Brieser CONSTRUCTION

Section 51
Safety Health and Environmental Manual

2025

Vac-Truck Operations

Vac Truck Operations

PURPOSE

This written program documents the steps *Brieser Construction* has taken to protect and safeguard our employees and to prevent damage to publicly or privately owned property resulting from various Vacuum Truck Excavation operations present at our construction sites. This policy applies to all forms of vacuum excavation.

This specification contains the specific operating and safety rules, supervisor and operator qualification and training requirements, specific responsibilities, general equipment operating guidelines, regulations, and environment guidelines to safely manage and perform vacuum excavation operations including "potholing" and "slot trenching" for underground utility locating, shafts and pits, and other types of excavations.

If there are any other questions or concerns regarding the operation of the specific Vacuum Truck, please refer to the operator's manual for the make and model vehicle you are assigned.

OBJECTIVE

This document is intended to highlight the safety precautions required for carrying out vacuum truck and vacuum system activities. This document should be used in conjunction with the relevant service provider's safe operating procedures, industry standards and established risk mitigation practices. In cases where this Standard is different from governing regulations or codes, the more stringent of the two standards or regulations will apply.

SCOPE

To define the requirements, responsibilities, and procedures necessary for an effective Vacuum Truck Operations program. When work is performed on a non-owned or operated site, employees will be aware of provisions of site-specific contingency/emergency plans by either Brieser Construction or of a facility owner.

RESPONSIBILITIES

The Program Administrator: Brieser Safety Director

This person is responsible for:

- Issuing and administering this program and making sure that it satisfies all applicable federal, state, and local requirements.
- Ensuring that employees receive initial and refresher training on the use of this policy.
- Maintaining training records for all employees included in the training sessions.

Project Managers, Superintendents and Foremen

These people are responsible for:

- Ensuring an 811-dig request (JULIE) and or private locate is called in and completed at each job site prior to commencement of vacuum excavation activities.
- Reviewing the Engineering Survey between Project Manager and Site Superintendent or Job Foreman.
- Knowing the hazards in their areas that require the use of this policy.
- Assuring that safe operations are maintained within their departments to prevent injuries during vacuum excavation activities.
- Enforcing the use of this policy in the areas in which it is required.

Employees

- Understanding what constitutes vacuum excavation activities.
- Adhering to and completing all required permits for vacuum excavation activities.
- Contributing to the company's safe work policy.
- Seek guidance when you do not understand a particular section or permit within this policy.

DEFINITIONS

Bonding – is the act of joining two electrical conductors together. These may be two wires, a wire, and a pipe, or these may be two pieces of equipment. Bonding ensures that these two things which are bonded will be at the same electrical potential. No current flow can take place between two bonded bodies because they have the same potential. (See also Grounding)

CDL – Commercial Driver's License

Flammable liquid – Any liquid with a Flash Point less than 100° Fahrenheit. Examples are: crude oil, gasoline, naphtha, natural gasoline, raffinate, benzene, xylene, toluene, alkylate, Cat Gasoline, unstripped kerosene, unstripped distillate, unstripped LCO, and similarly light liquids.

Grounding – is establishing an electrical connection between equipment and an earth ground. This is required when working in any facilities and where flammable chemicals are present. This is also required when the possibility of static charges is present. Please refer to the specific make and model manual for further direction.
Note: This dissipates static currents that have the potential to cause sparks.

HAZMAT Trained Employee– Refers to the words Hazardous Materials. When on a job with a HAZMAT situation please note the following:

- Brieser Construction may work on sites where the client has identified hazardous materials. In those cases, work methods shall be in place to protect people, equipment, and the environment. Employees working on the Vac-Trucks will have completed a minimum of Union Hall training on HAZMAT awareness and or 40-Hour OSHA HAZ-Whopper training.

Hydro Excavating – The technique for excavating the earth's surface using water under pressure.

Hydro Vacuum Excavating Unit –Truck or trailer equipped with high-pressure water pumps, vacuum pumps and a separator holding tank to receive excavated spoils.

Inert Solids –Inert solids shall be defined as solids that pose minimal risk of reactivity with dissimilar materials, and shall exclusively be defined as non-contaminated soil, sand, sandblast media, and FCC catalyst.

Minimum Approach Distance (MAD) – The closest distance an employee may approach an energized our grounded object.

DEFINITIONS -continued

Off-Site – Off-Site means any property other than property work is being performed on**.**

Competent Person – means one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate them.

Qualified Electrical Worker (QEW) – A qualified electrical worker who has the knowledge and training to perform one or more specific tasks. That worker must also have sufficient training to recognize and know how to address the specific electrical hazards associated with working electrical power.

Qualified Person – means one with a recognized degree or professional certificate and extensive knowledge and experience in the subject field who is capable of design, analysis, evaluation and specifications in the subject work, project, or product.

> **For this standard practice, adequately trained carrier representatives, owning department operators and chemical vendors may be considered as qualified persons.*

Vacuum Truck – A transportable vacuum system vehicle consisting of a vacuum pump, vacuum cargo tank, and associated appurtenances and accessory equipment mounted on a motor vehicle. This vehicle is also conveying material, using a high velocity air stream, into a receiving tank. Common names for these trucks are “Vac Truck,” “super-sucker,” “guzzler,” and “vac all.” These trucks may not be used to purposefully or knowingly pick up liquid hydrocarbons or hydrocarbon contaminated sludges.

