



Contractor, Vendor, and Visitor Safety Awareness

Construction Activities

Northern Treatment Plant

Effective Date: January 1, 2016

Revised: February 4, 2026

Maintained by Environmental Health and Safety (EHS) in the Human Resources Department
and accessible in the Environmental, Health and Safety 6450 Team Site under the
Contractors, Visitors and Vendors Library.

WELCOME TO THE METRO WATER RECOVERY NORTHERN TREATMENT PLANT (NTP)

Metro Water Recovery (Metro) strives to conduct its operations with the highest priority in protecting the safety and health of our employees. Accident prevention is an important part of every job. It is our duty to perform our work courteously, efficiently, and with the maximum regard for safety.

This Contractor, Vendor, and Visitor Safety Awareness Manual (Safety Manual) contains general safety and conduct expectations applicable to all visitors, contractors, and/or vendors regarding Environmental, Health, and Safety (EHS) responsibilities while at Metro. These groups are expected to follow established safety measures in order to maintain a safe and secure workplace and operate in an environmentally sound manner.

Strong EHS programs will prevent injuries, control losses, and minimize environmental impacts. We expect contractors and vendors to join us in providing a workplace free of uncontrolled hazards to people, the environment, and our property.

All construction, service, and maintenance contractors must comply with all federal, state and local EHS regulations, as well as Metro's EHS procedures, code of ethics, and harassment policies.

The information contained in these pages is solely for informational purposes, is in summary form only, and is subject to change. It is not intended to replace or limit the requirements of government regulations or standard industry practice. It is each contractor's obligation to meet applicable governmental or Metro EHS requirements, whether or not they are addressed in this document.

Metro does not directly manage the safety of contractors or their personnel. Contractors are expected to manage environmental, health, and safety hazards, risks, and programs for their employees and subcontractors. This manual has been published to communicate Metro's philosophy and expectations to all contractors, vendors, and visitors.

Metro Safety Team

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I. SCOPE

This manual is intended for all contractors, visitors and vendors that are performing or are associated with construction-based work AND has an established contract or purchase order with Metro Water Recovery (Metro). It is expected that this manual is shared with others and the contents of this manual are discussed in pre-construction meetings.

II. RESPONSIBILITIES

All personnel responsible for managing contracts will ensure that:

- Each contractor is provided with a copy of this manual.
- Each contractor understands that all work shall be conducted in a safe and responsible manner in compliance with applicable regulations and all content in this manual.

Metro Project Manager/Sponsor (MPM)

- Communicate appropriate EHS requirements and expectations to contractors, vendors, and visitors under their control.
- Ensure that EHS is provided with a copy of the contractor's written health and safety plan for review prior to the pre-construction meeting with the contractor.
- Include EHS on email progress meetings distribution list and other communication related to employee/contractor safety concerns or injury incidents.
- Ensure EHS is represented at all pre-construction meetings held with contractors.
- Provide EHS with a tentative construction schedule for contractors and subcontractors on-site.
- Immediately inform EHS of an accident, close call or other incident.
- Report incidents or damage that involves Metro property or personnel in the online reporting system. Project Managers should contact the EHS Specialist or Designee for clarification.
- Ensure contractor and vendor compliance with all the guidelines, policies, and procedures to meet EHS requirements, whether or not they are addressed in this manual.

Contractor, Vendors, and Visitors

- View the applicable Contractor, Vendor and Visitor Safety Awareness online training and complete electronic acknowledgement (on external website: <https://www.metrowaterrecovery.com/business/metrosafety/>).
- Follow all federal, state and local regulations, as well as the policies and procedures of Metro.
- Ensure that information and material provided by the Metro Sponsors during the pre-construction meeting or contract initiation is communicated to contractor employees and subcontractors before the commencement of work.
- Provide its employees with the necessary training, appropriate medical exams, and safety equipment including personal protective equipment (PPE).
- Inform the Metro Sponsor of any personal, motor vehicle or environmental accidents.
- Report any perceived emergency to Operations.



- Upon being notified of an emergency, stop activities and follow instructions provided in this Program.
- Follow instructions to take shelter, evacuate, and meet at designated muster points as required.
- During an emergency response situation, adhere to the instructions provided by the Metro Incident Response Coordinator (IRC), or their designee(s).
- Remain sheltered, evacuated off-site at the muster point, or moved away from an emergency area until directed by the IRC.
- All persons that operate Metro equipment, such as aerial lifts, cranes, and fork trucks, must be competent in its operation. Documentation of training will be provided upon request. All Metro requirements including pre-inspection must be followed.
- Comply with all applicable federal, state, and local regulations and content in this manual; any violation of applicable regulations and requirements are grounds for default of the contract, agreement and/or purchase order.

Environmental Health and Safety (EHS)

- Define personal protective equipment and safe-handling procedures for specific operational needs upon request.
- Respond to reports of hazardous conditions/accidents to any contractor, visitor and/or vendor; assist in determining corrective measures.
- Assist the Metro Sponsor to ensure safety measures are being followed by performing safety evaluations of contractor/vendor projects upon request.
- Investigate and/or designate an investigation for any accident or damage by a contractor, visitor or vendor that involves Metro property or personnel.
- Manage the external online Metro Safety Awareness Orientation page.
- Annually perform a documented review of this Program.

