



WATER & SEWER RISK MANAGEMENT POOL



Construction Equipment Safety

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The following safety related program is for informational purposes only. The SORT committee hopes that each participating district will look at this program and discuss how it compares to the district's own practices. This program is NOT a complete safety program, but intended as guidelines. There is no guarantee that following a given program will eliminate or substantially reduce the risk of claim or injuries. It is expected that member districts will consider this program and adapt or modify it to fit the district's particular needs and circumstances.

CONSTRUCTION EQUIPMENT SAFETY

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CONSTRUCTION EQUIPMENT SAFETY

PURPOSE / SCOPE

The purpose of the Construction Equipment Safety Program is to ensure that all employees understand the potential hazards and the District's program for protecting them from those hazards to the greatest extent possible, and to establish the requirements for working safely in such an environment.

This is intended to be a universal document that describes precautions and procedures that must be followed in all cases. Field management and staff will develop Standard Operating Procedures for work at specific sites and for specific work tasks, which will take into account all safety issues and will define the most effective methods of accomplishing the work objectives safely and efficiently.

Rather than a training manual, this program is designed to address the level of safety of the construction equipment used by experienced operators. Operators without experience shall receive adequate training before operating the equipment.

All employees are encouraged to actively participate in identifying opportunities for applying engineering controls for reducing the hazards.

Policy Statement

All employees who operate construction equipment are required to follow the procedures and safety advisories set forth in this program.

This program works in conjunction with the operator manuals specific to the construction equipment being operated. Improper operation of construction equipment can cause injury or death. It is also the operator's responsibility to observe pertinent laws and regulations and to follow manufactures instructions on equipment operation and maintenance.

EXEMPTIONS / EXCLUSIONS

Employees exempt from this program are employees that do not work in the construction aspect of the organization and do not operate any construction equipment.

HAZARD ANALYSIS

Hazard Description

This program is designed to address the safety issues typically encountered with types of equipment used on sites of excavations for repairs or new installations. Most equipment uses hydraulics for operation such as loader, backhoes and track hoes. Employees must be trained in proper methods of release of energy of hydraulics and hand signals.

Inspecting equipment helps you know your vehicle/equipment is safe. You protect yourself and others by inspecting your equipment prior to use. Unsafe vehicles or equipment should be taken out of service until qualified personnel make repairs.

Hazard Evaluation

Construction equipment is not designed for travel on existing roadways. They can also have many blind spots during operation. The equipment is designed for work in excavations areas. Equipment can move or release the hydraulics force independently. Equipment can have very high decibel levels that would require ear protection. Operators of equipment must be aware of objects and personnel in the immediate area around the equipment. Operator must be aware of swing radius and have basic knowledge of hydraulic and pneumatic tools.

Exposure Determination

Vehicles in existing right of ways have slight exposure to the hazards. However, the greatest exposures of hazards are to the workers in and around excavations. Personnel that arrive at the site to inspect, locate or discuss the work being performed are also exposed to the hazards of the equipment.

RESPONSIBILITIES

District

The district shall assure that all equipment is maintained properly. Management shall require that all safe guards are in place to prevent any injury to the employee and that all safety procedures are followed.

Designated Person or Safety Program Coordinator

Review the safety procedures on a regular basis to confirm that all safety procedures still apply. Collect all concerns of equipment on working properly and verify that the correction is made to the equipment before being place in operation. Work with supervisors to assure all employees that would come in contact with these hazards are properly trained.

Managers

Know the rules and laws of transporting or operating construction equipment in or on right of ways. Verify that equipment is maintained properly and is in good working condition. Assure that all and new employees are fully trained in the operation of construction equipment. Annual review the safety procedures and standard operating procedures of all the construction equipment. Verify that all employees are following this program.

Employees

Understand and follow all rules and procedures of this safety program. Do not operate equipment without proper training. Notify their Manager or Safety Officer of any defects or problems with the operation of the construction equipment. Know the rules and laws for transporting or operating equipment within any right of way. Be fully trained with the Commercial Drivers Guide from the State Department of Transportation. Be fully trained on all equipment that they may be operating. Lock out and tag out any equipment that is out of service or could cause injury to other employees.