Pyrophoric – Spontaneously combustible on contact with air.

SDS – is an acronym for Safety Data Sheet

SAFE WORK PRACTICES

Safe work procedures for vacuum truck operations must address the potential for chemical reactions and the potential release of toxic gas or fumes. They must also consider the variety of fluids or substances that vacuum trucks typically carry.
Before starting any vacuum truck operations, Brieser Construction shall make sure that vacuum truck operators, as well as facility personnel, are aware of the following:

- All personnel shall satisfactorily complete a training course, provided by Local Union Hall.
- Supervisors and Operators shall successfully complete a written examination to demonstrate and understanding of this operating procedure.
- Some instances of operation may result in the operator being dispatched alone. In those instances, the operator shall notify the client of the nature of operation, potential hazards, emergency procedures, and a procedure for communication in the event of an emergency.
- There are numerous potential hazards associated with vacuum truck operations. These hazards can be found in almost all of the site work is performed.
- Vacuum truck tanks, pumps, and other equipment shall conform to all applicable codes which would include the Department of Transportation (DOT) etc.
- Operator(s) must be thoroughly familiar with and follow the operator's procedure and operator's handbook guidelines. Individuals operating the hydro vacuum excavation equipment shall be qualified per this specification and the site's operating procedure.
- Prior to operating the unit, completing an Operator Daily Checklist prior to using the hydro vacuum excavation equipment.
- All tasks shall be reviewed to ensure the proper equipment/attachments for the job are used.
- All employees other than the individuals using the hydro vacuum excavation equipment will maintain a safe distance from the task being performed.
- Employees' driving/riding in the cab of the hydro vacuum excavation truck are required to use a restraint system (seatbelts) when the vehicle is traveling.
- The hydro vacuum excavation equipment must not be used for any purpose other than that for which it was designed.
- The wheels of the hydro vacuum excavation equipment shall be chocked prior to operating the equipment.
- The hydro vacuum excavation equipment shall not be operated beyond its specified capabilities as outlined in the operator's manual without special approval.
- Never leave the hydro vacuum excavation equipment running and unattended.
- A spotter will be required when the view to the rear of the hydro vacuum excavation equipment is obstructed or when positioning/repositioning equipment in highly congested areas.
- All drivers of hydro excavation equipment shall adhere to Section 16 – Company Vehicle Policy of the Brieser Construction Safety Manual.

SAFE WORK PRACTICES – continued

- Drivers of the hydro vacuum excavation equipment shall follow all applicable aspects of any site excavation specifications, guidelines, and procedures around safe vehicle usage.
- Keep the suction line away from your body and face.
- Complete a specific job safety analysis sheet identifying all hazards associated with task.
- When working close to the edge of an excavation and a potential fall hazard exists, a plan shall be in place and addressed on appropriate site forms.
- Ensure all the following permits are in place prior to beginning the job:
    a. TSTI
    b. Excavation Permit
    c. Lock Out / Tag Out Permit (if required).
    d. Fall Protection Permit (if required).
    e. Confined Space Entry Permit (if required).
- Before any excavation work is to be performed, an 811-utility marking request is to be completed for all public and municipality owned utilities.
- A private utility request may also be needed depending on requested services. This request is to be made separately and may include but is not limited to: electromagnetic locating, ground penetrating radar, concrete scanning, video pipe inspection, leak detection etc.
- When working inside plants, substations, etc. underground utility prints will need to be requested and used in conjunction or as the sole means of utility location. Always consult with the owner and or client for this information.
- Prior to excavating, always check for any sources of ignition, flammable atmospheres, and potential hazards associated with the surrounding area, such as toxic vapors and their PEL's and STEL's.
- Identify hazards such as slips and falls, spills and releases, fires and explosions and accidents within the facility or on the highway.
- Understand the evacuation and rescue procedures for the specific location and job being performed in the event of a product leak from any pipe, conduit, or duct.
- If working in potentially dangerous atmospheres, ensure that air quality monitoring at the work site is continuous at locations such as the discharge area of the vacuum truck.
- Ensure that first aid is readily available on site in the event of injury or environmental exposure.
- Transporting spoils and dumping of material must be managed by site environmental coordinators and comply with all federal environmental and DOT regulations.
- Prior to start up, equipment should be inspected and in a safe working condition. Ensure that the tank interior, filter bag house, and cyclone separators are clean and free of any substances that may react with the liquids to be vacuumed or transferred.

SAFE WORK PRACTICES – continued

- Under normal conditions, the absence of oxygen minimizes the risk of ignition in a vacuum truck. However, operating rotary lobe blowers and vacuum pumps at high speeds creates high air movement and high vacuum levels, resulting in high discharge air temperatures and high discharge vapor concentrations that can present potentially ignitable conditions.
- All employees have full authority to stop work if the need presents itself. Please refer to the Brieser Construction SH&E Manual Section 43 for further direction or information

WORK PERMITTING

A Brieser TSTI / Excavation Permit & Site related permits are required for all operations including vacuum truck operation. Additional permits may be required as site requirements or job types change.