III. PRE-CONSTRUCTION MEETINGS

Representatives of the contractor shall meet with EHS and project representatives prior to the start of construction for the purpose of reviewing safety requirements and discussing implementation of all health and safety provisions pertinent to the work under contract, agreement and/or purchase order.

The EHS representative will review the contractor's site-specific safety and health plan including any relevant safety data sheets (SDS) for high hazard materials that may impact typical work activities and/or Metro employees.

IV. NON-COMPLIANCE WITH EHS REQUIREMENTS (Not for visitors)

If any health and safety hazards could pose an imminent danger to people or property, an immediate order to stop work will be issued. Should this occur, EHS will bring the matter to the immediate attention of the Metro Sponsor(s), General Contractor, and if necessary, the Procurement Officer. Willful unsafe actions, continued violations of health and safety requirements, or other hazards that pose an imminent threat to people or property may result in termination of the contract, agreement and/or purchase order.



It is strongly advised that all contractors and vendors review and adhere to all safety and health requirements as stated in the associated contract.

V. ACCIDENT REPORTING

The Metro Project Manager or Metro Representative must be notified when any assigned contractor, visitor or vendor sustains any personal injury, motor vehicle accident, close call or other incident and includes one or more of the following:

- 911 is called.
- Results in the job/activity to be shut down.
- Was in part caused by the actions of Metro personnel.
- It occurred in an area controlled by Metro personnel.
- Metro property is damaged.

The Metro Project Manager/Representative will immediately inform EHS of the accident, close call or incident. Metro Project Manager/Representative will report any accident or damage that involves Metro property or personnel in the online reporting system. EHS will investigate these incidents. Security may investigate vehicle accidents. The contractor, visitor, or vendor will submit a copy of their accident investigation form to the Project Manager/Representative. The EHS and Security contacts include:

Senior EHS Manager	Brian O'Malley	(303) 286-3456
Senior EHS Specialist	Sunny Bradford	(303) 286-3056
Senior Security Manager	Ken Burton	(303) 286-3311
Senior Security Specialist	Chris Dole	(303) 286-3309

VI. CHEMICAL USE

Safety Data Sheets (SDS)

Contractors are expected to inform and provide Metro with a chemical inventory and SDS's for the materials that will be introduced into the work area during the course of their construction project. All containers of chemicals must be properly labeled with the contents, signal word and hazard pictogram.

In the event a contractor uses any chemical with odors or particles likely to cause irritation to Metro employees, the SDS will be provided to the DPM and EHS for review PRIOR to the activity.

As noted above, there are hazardous chemicals and materials on the plant that can cause serious injury if not properly handled. SDS information is available on SDSonline via the Metro Intranet System.

Chemical Handling and Storage

Be aware of the potential dangers associated with hazardous chemicals. Refer to the Safety Data Sheet (SDS) information for proper procedures in handling, storage, and usage of chemicals on the job. The major bulk chemicals on site include:

- Liquid Oxygen



- Alum
- Sodium hypochlorite
- Ferric chloride
- Acetic acid
- Fuels (gasoline, diesel)
- Lubricating oils

Respiratory Protection and Medical Clearance

The contractor must ensure that its employees have appropriate medical clearance when required either by governmental regulations or by our company's requirements. Certification of medical clearance for contractor personnel is required to be presented as requested by Metro Sponsor or EHS.

VII. CONFINED SPACE ENTRY

Confined spaces are dangerous areas that could cause injury or death. OSHA defines a confined space as having the following characteristics:

- an area that is large enough and so configured that an employee's body can enter and perform assigned work;
- has limited or restricted means for entry or exit; and
- is not designed for continuous occupancy.

A permit-required confined space is defined as a confined space that:

- Contains or has a potential to contain a hazardous atmosphere;
- Contains a material that potentially could engulf an entrant;
- Has an internal configuration that could trap or asphyxiate an entrant through inwardly converging walls or a floor that slopes downward and tapers to a smaller cross-section; or
- Contains any serious safety or health hazard.

Contractors must comply with all OSHA Confined Space Entry Standards as a minimum guideline, including air monitoring. Metro reserves the right to refuse entry into any confined space when a contractor does not adhere to OSHA standards or Metro's Confined Space Program.

Due to the nature of the work and potential hazards at Metro facilities, most confined spaces are considered permit-required. Exceptions to the permit requirement include the aeration basins, excavations, and HVAC equipment as long as the known, associated hazards are controlled (i.e., LOTO).

A well-defined rescue plan must be in place for all permit-required entries. The plan may not rely on emergency services for rescue entry. The program's defined rescue plan may be requested to be reviewed by EHS at any time.

VIII. DRINKING WATER

Facilities at the Northern Treatment Plant are plumbed with two types of water:



- a. Potable Water or "PW" – This is drinking-quality water suitable for human consumption. It is dispensed from drinking fountains, lunchroom/kitchen sinks, and restroom sink taps. Potable water plumbing can be identified by the letters "PW" on a white band across a dark blue pipe.
- b. Treated Service Water or "SW" – This is used primarily for the cooling down of equipment installed throughout the plant. Service water is **not** suitable for human consumption. Service water plumbing can be identified by the letters "SW" on a red band across a light blue pipe.

NOTE: A red-tagged drinking-water source means the water is **not** fit for human consumption.