GUIDELINES/RULES

Before operation of equipment

- Avoid wearing loose clothing or jewelry that can get caught on controls. Personal protective equipment (PPE) such as safety shoes or boots, hard hat, heavy gloves, ear protection, etc. may be required or recommended for your protection (reference the District's Personal Protective Equipment Safety Program).
- Keep the steps, handrails and operator's compartment clean at all times. Remove all loose objects from the operator's compartment that poses a safety hazard.
- Walk around and look for holes, obstructions and other work area hazards before operating the equipment.
- Locate all underground hazards.
- Check all fluid levels according to the service manual. Tighten all caps, dipsticks and plugs. Check for leaks and replace or adjust all parts that do not work correctly.
- Check, clean or repair all safety items.
- Ensure all shields, guards or access panels are securely in place.
- Check to ensure the correct placement of all safety pins or stop.
- If operating at night, check all lights to verify that they are operational. Replace any light that does not work.
- Verify that all personnel are away from equipment, that parking brake is applied, that the transmission and equipment controls are in neutral before starting engine.
- Fasten seat belt and adjust seat.
- Know the rules, laws and safety equipment necessary for transporting or operating the construction equipment in or on the road or highway. If uncertain, consult with your supervisor or refer to the Washington State Department of Transportation commercial Drivers Guide for information.

Safe Operating

- Hillside operation can be dangerous. Rain, snow, loose gravel, soft ground, etc., will change the ground conditions. Use good judgment to determine if the equipment can be safely operated on a hillside or ramp. Engage a low gear before operating on a hillside or ramp. Do not coast with the transmission in neutral.
- Keep all loads as low as possible. The low position gives better balance and allows you to see clearly. Moving the equipment over ground that is rough or surfaces that can cause the equipment to slide. Operate equipment at a slow speed otherwise you may lose control and possibly rollover.
- Never excavate under the equipment or its stabilizers. Doing so may cause the equipment to fall into the excavation if the trench fails.

- Do not allow anyone to ride on the equipment.
- Avoid operating equipment when visibility is limited (dust, smoke, fog, ice, etc.). Wait until conditions clear before proceeding.
- Be aware of your surroundings and movement of personnel and equipment on the jobsite. Be alert and always know the location of all workers in your work area. Keep all other personnel (other than workers) completely away from the equipment.
- Never operate any equipment in an area where underground utilities exist without first notifying the owner of the utility. Contact the One-Call Service to locate all underground utilities that participate in the One-Call program. You must provide at least 48 hours' notice unless it is an emergency.
- Follow the instructions of the flagger, worker in the trench, signals and signs.
- Stop work immediately if engine stops or if the steering system does not work correctly.
- Follow state and local jurisdiction laws when operating equipment near overhead energized power lines.
- Use caution when entering or leaving the equipment to avoid moving or bumping the equipment or transmission controls. Access and egress the equipment carefully to avoid these hazards. Always apply the parking brake and stop the engine before leaving the equipment.
- Do not jump on or off equipment. Always face the equipment and use the handrails and steps to access or egress in a slow manner.
- Check all gauges, warning lamps and indicators frequently during equipment operation. Do not operate any equipment if any gauge, warning lamp or indicator does not work or shows a problem with the equipment.
- Only operate equipment from operator's seat.
- Always support or lower all attachments to the ground, apply the parking brake and stop the engine before you leave the equipment. If equipment has locking devices, assure that they are deployed. If equipment is parked anywhere besides the being loaded on a trailer, the stabilizers must be lowered to the ground as well.
- Never engage 4-wheel steer with a raised load. Use extreme caution steering while carrying a load.

Use of Construction Equipment in Roadway

- When traveling down public and private roadways, always use four way flashers, beacons, lights, blinkers and follow all roadway rules and regulations.
- When traveling in roadway always yield the right of way to faster moving vehicles.

