

WATER BOARD GENERAL WASTEWATER TREATMENT PLANT INSPECTION GUIDELINES

Introduction

The State Water Resources Control Board (State Water Board) and the (Regional Water Board), collectively referred to herein as the Water Board is required to perform inspections of wastewater treatment plant (WWTP) facilities throughout the state. To properly complete these inspections, Water Board's staff must enter the site where the wastewater/sludge is being treated. The pre-treatment, primary, secondary and tertiary treatment processes have characteristic hazards associated with them that could present potential health and safety hazards to Water Board staff.

This guideline was developed to:

- Assist with identifying the potential hazards associated with WWTP inspections.
- Define the minimum training requirements to perform WWTP inspections.
- Assist with identifying necessary engineering controls, administrative controls and personal protective equipment (PPE) needed to perform inspections in a safe manner.

Potential Hazards Associated with WWTP Inspection

WWTPs use various methods to treat and 'clean' the raw wastewater that is collected from the population. The raw wastewater and the treatment methods can present potential hazard to Water Board (WB) staff including exposures to chemicals, bloodborne pathogens, body fluids and other potentially infectious materials. This also includes COVID-19. Generally, management of waste that is suspected or known to contain with COVID-19 does not require special precautions beyond those already used to protect workers from the hazards they encounter during their routine job tasks. Coronaviruses are susceptible to the same disinfection conditions in the healthcare setting as other viruses, so current disinfection conditions in wastewater treatment facilities is expected to be sufficient.¹ No additional PPE beyond what is recommended in this guideline is required to address COVID-19. However, in light the COVID-19 pandemic, the following practices should be practiced regardless of location or activity.

- Social distancing. Ensure 6 feet is maintained between you and other persons
- When coughing or sneezing, use tissue or cough/sneeze into elbow. Wash hands immediately after with soap and water for 20 seconds if possible. Otherwise, use a hand sanitizer

- Stay home if sick or not feeling well
- Avoid touching eyes, mouth or nose with unwashed hands
- Wash hands frequently. Soap and water is always best. Use hand sanitizers if soap and water is not available
- Follow guidelines as given by the local department of public health regarding face coverings

Exposure to hazardous constituents can come from various sources while performing an inspection including close proximity the headworks, collection systems, misting from aeration tanks, chemicals used to treat and condition the wastewater, uneven and slippery work surfaces and accidental contact with the wastewater/sludge. These potential exposure hazards should be minimized due to the fact that WB staff only visit these facilities periodically, do not intentionally contact the wastewater and do not remain on site for extended periods of time. However, WB staff performing these types of inspections should be informed of these potential hazards, how to mitigate them and trained to safely conduct inspections in accordance with the California Code of Regulations (CCR) Title 8 Section 3203 and the Water Boards Injury and Illness Prevention Program (IIPP). Table 1.1 below identifies potential hazards associated with WWTP inspections.

Table 1.1 Summary of Indoor Cultivation Potential Hazards

Hazard Type	Hazard	Health Effects/ Hazard	Exposure Route	Controls
Biological	Bloodborne pathogens	HIV, Hepatitis B, C	Physical Contact	<ul style="list-style-type: none"> • Keep distance from wastewater/sludge • Eye, nose, mouth, hand protection
	Body fluids and other potentially infectious materials (OPIM)	Viruses. Including Hepatitis A, COVID-19	Inhalation, physical contact	<ul style="list-style-type: none"> • Keep distance from wastewater/sludge • Eye, nose, mouth, hand protection
Chemical	*Various chemicals used in treatment process	Eye, nose, throat irritation; headaches; dizziness; worsening asthma symptoms; vomiting; burning	Inhalation, physical contact	<ul style="list-style-type: none"> • Avoid physical contact • Recognize location of chemicals and avoid • Proper PPE

Hazard Type	Hazard	Health Effects/ Hazard	Exposure Route	Controls
Physical	Walking surfaces	Slips, trips, falls	Physical	<ul style="list-style-type: none"> • PPE • Administrative Controls
	Lighting (UV germicidal lamp)	Erythema on skin, Damage to cornea (eye)	Eyes, skin	<ul style="list-style-type: none"> • Minimize skin exposure • PPE (gloves, long sleeve sheet, UV rated eye protection) • Recognize and avoid*

*During inspection, if general symptoms develop such as but not limited to light-headedness; dizziness; nausea; burning eyes, nose, throat or upper respiratory irritation/congestion, leave inspection area immediately and get to fresh air as soon as possible. Seek first-aid and/or medical treatment if deemed necessary. Notify team leader or supervisor. Do not re-enter area where symptoms were experienced.

1.0 Required Safety Training

In accordance with the CCR and the Water Boards' IIPP, any WB staff who performs inspections at WWTP must have the following training at minimum:

- 4 hr. Field Safety Training (every 4 years) or HAZWOPER Training (24 hr.) with annual refresher training
- Review of this guideline

Additional training may be necessary depending on the situation. Training may include:

- Proper use/limitations of PPE
- Site Specific hazards

2.0 Personal Protective Equipment (PPE)

All Water Board staff who perform WWTP inspections will use the following PPE at minimum:

- Safety glasses
- Long pants
- Nitrile Gloves or thinner double gloving
- Closed toe shoes with good tread

Additional PPE that may be needed includes (supervisors should discuss with staff and/or facility representative if additional PPE is needed for task):

- Hard hat
- Face mask/Dust mask**
- Face Shield
- Shoe covers (booties)
- UV eye protection