Report any accidental ingestion of SW or PWC to the Metro Sponsor.

IX. ELECTRICAL SAFETY

Only contractors meeting NFPA 70E requirements for qualification, licensing, and training will install, repair, modify, or remove electrical service, wiring, or equipment.

Electrical work should be performed on de-energized circuits. If this is not possible, activities must be discussed with the Metro Sponsor and/or EHS prior to performing any live work. Additionally, adherence to Metro's Lockout/Tagout procedure in this manual is mandatory.

All electrical cords shall be used in continuous lengths, without being daisy-chained together, properly grounded, and free from damage.

When using temporary feeder cables from one an existing power source, the following electrical requirements shall be followed:

- Minimize the amount of insulation stripped from a multi-conductor cable to provide more protection.
- Utilize a temporary conduit for temporary cables.
- Prevent access panels or doors from closing.
- Restrict access by installation of barriers or caution tape.

Portable Electrical Equipment Use in Hazardous Locations

When regulations (OSHA 29 CFR 1910.307) and industry standards (NFPA 70) refer to equipment, they refer to fixed and installed equipment within a hazardous location. There are strict requirements for intrinsically safe or explosive proof devices that must be installed in these locations. They do not specify information related to portable equipment outside of some requirements for grounding and lighting.

In Class 1, Division 1 designated areas, intrinsically safe equipment is required. This includes portable tool use. Cell phones are not typically considered intrinsically safe and should not be taken into these areas.

In Class 1, Division 2 designated areas, intrinsically safe portable equipment is recommended. Portable tools that are not rated as intrinsically safe may be used in these areas only when audible and visual alarms are not sounding, and employees are present when in use.



Devices with replaceable batteries should not be changed within these areas. Batteries should not be charged within these areas.

In the event of an alarm, any equipment that is not intrinsically safe will be removed, unplugged or switched off before exiting the area. Alarms sound at 10% of the Lower Explosive Limit (LEL) and indicate a change in air quality that could present an explosion hazard. At this level, the Control Room is notified of the alarm through the Metro control system.

X. EMERGENCY RESPONSE

Metro Process Control Room and Calling 911

In reporting an emergency, contact Operations by radio, NTP Zone and then NTP Ops 1. Operations and Security monitors the radio 24 hours every day. Additionally, anyone can call 911.

- Quickly assess the situation without putting yourself in further danger.
- Contact On-Duty Operator immediately via radio (NTP Ops 1)
- Depending on the type of emergency and urgency, contact 911.
- When contacting 911, notification (via radio) to the Guard is necessary to help coordinate navigation to the emergency site. This can be performed by an On-Duty Operator or first responder as available.
- Render aid or respond to the emergency, as appropriate and within the level of applicable training, responsibility, and comfort level.

Security and/or operations personnel will assist the responding agency with access to Metro property, and direct emergency personnel to the identified emergency location.

Depending on several factors including scope and location, security may issue a Metro radio to contractors.

Operations	NTP Zone, NTP Ops 1
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Emergency Communication

Metro utilizes Rave Alert to send mass text, email, and recorded voice messages during emergencies. All Metro staff are enrolled in the system. Contractors performing work at the NTP can also be enrolled to receive these emergency messages. This may be a supervisor or other key staff member rather than entire crews. To enroll in this system, reach out to your Metro contact or a member of Metro EHS (contacts provided in Section V.).

Emergency Muster/Shelter Locations

Specific locations are designated for District employees, contractors, vendors, and visitors. When reasonably possible, contractors and vendors working on the plant will be notified if a drill will affect them; otherwise, when an emergency alarm sounds, Metro employees, contractors, visitors, and vendors are expected to respond to the assigned assembly points (also known as muster points) as directed.



There are two types of assembly points:

- Fire alarm muster point
- Tornado shelter

Fire muster points and tornado shelter locations are listed below and are also posted on all safety bulletin boards and in strategic locations throughout the plant.

Facility Evacuation Response

A full or partial evacuation is considered a secondary emergency response and is a very rare occurrence. The Visitor Center is the primary evacuation point away from the process area.

The primary response to a potential severe atmospheric emergency will be to move employees indoors.

If Metro employees or Metro-Managed contractors have visitors on site, it is the employee's and/or contractor's responsibility to guide the visitor to the appropriate meeting or egress point.

Fire Evacuation Muster Points

The muster locations below will generally be at the far end of designated parking lot, not obstructing arriving emergency response vehicles.

<u>Building</u>	<u>Muster Location</u>
250 – Visitor's Center	NW Corner of Parking Area
260 - Facility Support Building	SE Corner of Main Parking Lot
260 – Vehicle, Maintenance & Warehouse	NE Corner of Employee Parking Lot

If you discover a fire, alert others by activating the fire alarm system, leave the area, and contact the emergency numbers listed for the Control Room. Proceed to the fire muster point.

The fire alarm system includes both an audible fire alarm and strobe lights. Additionally, the electronic message boards will indicate a fire alarm has been activated.



Tornado/Emergency Shelters





Because of the low anticipated risk associated with HazMat contamination at the NTP site, HazMat shelters at the NTP are in the same areas as Tornado shelters and have not been equipped with mitigation measures for a HazMat emergency like at RHWTF. These shelters provide a centralized mustering location in areas interior to the buildings to minimize external exposure.