Preventive Maintenance

- Check for fuel, oil and hydraulic fluid leaks. Replace worn or damaged hoses/lines. After repairs are made, clean the equipment before operation continues.

Program Name

- Replace any missing or damaged safety decals and reflectors and keep all safety decals and reflectors clean. See the equipment dealer for new safety decals and reflectors. The service manual should have a list and description of all the decals/reflectors with their order number.
- Consult with your supervisor regarding proper service procedures or refer to the equipment manufacture's service manual.
- Always support or lower the equipment's appurtenances (blade, boom, bucket, stabilizers, forks, bed of dump trucks, etc.) and stop the engine before leaving the operator's compartment.
- Hydraulic fluid injected into the skin can cause injury or death. Use a piece of paper or cardboard when checking for leaks. Keep your hands and body away from the pressurized leak. If fluid is injected into your skin, see a doctor immediately.
- Metal chips or debris can cause eye injury. Wear eye protection when you service any equipment. If you must use a hammer, use one with a soft face such as brass, rubber, plastic, etc.
- Always be sure that the equipment is properly cleaned.
- Certain areas on equipment can become very hot. Use caution to not touch any heated surfaces.
- Keep electrical connections clean and tight. Tighten and repair or replace all loose or frayed electrical wires before operating the equipment.
- Remove all trash or debris from the equipment. Do not store oily rags or other flammable materials on the equipment.

Equipment Maintenance

- Before starting any servicing;
 - Park the equipment on a level surface.
 - Support or lower the equipment to the ground.
 - Apply the parking brake.
 - Stop the engine and apply lock out/tag out procedures.
 - Follow a manufacture's procedures for bleeding off hydraulic pressure.
- No unauthorized modification to equipment. Modification can cause injury or death. Consult with your supervisor before modifying the equipment. Welding can cause cast iron (ductile) to break. Do not use welds to repair or attach items to the cast iron on equipment.
- Do not leave the equipment when the engine is running. Follow the instructions in the operator's manual or service manual when servicing powered equipment.
- Only use qualified tire mechanic to service tires. Explosive separation of tires and/or rim parts can occur and cause injury or death.
- Never work on equipment that is holding a load.

Applicable SOPs

- Before using construction equipment cone off area where equipment will be used.
- Conduct an onsite meeting with all employees involved on the job.
- Perform a walk around of equipment before use, looking for any irregularities, leaks or damage of any kind.

Required PPE

- Eye protection is required when using a hammer and/or when performing hot work such as welding or use of a cutting torch.
- Hearing protection should be used if the decibels are above 85.

Prevention Actions

Consult with your supervisor regarding proper service procedures. Review the service manual or contact the equipment dealer for pertinent information for safe operation of the equipment.

EMERGENCY PROCEDURES

- Hydraulic fluid injection is one of the highest hazards when working on equipment. If injection occurs contact 911 immediately.
- If an employee is burn, strikes the hard cast iron with any part of their body or slips or falls off the equipment contact your supervisor immediately and 911 if more than basic first aid is needed.

FORMS USED

Forms for vehicle checks and lock out and tag out procedures may be required.

TRAINING

This section outlines what training is required (by WAC, district policy, or best practice) and delivery methods including frequency.

Required Materials

Adequate and current operating manuals for all equipment.

Employee Training

Initial training by a qualified operator. Then periodical checkup of knowledge of the employee

Program Name

Complete understanding of the operation of the equipment the employee will be operating. Become well versed of the information contained within the service and operation manufacture's manual.

Lock out and Tag out procedures to eliminate the hydraulic energy.

Procedure for removing equipment from operation that would need repairs or maintenance.

Supervisor Training

Understanding the importance of enforcing all the rules and guidelines of this safety program.

REFERENCES/RESOURCES

This safety program is not a WAC required program. All construction equipment is referred to in the fleet safety program. This program was developed as an attachment especially for construction equipment. Most of this information was derived from general construction practices.

REVISION RECORD

Revision No.	Revision Date	Approval Date	Change
1.0.0	08-09-07		Initial design.

APPROVALS

Safety Committee Chairperson	Date	General Manager	Date
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