Voltage Electrical Safety Orders and the National Electric Code (NEC). Work on high voltage electrical systems shall be coordinated with District electricians and plant operations.

G. TRENCHING/EXCAVATIONS/SHORING

Contractor shall comply with CAL/OSHA Article 6, Excavations Construction Safety Orders. Contractor shall maintain a "Competent Person" on site during excavations.

H. FIRST AID

The Contractor shall provide first aid and medical treatment for its employees and comply with the first aid requirements of the Cal/OSHA Construction Safety Orders. The Contractor shall make prior arrangements for emergency medical care and for transportation of injured Contractor or subcontractor personnel. If 9-1-1 (or 9 + 9-1-1 from a District telephone) is called directly and work is on the treatment plant site, contact the Plant Operations Control Room (Ext. 214) immediately afterward and report the incident. At a pumping station site, notify any available District personnel. The Contractor shall provide instruction in first aid.

I. FIRE

- a. The Contractor shall have fire extinguishers on the job site. When work is being performed that generates sparks or open flame, appropriate fire extinguishers shall be available at the specific work site for use in case of fire. All employees shall be trained to use fire extinguishers. The Contractor and subcontractors shall use the District's "Hot work Permit."
- b. If a fire alarm pullbox is used, or 9-1-1 is called directly, a follow-up call to Plant Operations Control Room (Ext. 214) shall be made when work is on the treatment plant site. On pumping stations sites, notify any District employee.

III. SPECIAL PROCEDURES AND UNIQUE HAZARDS

A. CONFINED SPACE ENTRY (SEE EXHIBIT A)

B. SYSTEMS SHUTDOWN PROCEDURE (SEE EXHIBIT B)

When the work of the Contractor involves tying into existing, live treatment plant or pumping station systems, the system shall be shut down prior to the commencement of work by the Contractor. The Contractor shall make a written request for a shutdown to the Engineer at least five (5) working days prior to the actual systems shutdown. The Engineer will indicate to the Contractor on the System Shutdown Request Form any special safety precautions for the Contractor to take. The Contractor shall acknowledge (in writing) receipt and understanding of the form and start the work at the date and time approved. An authorized Contractor representative shall sign the form.

C. LOCK OUT AND TAG OUT PROCEDURE (SEE EXHIBIT B)

D. BLIND FLANGING/CAPPING OF DESIGNATED SYSTEMS (SEE EXHIBIT B)

E. CONTRACTOR HOT WORK PERMITS (SEE EXHIBIT C)

1. Purpose

To prevent injuries to personnel, damage to property, and disruption to process that can be caused by ignition sources or fires.

2. Use of Hot Work Permits

Permits are required prior to welding, cutting, burning, soldering, use of an open flame, or when ignition sources are initiated anywhere within the treatment plant or pumping station fenced boundaries.

3. Procedure

- a. A Hot Work Permit shall be issued to the Contractor or its designated representative by the Inspector. A Hot Work Permit form is shown following the District Safety Requirements in Exhibit C. Hot work on equipment or in areas controlled by the District shall not proceed without the permission of the Engineer. Contractor may request designation of special work areas and blanket Hot Work Permits for fabrication activities. However, a blanket permit may be issued for a designated period not to exceed thirty (30) days and restricted to the special work areas.

A daily Hot Work Permit is required when Contractor is working in an area that is hazardous by nature or in any area where District employees are working.

- b. The Inspector issuing the Hot Work Permit shall indicate on the permit which personal protective equipment is required and safety precautions to be followed by craftspersons. The Inspector, prior to issuing the hot work permit, shall inspect the area for combustibles and verify there is no explosive atmosphere present.
- c. Two copies of the Hot Work Permit shall be transmitted to the Engineer who will transmit a copy of the Hot Work Permit to the Superintendent of Operations or his designated representative at least one hour before the work is to commence.
- d. The craftsperson assigned to hot work activities shall perform all requirements, as indicated on the permit, prior to commencing work. Permit forms are available through the Engineer.

4. Firewatch

A firewatch shall be utilized when welding in pipe racks above combustible material such as dry grass or near operating equipment, etc. Need for a firewatch will be specified on the Hot Work Permit written for the job. Contractor shall assign firewatch personnel and ensure that they are adequately instructed in their duties and responsibilities. An adequate number of filled fire extinguishers of the correct type for the specific use shall be made available.