<u>Building</u>	<u>Tornado Shelter</u>
250 – Visitor's Center	Janitorial Room (250-115)
260 - FSB - Vehicle Maintenance Area	Restroom (260-164)
260 - FSB - Maintenance & Warehouse Area	Restroom (260-147 & 148)
260 - FSB - Office Area	Restrooms by Main Entrance (260-123 & 124)
840 - Dewatering Building	Restroom (840), Janitorial Room
520 - Aeration Blower Building	Restroom
314 – Grit Building	Pump Room (Basement)

For HazMat and Tornado events, Operations will activate the amber ALERT system which includes an audible alarm and an amber strobe. In the event of the alarm, proceed to the nearest message display board for further information and directions. There is no PA system.

Emergency response requirements:

- Upon hearing any emergency alarm, stop activities and immediately respond. Do not use elevators.
- Follow instructions to take shelter and/or meet at designated assembly points as required.
- During an emergency response situation, adhere to the instructions provided by the Metro Incident Response Coordinator through the Process Control operator, Department Head, EHS or Security Officer, or their designees.
- Remain sheltered, or moved away from an emergency area, until directed by the Metro Incident Response Coordinator through the Process Control operator, Department Head, EHS or Security Officer, or their designees. Additionally, the electronic message boards will indicate "All Clear, Work Safe."
- Report location and condition to associated supervisor, as required.

On-site contractor employees will participate in all emergency preparedness drills unless otherwise exempted on a case-by-case basis.

Emergency Equipment

Life Aid Station Equipment

The following equipment is in the Administration Building (250), the Facility Support Building (FSB-260), and the Dewatering Building (840) in designated areas. In addition, one AED is in an on-site vehicle. This equipment and its regular maintenance are listed as its primary purpose is within the guidelines of this Program.



- Automated External Defibrillators (AED) - AEDs are inspected quarterly by EHS staff and documented on the '90-day AED Preventive Maintenance (PM) Program' form and maintained in EHS.
- Oxygen – The control room has a single Oxygen Inhaler Bottle. This is inspected semi-annually by an outside contractor; documentation is maintained in EHS.
- First Aid Kits - First aid kits are inspected and restocked quarterly by outside vendor.

Fire Extinguishers

ABC type fire extinguishers are located throughout all areas of the plant and may be identified with overhead red signage if the extinguisher is not visible from all areas it services. Fire extinguishers are for use by trained personnel to extinguish incipient stage fires. The Brighton Fire Rescue District will manage all fires beyond the incipient stages.

Emergency Response Communication Boards

Message Boards are installed across the plant site. These message boards are tied into both the fire system and plant control system so that the specific type of emergency response that is warranted can be communicated. A visual and auditory strobe will indicate that an emergency is warranted, and the message board will communicate the type of response that is warranted.

Emergency Eyewash and Showers

Plumbed eyewash stations are in areas with the potential for exposure to corrosives or other chemicals that are strongly irritating. These plumbed eyewash stations send an alarm signal to the control room when activated. An eye wash alarm is verified through the evaluation of a dispatched plant operator.

XI. ENVIRONMENTAL INCIDENT REPORTING

Metro strives to be proactive in protecting the environment. Immediate notification is required for any unauthorized discharge, accidental spill, or release to the environment, as defined below:

- All releases (including potable water) to the environment, including dry land, dry gulch, park area, field, lawn, street, parking lot, storm sewer, river, creek, lake, pond, construction trench, sump, etc.
- Unpermitted air emissions.

Spill and other Releases Reporting

Contractors, Visitors, and Vendors shall minimize the risk of spills or releases to the environment using appropriate protective procedures (i.e., secondary containment, double containment, drip pans, employee training, overflow protection, and other measures) involving the use, storage, or handling of petroleum products or hazardous materials on Metro property.

In the event of a release, contact the Control Room and/or Metro Sponsor (do NOT leave a message). The Contractor must take immediate steps to isolate or otherwise contain the release, if it is safe to do so. Spill kits are available in areas that routinely store and handle chemicals.



Report any of the above incidents immediately and provide the following information, to the greatest extent possible

- Who (what entity, Contractor, etc.) was responsible for the spill, if known; do not speculate.
- The date/time the release was discovered or made known to Metro.
- The location of the release.
- The estimated volume released - or the rate at which material is being spilled if the spill is ongoing - if known.
- A copy of the Safety Data Sheet (SDS) for the material released.
- If ongoing, an estimate of when it will be terminated.
- The type of environment into which the release was or is being discharged.
- The cause of the release, if known; again, do not speculate.
- The remediation or mitigation measures being taken to contain or clean up the spill.

All releases on Metro property will be evaluated by Metro's Regulatory Affairs Division. Any state or federal release notification will be made by Metro.

Waste Management

All chemicals and hazardous materials brought onto Metro property or associated with a Metro project must be managed and disposed of in compliance with applicable laws and regulations. Contractors must follow applicable local, state, and federal requirements for generators of hazardous waste, if applicable.

No more than 55 gallons of hazardous waste or one quart of acutely hazardous waste may be onsite, as defined in 40 CFR 261 without written approval from Metro's Regulatory Affairs Division. Contact your Metro Sponsor for notification.