As a part of work permitting, when the potential exists for exposure to airborne contaminants above permissible exposure limits, atmospheric monitoring shall be conducted by Brieser Safety Department or client industrial hygiene department. This will help define proper PPE and/or barricading requirements. Respiratory protection requirements will be determined through atmospheric monitoring. PPE that is appropriate for the material being handled must be worn when there is potential for exposure.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Please refer to the Brieser Construction PPE Matrix for further direction or information.
When using the Vac-Truck you must at a minimum be wearing:

- Appropriate clothing for weather and site requirements.
- Hard hat
- ANSI approved safety glasses with rigid side.
- Work gloves.
- Dielectric safety gloves (when working near overhead and or underground power lines.)
- Safety toe boots / rubber boot
- Hearing protection.
    - All vac truck assigned employees along with anyone working within work area of the running / working vac-truck is required to wear double hearing protection.
    - All Vac-Truck operators must participate in a yearly hearing test as part of the Brieser Hearing Conservation Program explained in Brieser Construction SH&E Manual Section 21. The cost of this test is 100% covered by the company.

PERSONAL PROTECTIVE EQUIPMENT (PPE) – continued

Other specific PPE may be required depending on the site or situation:

- The operators of the high-pressure water or air nozzle and the vacuum pipe shall wear face shields.
- FR Clothing will be required where applicable.
- Safety vest
- Respiratory protection,
- Rain Suit / FR Rain Suit

OVERHEAD POWER LINES

Due to the height of the vehicle and its ability to move in different ways the dangers of overhead hazards may exist. Always look up and survey the site for overhead power lines.

- Best safety practice: never get closer than 10 feet to an overhead power line.
- Consider all overhead lines as energized until the electric utility indicates otherwise, or an electrician verifies that the line is not energized and has been grounded.
- In construction work, an overhead power line safety component is part of your Brieser overall safety and health program and safety training.
- If overhead lines are present, call the utility company and find out what voltage is on the lines.
- Ask if the utility company can shut off the lines while you are working near them.
- If overhead lines cannot be shut down, ask the utility company if they can install insulation over the lines during the time you will be working near them.
- If the lines cannot be shut down and/or insulation applied, a minimum safe distance of 10 feet must be established. Have a brief job site meeting to discuss the planned work as it relates to the power lines. Discuss topics such as the use of long handled tools, and equipment (raised dump trucks, back hoes, etc.) that could encounter the lines. Consider the need for a designated person to monitor activities around the lines.
- Only use nonconductive ladders when working on or near overhead power lines.
- Employees shall not be permitted to approach or carry any conductive object closer than 10 feet to an energized line. The only exception is for trained and qualified employees using insulated tools designed for high voltage lines.
- When working near overhead powerlines, the following table shall be followed to maintain safe distances. *NOTE*: Without a Qualified Electrical Worker (QEW) present, the table for Non-Qualified Employees shall be followed.

MINIMUM APPROVE DISTANCE FOR NON-QUALIFIED & QUALIFIED EMPLOYEES.

Minimum Approach Distance for Non-Qualified Employees	
50 kV and below	10 ft.
69 kV	11 ft.
130 kV	13 ft.
220 kV	16 ft.
345 kV	20 ft.
500 kV	25 ft.
765 kV	34 ft.

MAD for Qualified Electrical Employees From Uncovered Conductors, Phases, or Equipment		
Voltages Between Phases	Phase to Ground exposure	Phase to Phase Exposure
50 – 300 V	Avoid Contact	Avoid Contact
480 V	1 ft. 1 in.	1 ft. 1 in.
2 to 15 kV	2 ft. 2 in.	2 ft. 3 in.
34 kV	2 ft. 6 in.	2 ft. 11 in.
69 kV	3 ft. 3 in.	3 ft. 11 in.
138 kV	3 ft. 7 in.	4 ft. 11 in.
345 kV	8 ft. 6 in.	12 ft. 6 in.
765 kV	14 ft. 11 in.	26 ft.

BONDING & GROUNDING

The owner, operator and user are responsible for determining if static grounding is required and what level of protection is required for the specific job. The site the work will be performed at may also mandate that proper grounding be needed. (i.e., electrical generation facilities that require a QEW to ensure proper grounding). The complete vacuum transfer system needs to be bonded so there is a continuous conductive path from the vacuum truck through the hoses and nozzle to the tank or source container and grounded to dissipate stray currents to earth (ground). Prior to starting operations, the vacuum truck needs to be grounded directly to the earth or bonded to another object that is inherently grounded (due to proper contact with the earth) such as a large storage tank or underground piping. A safe and proper ground to earth may be achieved by connecting to any properly grounded object including but not limited to any one or more of the following examples:

- A metal frame of a building, tank, or equipment that is grounded.
- An existing facility grounding system such as that installed at a loading rack.
- Fire hydrants, metal light posts, or underground metal piping with at least 10’ of contact with earth.
- The ground rod shall be appropriate for the vehicle and according to manufacturer settings. Be advised that some sites require only Qualified Electrical Workers to perform any grounding of vehicles and equipment.