F. NATURAL GAS AND LANDFILL GAS (METHANE)

When Contractor personnel are working on natural gas or landfill gas, the Contractor personnel shall be subject to and abide by the requirements

contained in the Lock Out and Tag Out Procedure and the Blind Flanging/Capping of Designated Systems Procedure.

The systems shall be purged with nitrogen. (The Contractor shall test for gas until the testing shows that the level of gas is nonexplosive before any work will be allowed to proceed.)

G. HYDROGEN PEROXIDE SYSTEMS

1. Hydrogen Peroxide Procedures

The procedures listed below shall be followed by the Contractor when working with hydrogen peroxide. These are minimum requirements. The Contractor retains the duty to provide adequate protection for its employees.

The person performing the work shall wear:

Protective clothing (rain suit),
Rubber gloves and boots, and
Chemical goggles and a face shield.

Workers are not to attempt to handle any hazardous chemicals alone, and shall have another person standing by. The second person shall be at least 20 feet from the person doing the work and dressed in protective clothing to be in a position to give aid in the case of an injury. A water hose with water running shall also be available.

2. First Aid

In case of accident, immediately flush skin and clothing with hose or safety shower.

- a. Do not remove goggles until having showered or washed down. (By removing goggles, droplets of acid or caustic oxidizer could enter eyes.)
- b. If the injured person has acid in the eyes, flush the eyes with large amounts of water for at least fifteen (15) minutes, then see a physician immediately. Stand at the eye wash station for fifteen (15) minutes, irrigating eyes, while partner goes for help.
- c. Keep eyes wet while en route to hospital. Continue pouring water in eyes until relieved by physician or paramedic, not an ambulance attendant.

H. STEAM LINES AND STEAM-OPERATED EQUIPMENT

1. The Engineer shall be notified five (5) days in advance of any work proposed to be done by the Contractor on any part of the steam system.
2. When Contractor personnel are working on steam lines and steam-operated equipment, they shall comply with the requirements under the sections for Systems Shutdown Procedure, Lock Out and Tag Out Procedure, Blind Flanging/Capping, and Hot Work Permits.

I. DRY LIME SYSTEMS

1. Contractor personnel shall wear personal protective equipment when doing the following work:
 - a. Mechanical repairs on the lime system that involve opening the system that conveys and/or contains lime.
 - b. Cleanup work involving accumulated dust and/or spills.
2. The equipment listed below shall be used by Contractor personnel while working on dry lime systems when lime dust may be present. These are minimum requirements. The Contractor retains the duty to provide adequate protection for its employees.
 - a. Chemical goggles and respirator with particulate/HEPA filter or
 - b. Full face respirator with particulate/HEPA filter or
 - c. 3-M Air Hat No. 316 (or equivalent)
 - d. Pressure demand self-contained breathing apparatus (SCBA).
3. First Aid
 - a. If dry lime comes in contact with skin, brush the lime from the skin and flush the area of contact with large amounts of water for at least fifteen (15) minutes, then see a physician immediately.
 - b. If dry lime is breathed or otherwise taken internally, see that the injured worker is transported immediately to a hospital.
 - c. If lime slurry comes in contact with skin, flush the area of contact with water.

J. ULTRAVIOLET (UV) DISINFECTION SYSTEM

These are minimum requirements. The Contractor retains the duty to provide adequate protection for its employees.

1. Do not look directly into UV disinfection lamps while operating.
2. Do not expose unprotected skin to UV radiation.
3. Personnel working at the UV facility may also be exposed to phosphoric acid, sodium hydroxide (caustic), ultraviolet radiation, electrical hazards, and glass and mercury from the breakage of UV glass lamps.
4. Working near these hazards may require personal protective equipment including heavy rubber boots, neoprene rubber gloves, chemical goggles, face shield, chemical resistive clothing, and hard hat.

K. FALL PROTECTION PROGRAM (SEE EXHIBIT D)

L. HEARING CONSERVATION PROGRAM (SEE EXHIBIT E)

M. PERSONAL PROTECTIVE EQUIPMENT PROGRAM (SEE EXHIBIT F)

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