Contractors are responsible for obtaining an Environmental Protection Agency (EPA) Identification Number if generation amounts are greater than the qualifications for a very small quantity generator (VSQG) and managing hazardous waste generated in accordance with applicable local, state, and federal regulations. Contractors may be subject to periodic inspections by Metro's Regulatory Affairs Division to ensure proper management, storage, and documentation practices are being followed.

All potential liability for improper management of waste will be the Contractor's responsibility. (45 FR 72024, 72026; October 30, 1980)

Air Pollution Management

If there is any potential for any emissions from work the Contractor is completing for Metro, all state and federal air requirements must be met. Examples of potential regulated activities include use of generators, painting/coating, degreasing, solvent usage, asbestos-containing material, and land development.

Solvents or other noxious emissions shall be evaluated as part of the project. Any cleaning solvents used in quantities larger than 55 gallons should be approved by Metro's Regulatory Affairs. Recordkeeping of the type of solvents used and quantity must be made available to Metro's Environmental Department by request.



XII. FIRE PREVENTION

Fire Extinguishers

ABC type fire extinguishers are located throughout all areas of the plant and may be identified with overhead red signage if the extinguisher is not visible from all areas it services. Fire extinguishers are for use by any trained personnel to extinguish incipient stage fires. The Brighton Fire District will manage all fires beyond the incipient stages.

Contractors are required to have distinctly marked fire extinguishers rated as ABC at least 5 pounds or greater. They must be suitably placed as follows:

- One for every 3,000 square feet of building area or major fraction thereof. Travel distance from any point of protected area to nearest extinguisher shall not exceed 100 feet.
- One or more on each floor of buildings with at least one located adjacent to each stairway.
- At least one located outside but not more than 10 feet from the door opening into any room used for storage of more than 60 gallons of flammable or combustible liquids.
- At least one located not less than 25 feet, or more than 75 feet from any outside flammable or combustible liquid storage area.
- At least one within 50 feet of wherever more than 5 gallons of flammable or combustible liquids or 5 pounds of flammable gas is being used.
- At least one within immediate access of any hot work performed and in accordance with the hot work permit.

Fuel Storage and Transfer Safety Cans

All fuel cans must guard against possible fire and explosion, be able to resist damage and wear in normal usage, and be properly marked identifying their contents. All safety cans must meet the following requirements:

- Be leak tight.
- Automatically vent vapor between 3 and 5 psig (0.2 and 0.35 bar) internal pressure to prevent rupture (or explosion in event of fire).
- Prevent flame from reaching the flammable liquid contents through the spout.
- Automatically close after filling or pouring.

Smoking

There is a no smoking policy in effect at all our facilities, inside and out. Any open flames near sources of ignition shall not be permitted including areas where flammable or explosive materials are stored or are present. All such areas shall be conspicuously posted:

NO SMOKING OR OPEN FLAMES



Cleaning and degreasing

Gasoline and liquids with a flash point below 100 degrees Fahrenheit shall not be used for cleaning and degreasing. All rags used for cleaning and degreasing shall be disposed in a self-closing, flammable resistant can or container. When cans are full, rags must be properly disposed of in a timely manner.

XIII. HAZARDOUS AREAS

Hazard Tape – Danger and Caution

Never remove any hazard tape unless authorized to do so. Do not tamper with any installed taping.

Yellow Caution Tape must be placed around or otherwise prevents access to an area that has some type of low degree safety and health concerns. Personnel may enter these barricaded areas, provided they observe the hazards present, stay clear of potential hazards and stay clear of employees working on the job. Entering the area is permitted but should come with caution.

Red Danger Tape must be placed around or otherwise prevents access to any area that has an immediate or high potential safety and health concern. All untrained and/or unauthorized people are prohibited from entering these designated work areas until allowed access by the authorized employee or their designee. All Red Danger Tape must be tagged with the authorized employee's contact information. Entrance to the area is not permitted without proper permission and training. Remove Red Tape when no longer required. Broken, torn or cut tape shall be removed or replaced.

Digester Complex

In the Digester/Holding Tank/Cogeneration areas, methane gas is present. Methane gas is a highly combustible gas that is colorless, odorless, and lighter than air. Any open flames in this area could pose a hazard for explosion or fire. Open flames (i.e., welding, torches, etc.) are strictly prohibited without supervisory permission.

Chemical Building

Houses bulk quantities of chemicals that can be hazardous to human health.

Aeration Basins

Hundreds of air diffusers are used to supply air to the microbial action within the aeration basins. A fall into a highly aerated basin presents a high risk of drowning because it is difficult – if not impossible – to stay afloat in waters saturated with high concentrations of air. For this reason, an employee should never extend beyond the protection of guardrails unless another form of fall protection such as a fall-arrest, fall-restricting, or fall-positioning system is used.

XIV. HOT WORK

There are several locations on the plant site where the presence of flammable/ combustible liquid, solid, or gaseous materials create hazardous conditions. Contractors performing procedures involving an open flame or generating an arc or heat in sufficient quantity as to



provide an ignition source for such materials potential present in an area shall complete a hot work permit. A fire watch is required for all hot work. Additional considerations listed in the Hazardous Areas section of this manual.