EMERGENCY SHUTDOWN

Being prepared for any type of situation is something that needs to be a part of the safety procedure. If a situation arises or knowing that turning off the unit would be beneficial to that safety crisis. Knowing how to perform an emergency shutdown is key for all persons assigned to the vehicle. Always refer to your specific vehicles owner’s manual. However, the procedure should be very close to the following instructions:

In an emergency you must activate the emergency stop.
To shut down the system:

- Stop vacuuming.
- Enable vacuum relief valves.
- Reduce engine/blower/fan RPM.
- If required, shut down the engine.

EMERGENCY SHUTDOWN – continued

Know the procedures for shutting down the various components and options available on the unit. During rodding operations, placing the rodder pump switch in the off position can immediately stop propulsion of a nozzle. As a safety feature, the switch must be pulled forward and forced up to engage the rodder pump. This feature prevents accidental engagement of the pump. However, the switch can be placed in the off position by simply pushing down on the toggle lever. In an emergency, slap or place the switch in the off position, the rodder pump will stop immediately.

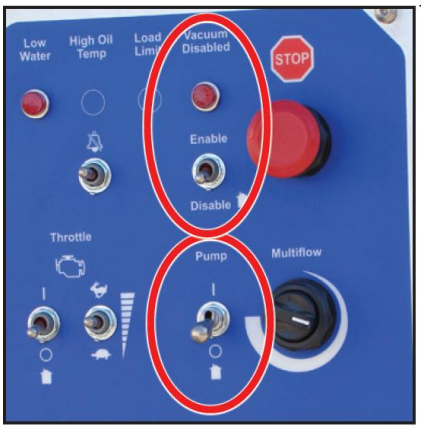
The vacuum relief switch can be used to vent the vacuum system and immediately stop airflow at the end of the vacuum tube. Place the switch in the on position to stop airflow and in the off position to resume air flow. Some units are equipped with an emergency stop switch that will open the vacuum relief and lower the engine to idle. Actual functions will vary with the model. Refer to the Operations section of the vehicle owner's manual for specific details on the unit. This material is intended as an overall guide for Vactor units in general. Get to know the throttle controls associated with the vehicle! In many situations, disengaging the throttle may prevent an accident or damage to the vehicle. Study the owner's manual for your specific make and model for information related to equipment operation and safety procedures.

Emergency stop procedures.

Know the procedures for shutting down the various components and options available on the unit.

The vacuum relief switch can be used to vent the vacuum system and immediately stop airflow at the end of the vacuum hose. Some units are equipped with an emergency stop switch that will open the vacuum relief and lower the engine to idle. Actual functions will vary with the model.

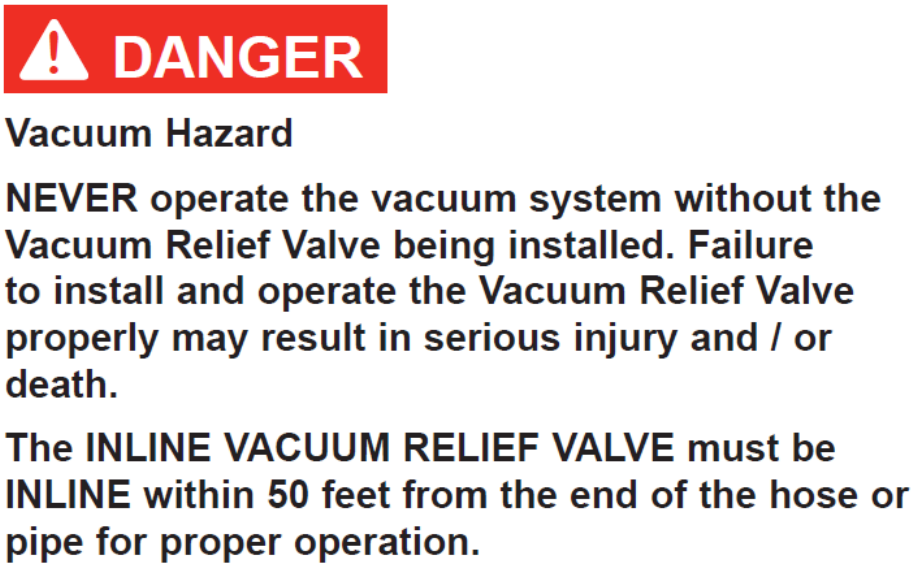
Get to know the throttle controls associated with the vehicle! In many situations, disengaging the throttle may prevent an accident or damage to the vehicle. Study this manual for information related to equipment operation and safety procedures. The in-line vacuum relief valve is the primary safety to relieve vacuum at the hose end and must be used in all operations.



HOSES

Vacuum hoses constructed of conductive material or thick-walled hose with imbedded vacuum relief valve and conductive wiring shall be used when transferring flammable and combustible liquids when the potential for a flammable atmosphere exists in the area of operations.

The proper hose material is to be chosen depending on site requirements and known hazards in the excavation area. When setting up the hose, it is best to take the shortest straight line possible from the vacuum source to the loading area. If the distance encompasses more than 50 feet during "dry" product loading, it is best to run the set-up line with "hard pipe" as long as possible using gradual turns where possible. When the loading area is reached, then a lightweight flexible hose can be used as a "work whip." Refer to owner's handbook on guidelines for hose set-up.