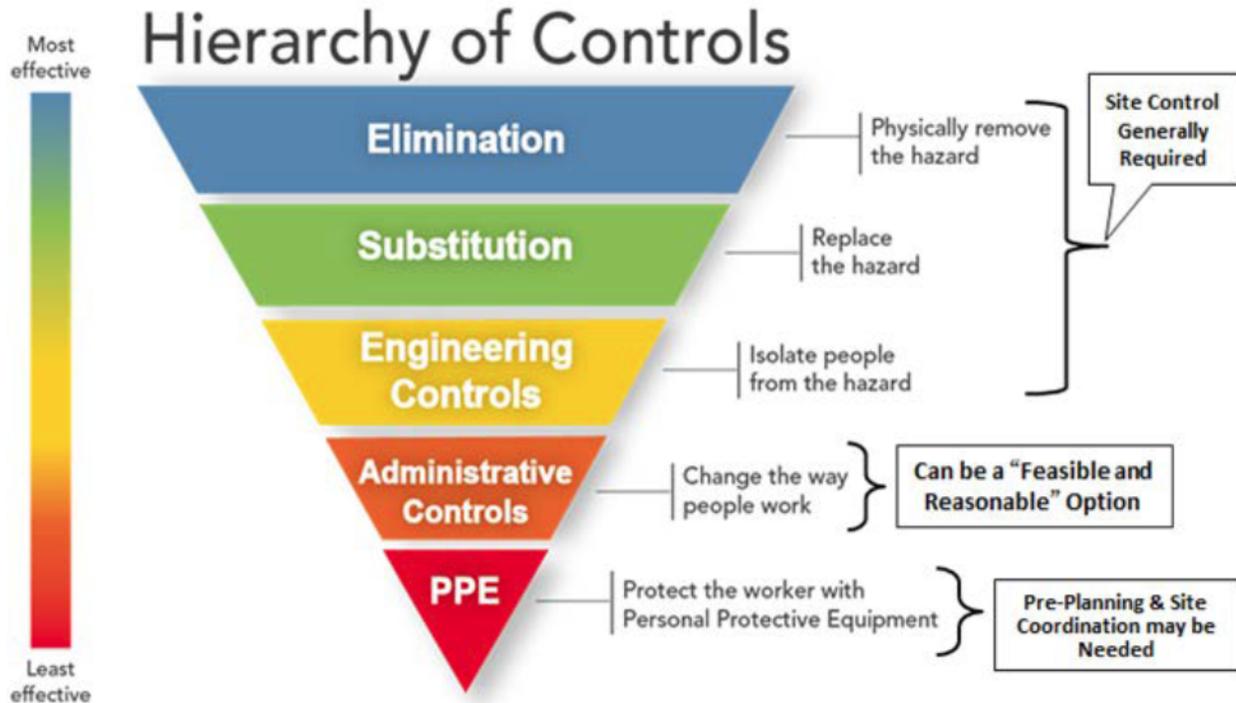
** If an N-95 dust mask is used, the following is required:

- A safety briefing,
- Employee must sign the Voluntary Respirator Use Form
- Informed as to the proper use and application of the N-95 dust mask, along with the limitations.

Staff will need to determine if this additional PPE is needed on a case by case basis.

3.0 Inspection Protocol

To help prevent injuries and illness while performing inspections of WWTP facilities, WB staff will use the OSHA Hierarchy of Control. (See graph below.) The goal of Hierarchy of Control is to first attempt to eliminate or significantly minimize the hazards. If that is not possible, attempts should be made to control the hazards by using good work practices and training with the last option being to protect staff from hazards by using personal protective equipment. Since the Water Boards does not control inspection sites, the use of PPE may often be the only option available to prevent injuries and illness. See the “Wastewater Treatment Plant Inspection Protocol” for inspection guidance.



WASTEWATER TREATMENT PLANT INSPECTION PROTOCOL

Pre-Inspection

Before visiting site, ensure the following have been completed:

- All required safety training including site specific safety briefing
- All appropriate PPE is available on site.
- Ask operator if there are specific hazards associated with their site beyond what is listed in this guideline.

Facility Inspection

1. Attempt to keep as much distance as possible between you and wastewater/sludge
2. Keep safe distance from areas where misting or aerosolizing is observed
3. If staff must be in close proximity to wastewater/sludge to perform inspection
 - a. Don the appropriate PPE
 - b. Perform inspection. If possible, avoid touching anything (equipment, tools, etc.) during inspection***.
 - c. Perform inspection as quickly as possible and re-establish safe distance from wastewater/sludge.
 - d. Once inspection is completed, properly remove/dispose of PPE.
 - e. If PPE is reusable, wipe appropriately or place in plastic bag and clean upon return to office.
 - f. Wash hands with soap and water for 20 seconds immediately after inspection. If soap and water are not available, use alcohol-based sanitizer.
4. If an injury or illness should occur, the “Reporting Injuries and Illnesses/Receiving Medical Attention” section of the Water Boards’ IIPP should be followed.

The covering of the eyes, nose and mouth should be of particular emphasis when inspecting areas that could potentially splash the wastewater or cause misting/aerosolization. Specific examples where the covering of the eyes, nose and mouth should be considered is when inspecting the headworks (pre-treatment collection), walking on catwalk over the aeration process or any misting/aerosolization. The covering may include a face shield and mask for nose and mouth or eye goggles and mask for nose and mouth.

***During inspection, if general symptoms develop such as but not limited to light-headedness; dizziness; nausea; burning eyes, nose, throat or upper respiratory irritation/congestion, leave inspection area immediately and get to fresh air as soon as possible. Seek first-aid and/or medical treatment if deemed necessary. Notify team leader or supervisor. Do not re-enter area where symptoms were experienced.

¹OSHA. www.osha.gov/SLTC/covid-19/controlprevention.html