Contractors should be familiar with the location of fire alarm activation devices (pull stations), portable fire extinguishers, and exit route(s) from the work area. In the case where pull stations or plant fire extinguishers are not immediately accessible, an adequate fire extinguisher must be placed in the immediate work area. Contractors shall not obstruct access to exits, exit routes or fire equipment or prop open stairwell doors. Flammable and combustible liquids are easily ignited and thus shall meet all the labeling, use, storage and disposal requirements as outlined in the SDS.

Hot Work is any activity having the potential to cause ignition of a flammable, combustible, or explosive material that is either present in the work area or located within hazardous proximity to the work area. Hot work includes, but is not limited to, the following:

- open flames;
- metal cutting with oxygen/acetylene torch;
- grinding operations where sufficient heat is generated to ignite flammable or combustible materials;
- soldering;
- brazing;
- heat-applied coatings;
- welding (electrical arc or oxygen/acetylene);
- operations that may create static electricity (e.g., sandblasting);
- operations involving energized equipment where electrical arcing may occur, including AC and DC powered tools, equipment and electrical devices that are not intrinsically safe, non-incendiary or explosion proof;
- Operation of a vehicle or equipment in a confined area where the presence of flammable gases or vapors exists or may be present.

Contractors must comply with OSHA standards for welding, cutting, and brazing as a minimum guideline, including establishing fire watches. All hot work in process areas must be approved by a Metro Sponsor PRIOR to work activities. Contractors should not contact the Process Control Room to request or notify of hot work activities. Hot Work permits are required to be completed before work activities commence. Hot Work shall not be conducted during times when sprinkler systems have been impaired, as applicable.

XV. LOCKOUT/TAGOUT

Metro's Lockout/Tagout Program includes procedures for group lockout, availability of lockout devices, use of equipment specific lockout procedures, and attendance at authorized level training.

Metro employees are responsible for shutdown and isolation of equipment or processes adhering to Metro's Control of Hazardous Energy program. If more than one padlock is required on a piece of equipment, an Authorized Metro employee will perform the necessary lockout/tagout procedure. Once the procedure has been completed and verified, the employee will place the key associated with the locks in the group lockout box and then place with his/her own lockout device on the box. Metro employees and contractors performing service, repair or



construction activities on the affected process will place their personal locks (contractor supplied) on the group lockout box.

Contractors are responsible for protecting their personnel by ensuring that their (contractor supplied) locks and tags are in place for any routine maintenance, projects, inspections, repairs, testing, and/or any task in which the control of hazardous energy is necessary. In the event the contractor does not have a lockset, LOTO cannot be performed by the contractor. The associated work cannot commence until LOTO is completed.

At no time shall any authorized person use another lock or key not assigned to him/her. Contractors must adhere to the Metro Lockout/Tagout program as well as OSHA's 1910.147 - Control of hazardous energy (lockout/tagout) regulation.

When contract personnel are working on equipment that has been locked/tagged out by Metro, it is the contractor responsibility to verify proper energy isolation and to affix their locks on the group lockout box prior to commencing work. The Metro group that performed the LOTO procedure will provide the opportunity to walk through the implementation of the procedure with the affected contractors expected to attend.

XVI. PERSONAL HYGIENE

What is wastewater?

Commonly known as sewage, wastewater is the water that goes down the drain from sinks, bathtubs, floor drains, toilets, and various piping located in homes, businesses and industries throughout the Denver Metro Area. Wastewater is used water that includes pollutants such as human waste, food scraps, oil, soap and chemicals that are conveyed via a sewage pipe from homes, commercial buildings or industrial facilities. Wastewater travels for miles through an array of various sized pipes known as the wastewater or sewer collection system.

Nature has a process of treating pollutants in the water, but the amount generated by the Denver Metro area would overwhelm the natural treatment process. The wastewater treatment process is an accelerated form of the natural treatment process that can clean millions of gallons of water a day.

Are there any health hazards from working around wastewater?

The composition of untreated wastewater is highly variable and therefore constantly changing. Surprisingly, it consists of only about 0.1 percent solids and 99.9 percent liquids. A common characteristic of untreated wastewater is its high concentration of microorganisms. Because of the daily exposure and contact with biological materials, wastewater personnel may have a higher incidence of potential exposure to pathogens than the public.

How can I protect myself?

For most wastewater workers the risk of developing an occupational illness is significantly reduced when standard safety and personal hygiene precautions are followed. This includes:

- When splashing or wet surfaces may be encountered, wear waterproof gloves and boots.
- Wash hands with soap and water after contacting wastewater or even working around wastewater. Ingestion is a general route of a potential wastewater employee infection.



The common habit of touching any part of the face area will contribute to the possibility of direct exposure.

- Promptly treat cuts and abrasions using appropriate first aid measures.
- Wear surgical-type masks and goggles or face shields for prolonged exposure to wastewater aerosols.
- Change soiled uniforms or protective clothing as soon as the task is completed.
- Clean contaminated tools and reusable personal protective equipment after use.
- Do not eat or drink in areas of exposure.

Proper personal hygiene and use of personal protective equipment are critical because infections from contact and exposure to microorganisms may occur without symptoms and antibodies to bacteria and viruses may develop without illness symptoms being readily apparent.

Special Immunizations

The National Institute for Occupational Safety and Health (NIOSH) has made no official recommendations regarding vaccinations for workers who contact sewage. NIOSH does point out that sewage workers, like all adults, should be current on their tetanus-diphtheria immunization.