VENTING

Several methods can be used by vacuum truck operators to safely vent vacuum pump exhaust vapors, including but not limited to the following:

- Operators can prevent dieseling by locating the vacuum truck upwind of vapor sources and by extending the vacuum pump discharge away from the diesel engine air intake.
- Vapors may be returned to the source container using conductive and closed connections.
- Vapors may be vented into the atmosphere to a safe location using a safety venture.
- Vacuum truck operators may provide vertical exhaust stacks extending approximately 12' above the vacuum truck (or higher if necessary) to dissipate the vapors before they reach ignition sources or other potential hazards and personnel.
- Vacuum truck operators may attach a length of exhaust hose to the vacuum exhaust that is long enough to reach an area that is free from potential hazards, sources of ignition, and personnel. The hose should be preferably extended downwind of the truck and away from the source of the liquids.

CONFINED SPACES

By definition, a confined space:

- Is large enough for an employee to enter fully and perform assigned work.
- Is not designed for continuous occupancy by the employee; and
- Has a limited or restricted means of entry or exit.

These spaces may include underground vaults, bodies, storage bins, pits and diked areas, vessels, silos, and other similar areas.

By definition, a permit-required confined space has one or more of these characteristics:

- Contains or has the potential to contain a hazardous atmosphere.
- Contains a material with the potential to engulf someone who enters the space.
- Has an internal configuration that might cause an entrant to be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross section; and/or
- Contains any other recognized serious safety or health hazards.
  For further information or direction, please refer to the Brieser Construction Safety Manual Section 18.

ATMOSPHERIC TESTING

The areas where vacuum trucks will operate must be free of flammable vapors or other dangerous VOC's. If there is any question whether the area is vapor or toxic gas free, atmospheric testing shall be performed by a qualified person using properly calibrated and adjusted detectors.
Testing shall be conducted prior to starting any operations, and if necessary, during operations, including but not limited to the following:

- When operations in the area are subject to change such as automatic pump start-up or product receipt into, or transfer out of, a tank located in the vicinity of the transfer operations.
- When dumping.
- When atmospheric conditions change such as wind direction.
- When an emergency, such as product release, occurs in within the facility that may affect atmospheric conditions in the transfer area.

The use of an H2S or 4-Gas monitor maybe implemented by the company foreman, superintendent, or site manager.

Position vent lines away from workers and workstations, including control panels, valve handles, gauges, shut offs, and hose attachment points if possible and use a vertical exhaust stack to divert exhaust gases away from workers and ignition sources. Check air monitoring equipment during operations to confirm that venting is proceeding safely.

SEWER

The following pages cover basic cleaning of catch-basins, jet rodding operations and simultaneous vacuum and jet rodding operation. Be aware of traffic and pedestrians. on the job site. Use extreme caution while moving around the vehicle to avoid contact with moving vehicles.
When moving the boom or vehicle make sure pedestrians are clear of the area. Use orange safety cones to mark the work area. Germs and other biological hazards are common in sewers. All operators must wear safety apparel: hard hat, visor and / or goggles, ear protection, ~~rain suit~~, safety-toe shoes or boots with non-skid soles and waterproof gloves are required to avoid injury and contamination. Additional equipment may be required as determined by an on-site safety assessment.

⚠ WARNING

Sewer gas hazard.

Sewer lines often contain poisonous or explosive gas such as methane. NEVER enter or bend over a sewer without proper ventilation and personal protective equipment. If another person needs help in a sewer, immediately call for emergency assistance. NEVER enter the sewer to help unless you have been trained to do so and have proper personal protective equipment.

NEVER smoke in or around sewer lines, drains, or catch basins.

Failure to follow these instructions may result in death or serious injury.

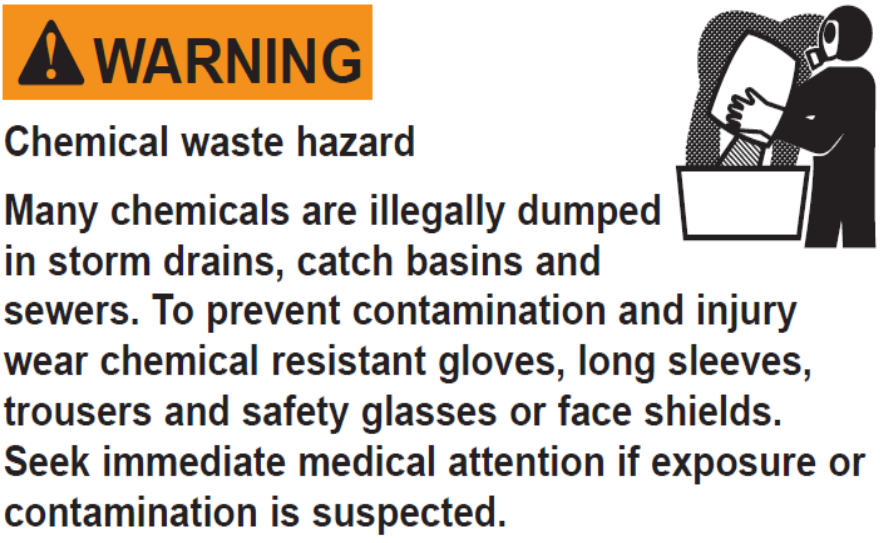
Before Jetting a Line, The Operator Should Consider the Following Points:
• If the manhole is surcharged, relocate to a manhole downstream. A surcharged manhole is one that water has risen above the top of the outlet pipe. This makes it impossible to see the line you are trying to clean.
• The size of pipe should be determined to use the proper size nozzle and nozzle support guide.
• Determine the direction the line is supposed to flow. Always jet against the flow or upstream.