XVII. PERSONAL PROTECTIVE EQUIPMENT (PPE)

Contractors are responsible for providing appropriate PPE for their employees. Minimum requirements must be adhered to at all times include:

- Wearing eye protection when the work assignment exposes individuals to potential eye hazards. As a general rule, basic safety glasses are required in all process areas except office areas, lunchrooms, restrooms, designated walkways between administrative office buildings, and to and from designated private vehicle parking areas.
- Each contractor is responsible for determining the type of eye protection needed for a particular task (i.e., face shield, chemical goggles, etc.). Safety glasses must be worn under any face shield. Safety glasses, at a minimum, are required at ALL TIMES while in construction and process areas.
- Proper hard hats are required in construction areas at all times.
- Hearing protection is required in posted areas. These areas include the blower buildings, digester hall, and the process building. Hearing protection is required when using loud equipment and tools.
- Closed-toed shoes must be worn in all process areas. Steel toed shoes with anti-slip tread are recommended due to potential wet environmental conditions and cart/forklift traffic.
- High visibility vests must be worn in construction areas and around traffic areas.

XVIII. OVERHEAD WORK

Cranes

The responsibility for compliance with the standard in its entirety falls upon the individual crane contractor in so much as it is dictated by the standard.



The path of each load must be planned to prevent swinging loads from passing over workers. It is the responsibility of the subcontractor to utilize the necessary precautions (barricades, horns, spotters) to keep workers out of the swing path. At no time are workers permitted to stand beneath suspended or swinging loads.

Crane operators cannot be engaged in activities that distract their attention while operating the equipment (i.e., cell phones – unless used for signaling purposes, iPods etc.).

Crane operations must ensure the following responsibilities are met.

- Licensed Crane Operator
- Competent Person
- Qualified Person
- Qualified Rigger
- Qualified Signal Person

A Critical Lift Checklist must be completed by the subcontractor and submitted to the Metro Sponsor and EHS when any of the following conditions exist:

- The load exceeds 75 % of the crane's load chart;
- Whenever the load and/or travel radius is expected to travel over any portion of an occupied building (In this case, all occupants must be vacated.)
- The load exceeds 100 tons;
- If the lift involves multiple cranes;
- The crane is being used to lift personnel.

All individuals shall be removed from the path of travel of suspended loads.

XIX. EXCAVATION

All excavation work must be planned in advance considering soil conditions, interference with traffic or nearby activities, piling or disposal of spoils, delivery and storage of material and equipment, probable weather conditions, and the possible need for shoring and cribbing. Prior to excavation, permissions and permits are to be obtained and underground utility locations are to be determined and identified to workers and to the Metro Sponsor.

All excavations must be properly barricaded, with concentration on areas of foot and vehicle traffic. Barricades will include a continuous indicator of the open excavation, like orange fencing or caution tape. If excavations are open in low light conditions including nighttime, they must be well illuminated so a passersby can identify the excavation. All open excavations/holes not barricaded must meet the following requirements:

- The cover must be able to support twice the expected load to travel over the hole
- Secured to prevent displacement
- Marked with the word "HOLE"

All excavations greater than 4 feet in depth must provide the following:

- Daily inspections of excavations must be made by a competent person.



- Walls are properly sloped, benched or braced to prevent cave-ins. Soil type must be determined. All excavations must be designed for Class B or C soils on all Metro property.
- Active air monitoring conducted before employees enters the excavation.
- Spoil piles are maintained at least two feet from the edge of the excavation.
- Safe means of egress must be provided so as to require no more than 25 feet of lateral travel by employees working in excavation.

Contractors are expected to follow OSHA's 1926 Subpart P - Excavation's regulations.

XX. TRAFFIC SAFETY AND CONSTRUCTION VEHICLES

Contractors, vendors, and visitors shall comply with the requirements of all federal, state, and local laws, rules, and regulations pertaining to safe vehicle operation and shall only use the vehicle for the purposes for which it was designed.

- No person shall be allowed to ride on the top, running boards, fenders, hood or in the back of any vehicle, unless it is specifically designed for such a purpose.
- No person shall be allowed to ride in the bed of a flatbed, dump, or pickup truck.
- Any contractor walking next to, in front of or behind any construction equipment/tool on any named street must be escorted by a vehicle. This vehicle must be in front.
- When provided in the vehicle, seat belts must be worn on Metro property by all drivers and passengers when operating motor vehicles, *including* OHVs and carts.
- Always yield to pedestrians and bicycles while driving on Metro property.
- Be cautious when driving in low light and dark conditions, scanning for pedestrians and Metro cart traffic.

Wide, Heavy and Swinging Loads

- Trucks or other vehicles shall not be overloaded with passengers or materials. This can be based on the towing capacity, load rating, or capacity listing.
- All loads shall be adequately secured. (Holding on to the load by hand is not adequate.)
- Any projections outside the transporting vehicle that create a risk to other equipment, vehicles or people shall be flagged with a red flag.
- An escort vehicle/person must stay *in front* of a vehicle that is transporting any wide, heavy, swinging and/or awkward loads on any named roads and in high pedestrian areas on the plant site. This includes loads carried by construction-type vehicles (forklifts, front-end loaders, trucks, etc.). The escort vehicle/person must identify any hazard that could be struck by the load and mitigate it.
- When any lane of traffic is blocked by construction equipment or vehicle(s) for an extended period of time or when the construction equipment obstructs the view of other drivers, active traffic control must be in place at all times. This may include using flaggers, especially on busy roads. In this requirement, contractors should be cognizant of any equipment attachments that may extend into the lane of traffic.

Earth Moving Equipment

- Operators must wear seat belts, if they exist or are intended to be part of the equipment.



- All bidirectional machines must be equipped with a working distinguishable horn or alarm.
- All machines must follow all traffic rules on Metro Property, observing stop signs and speed limits.
- It is encouraged that operators of earth moving equipment work in a purposeful manner, aware of all activities around them including Metro carts and OHVs.

Speed Limits

- Observe all posted speed limits, traffic signs, and barricades.
- The speed limit on Main Street is 25 MPH. All other areas are 15 MPH.
- Speed limits apply to all motorized vehicles. Speeds are checked by radar and will be strictly enforced.
- Any speeding violation will be reported to the contractor superintendent/ project manager as well as the Metro Sponsor.
- Repeat offenders will not be allowed to drive on the property. This means that if they drive to the plant site, they will have to find parking offsite and either carpool or walk to the jobsite.

Parking

To maintain safe emergency egress and limit the risk associated with vehicle traffic on all roads, contractor vehicles shall not park in any lane of traffic on any named road. Vehicles may not block any emergency egress into or out of any occupied building or area. It is acceptable to park temporarily on roads for the sole purpose of loading and unloading tools and equipment from the vehicle to a work area. In rare cases, exceptions can be made through the Metro Sponsor.

All vehicles must be parked in designated areas as defined by signage, surface markings or as determined by the Metro Sponsor.

All personal vehicles must be parked near contractor trailers, laydown areas or another predetermined location per the Metro Sponsor. These vehicles may NOT be parked near any process areas or buildings. Any unmarked (without company logo) vehicle will be deemed a personal vehicle unless the equipment/tools in the vehicle is necessary for the work being conducted, such as a welder or generator.

Only contractor company-owned vehicles (signed with company logo) including contractor OHVs may be parked in/next to process areas/buildings. A contractor may elect to shuttle workers from personal parking areas to worksites so long the shuttle vehicle also adheres to these parking requirements.

XXI. LADDERS

A means of access is required anytime an individual needs to access a surface that is 19 inches higher or lower than the surface they are standing or working on. For non-permanent access points (especially with construction) this is typically achieved with temporary stairs or a ladder. When ladders are used, the following guidelines must be followed on-site:

- Ladders are to be inspected on a regular basis.



- Ladders that are deemed unsafe must be tagged out and removed from service immediately.
- Ladders shall be maintained so that they remain free of all slipping hazards, such as grease and oils.
- An extension ladder slope shall always be placed at a 4:1 ratio.
- The top of a ladder must always extend 3 feet higher than the roof or work platform it is resting upon unless it is equipped with a secure grab rail.
- While on a ladder, workers must face the ladder and maintain at least three-points of contact with the ladder while ascending or descending.
- The areas around the top and bottom of the ladder must remain clear of debris and other objects.
- Ladders placed for work activities lasting an extended period of time need to be secured, ideally at both the top and bottom.

XXII. SCAFFOLDING

Contractors are responsible for following the requirements of OSHA's Scaffolding Standard(s) when working on/with scaffolding.

- Contractors shall utilize qualified persons to design scaffolding and erect/move/dismantle scaffolding under the supervision of a competent person.
- Contractors are responsible for providing adequate anchorage, foundation, bracing, pinning, support, access, working surface, fall protection and training for employees working on suspended scaffolding.
- Contractors are required to provide fall protection for employees erecting or dismantling supported scaffolds where the installation and use of such protection is feasible and does not create a greater hazard.
- Scaffolding shall be inspected daily and tagged accordingly.

XXIII. AERIAL LIFTS

When working an articulating or telescoping aerial lift, all personnel shall wear a hard hat and personal fall arrest system that includes a full body harness with a lanyard attached to the manufacturer's-specified platform anchorage or attachment point. The lanyard must be of an appropriate length (e.g., 3 feet) to restrain or keep the occupant within the basket, bucket, or platform.

In scissor lifts and aerial lifts that telescope vertically only, a fall arrest system is not required by Metro, unless specified by the manufacturer.

XXIV. HOUSEKEEPING AND STORAGE

All scrap and debris that may pose a hazard to others, including nails, flammable and combustible materials, waste, chemical/oil-soaked rags, etc., must be properly removed and/or disposed at regular intervals. Contractors must ensure that work activities, machinery and supplies do not block or limit emergency (free and unobstructed) egress.



All cords must be placed and/or secured in a manner to prevent trip and fall hazards, especially across and/or along paths of egress. If work activities create a hazard for employees, the area must be barricaded to prevent entry. If the barrier impedes vehicle or foot traffic, the Metro Sponsor and/or EHS must be notified to review the activity and any detour signage to be installed.

All staged equipment must be stored in a manner that does not constitute a hazard or provides excessive harborage to pests.

Laydown and other storage areas within personnel or process areas, must be properly identified that it is an active construction area, and that proper PPE is required. When feasible, fencing should be placed around all storage and laydown areas. EHS may provide additional guidance.