When jetting a line
When starting to jet a line or anytime the rodder nozzle cleaning the line is near the manhole, spray, or mist can be forced out. If equipped, use the unit's vacuum system. to reduce the spray or mist by lowering the vacuum tube into the manhole about one foot or more and allowing the vacuum airflow to capture it.

Starting nozzle in line
- Place nozzle in the line before turning water pump on.
- Use low water flow to minimize water jetting out of the line.
- Allow slack in line to enable the nozzle to move quickly up the line.
- Once assured nozzle is in the line, distance yourself from manhole and mist.
- If equipped, use a remote control to enable distance from manhole.

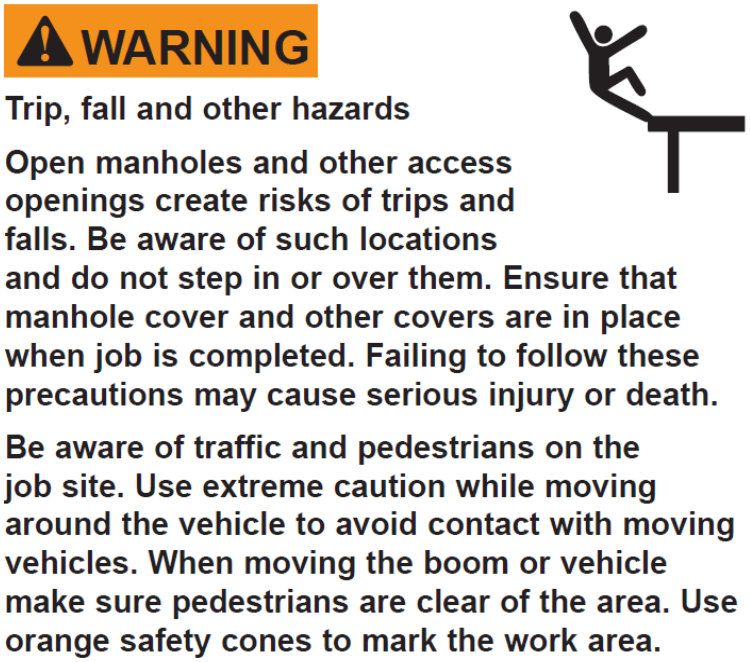
Retracting nozzle in line
- As nozzle comes close to manhole, lower water flow and retract slowly.
- Turn off pump before retracting nozzle out of the line

Be mindful of the environment and ecology.
Observe environmental protection regulations before draining any fluids, find out the correct way to dispose of them. Observe the relevant environmental protection regulations when disposing of oil, fuel, coolant, brake fluid, filters, and batteries.



Slips, Trips, Falls, and other Hazards.

Always be aware of your surroundings when performing work in or near these structures.



VACUUM TRUCK DECONTAMINATION

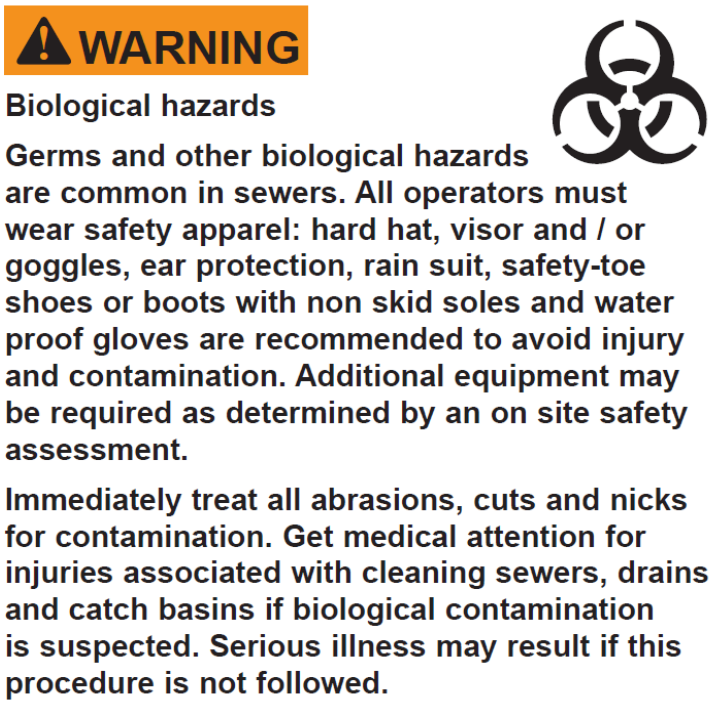
- All vacuum trucks which are used for the removal of hazardous material (per 49 CFR 172.101) shall remove all product from their truck by steam cleaning or must satisfy DOT 407, DOT 412, and DOT HM183.
- The decontamination procedure shall ensure no material, sludge, or residue remains in the cargo tank and the material in the liquid seal drained.
- Decontamination shall include changing out the liquid in the liquid ring pump reservoir.
- Hoses shall be inspected to ensure there is no excessive product buildup inside of the hoses.

Biological Hazards

- Units used around or for sewer work present some special handling issues due to biological hazards. This also includes the unit's exterior that may have come in contact with waste material. The unit's water tanks, debris body, pumps, filters, and plumbing can all become contaminated in use. Recycling units will require additional cleaning before servicing.
- Thoroughly flushing with fresh water is the first step to cleaning a unit. Cleaning the holding tanks may sometimes be necessary. Please consult the owner's manual for your specific make and model for more information.

- When cleaning the vehicle of these biological hazards you are required to wear the proper PPE. Upon completion proper disposal of this PPE is required.

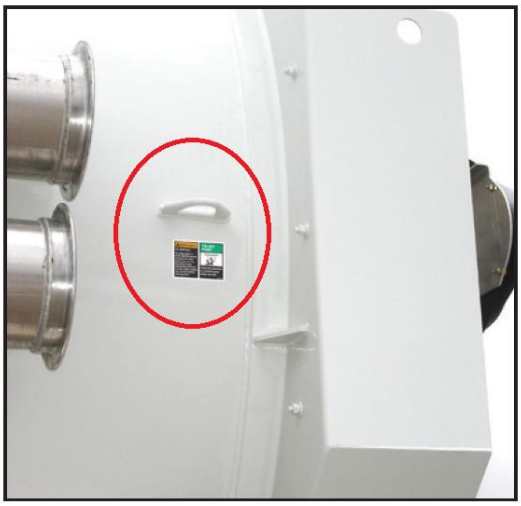
- **NOTE Vaccinations are required if the chance of contact is possible in specific types of materials or atmospheres.*

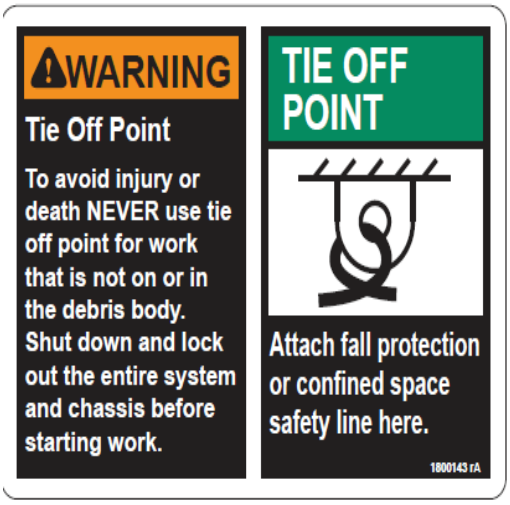


FALL PROTECTION

Please refer to Appendix A & B in this document and or the Brieser Construction SH&E Manual Section 22 for further direction or information.

All units are equipped with a tie off point for any time maintenance of truck is needed above 6 feet and when entering the debris body is needed. These, units are equipped with additional designated tie off points. Only use these specific tie off points for fall protection. If no tie off point is marked as shown, then an independent tie off system must be used.





LOCKOUT / TAGOUT

Please refer to Appendix 1 & 2 in this document and or the Brieser Construction SH&E Manual Section 12 for further direction or information.

TRAINING REQUIREMENTS

Each supervisor and operator shall complete a training course before their first hydro excavation work on site. Training documentation for each supervisor and operator shall include the course outline/ description and a letter of certification of course completion. The training course shall include, but not be limited to the following:

- Full training from Local Union Hall with passing score / test.
- Brieser driving test.
- On the job training with skilled worker or foreman.
- Passing score of Brieser Vac Truck operations test.
- The cutting action of the high-pressure water or air stream and its potential hazard to the operator shall be demonstrated. The demonstration shall show the effect of the stream on some suitable material.
- The need for and, limitations of personal protective equipment (PPE) shall be explained.
- Instructions shall be given as to when and how specific clothing and protective devises must be worn.
- Operation of the high-pressure system, vacuum system, and auxiliaries shall be explained.
- Training shall include start-up and shut down procedures, potential equipment problems, and appropriate corrective actions.
- Operation and purpose of all safety devices shall be explained. The importance of not tampering with any safety device, as well as the importance of keeping them functional, shall be stressed.
- The proper method of connecting hoses, including laying-out without kinks, protection from excessive wear and using proper tools for hookups.
- The trainee shall demonstrate their ability to safely operate the equipment as detailed during the training courses.
- The trainee shall demonstrate understanding of the training course by satisfactory completion of a written examination.
- Aware of relevant government and facility safety procedures and emergency response requirements.

TRAINING REQUIREMENTS continued

- SDS of the substances being vacuumed or transferred.
- Appropriate PPE.
- The requirement that all personnel shall leave the vacuum truck cab during loading and off- loading.
- The requirement that when transferring flammable liquids or hazardous materials, vacuum truck operators shall remain positioned between the vacuum truck and the source or receiving tank, vessel, or container and within 25' of the vacuum truck throughout the duration.
- The requirement that vacuum truck operators shall monitor the transfer operation and be ready to quickly close the product valve and stop the pump in the event of a blocked line or release of material through a broken hose or connection.
- The knowledge that smoking, or any other source of ignition, shall not be permitted within at least 100' (depending on local procedures and atmospheric conditions) of the truck, the discharge of the vacuum pump, or any other vapor source.
- The requirement that vacuum trucks shall not enter into a tank dike area until such areas have been checked / monitored and rendered safe.
- Vacuum trucks cargo tanks shall be depressurized.
- The effect of speeds, turns and the changing center of gravity.
- Maintaining proper distances when operating vacuum trucks inside facilities with restricted clearances.
- Vacuum truck operators will be trained and properly licensed in accordance with applicable regulations and only qualified operators will be allowed to operate the vehicle.
- Only qualified operators shall be allowed to operate the vehicle.
- Use of a spotter is required when the view to the rear of the vacuum excavation equipment is obstructed or when positioning/repositioning equipment in highly congested areas.

APPENDIX A

Vac Truck Lock-Out Tag-out for Fall Protection Anchorage

Steps:

1. Complete Brieser Fall Protection Permit, Rescue Plan, and LOTO forms.
2. Start Vehicle
3. Place Vehicle in Park
4. Pull out Air Brake Knob
5. Place Lock on Air Brake Knob.
6. Remove key from lock and place in your pocket. If more than yourself is affected by the LOTO, the key must be kept in a lockbox with each affected person having a lock on the lockbox.
7. Place LOTO tag on lock.
8. Place Wheel Chocks
9. Perform Daily Visual inspection of all fall protection equipment.
10. Don Fall Protection Harness and adjust as needed.
11. Install cross arm strap by wrapping the strap around the rear bumper, frame, or front pull ring. Strap must be installed between cross members, vertical supports, or other means to prevent horizontal movement.
12. Once work is complete, perform steps in reverse.

APPENDIX B

Separate Equipment Lock-Out Tag-out for Fall Protection Anchorage

Steps: When using a separate piece of equipment follow this process.

1. Complete Brieser Fall Protection Permit, Rescue Plan, and LOTO forms.
2. STOP Vehicle.
3. Place Vehicle in Park and remove key.
4. Set emergency brake (if applicable)
5. Set wheel chocks.
6. Remove key from lock and place in your pocket. If more than yourself is affected by the LOTO, the key must be kept in a lockbox with each affected person having a lock on the lockbox.
7. Place LOTO tag on lock.
8. Place Wheel Chocks
9. Remove master key from vehicle (if applicable
10. Place all keys in your pocket. If more than yourself is affected by the LOTO, the key must be kept in a lockbox with each affected person having a lock on the lockbox.
11. Place LOTO tag on lock.
12. Perform Daily Visual inspection of all fall protection equipment.
13. Don Fall Protection Harness and adjust as needed.
14. Install cross arm strap by wrapping the strap around the rear bumper, frame, or front pull ring. Strap must be installed between cross members, vertical supports, or other means to prevent horizontal movement.
15. Once work is complete, perform steps in reverse.

Vac-Truck Learning Exercise

Score: **%**

Employees Name: _____ **Date:** _____
Company: _____ **Instructor:** _____
Trade: _____ **Job Title:** _____

Answer each of the following questions "True" or "False" by circling the appropriate letter.

1.	**T**	**F**	Each employee assigned to Vac-Truck operations must participate in the Brieser Hearing Conservation Program?
2.	**T**	**F**	When working below aerial electrical line(s) the employee on the vac nozzle has the option to wear dielectric gloves?
3.	**T**	**F**	To use the truck or another piece of equipment as an anchor for fall protection, you must complete the Brieser lock out tag out form?
4.	**T**	**F**	Brieser Construction does not knowingly remove any material containing hydrocarbons?
5.	**T**	**F**	When dumping a load of material, it never important to follow the request of the client?
6.	**T**	**F**	Some sites require that the vac-trucks be bonded or grounded by a qualified electrical worker?
7.	**T**	**F**	Some of the required permits to be filled out, signed, and understood by all workers are: TSTI, Excavation Permit, Lock Out / Tag Out Permit, Fall Protection Permit, and Confined Space Entry Permit if required.
8.	**T**	**F**	The use of fall protection is only when the safety department is on site.
9.	**T**	**F**	The use of an H2S or 4-Gas monitor maybe implemented by the company foreman, superintendent, or site manager?
10.	**T**	**F**	Double hearing protection is only required when conditions warrant?
11.	**T**	**F**	Bio-Waste: You may need additional PPE when jetting or working with raw sewage (Rubber Gloves, goggles, Tyvek suit etc.) depending on an onsite safety assessment.
12.	**T**	**F**	An inline vacuum relief valve must be in place for all remote digging from a flexible hose.
13.	**T**	**F**	A TSTI must be completed daily for operations.
14.	**T**	**F**	Hepatitis or other vaccinations may be required when working with raw sewage or other materials that contain biological hazards.
15.	**T**	**F**	Specific Procedures for LOTO and Fall Protection while conducting vac truck work are part of section 51 vac truck operations?

Vac-Truck Learning Exercise
Answer Sheet

1. **True**
2. **False**
3. **True**
4. **True**
5. **False**
6. **True**
7. **True**
8. **False**
9. **True**
10. **False**
11. **True**
12. **True**
13. **True**
14. **True**
15. **True**