



DOCUMENT INFORMATION

Description	Provides guidance for the safe operation and maintenance of Vac Truck equipment and describes methods for eliminating or reducing hazards and risks associated with vacuuming operations.
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1. PURPOSE

- 1.1. To establish a procedure for safe operation of industrial vacuum loading equipment including personal protective equipment standards, operating procedures and training requirements.
- 1.2. During vacuum truck operations, workers are at high risk of being exposed to toxic gases, flammable materials and other various hazards. This procedure will address proper and safe vacuum truck operations.

2. SCOPE

- 2.1. This procedure applies to all SES employees, affiliated companies and any sub-contracted employees.
- 2.2. When work is being performed away from a non-owned or operated site, the operator's program shall take precedence, however, this document covers Superior Environmental Solutions (SES) employees and shall be used on all owned premises, or when an operator's program doesn't exist or is less stringent. Employees will be aware of provisions of the site-specific contingency/emergency plans by either SES or of a facility owner.

3. RESPONSIBILITIES

- 3.1 Program responsibilities for all policies and/procedures have been addressed globally and included with the "SES Health and Safety Standards Implementation Manual 2014", This has been done to streamline the program and address responsibilities across the entire program. In addition, they can be found in the SES H&S Standards 2014 manual pages in section 101, page 2. In general, the responsibilities are broken into four functioning areas 1) **Operations Managers**, 2) **Line Supervisors**, 3) **Employees**, and 4) **EHS Department**. Please review these responsibilities within the scope of each policy or procedure and for overall guidance for this program.

4. PERSONAL PROTECTIVE EQUIPMENT

- 4.1 This section identifies the personal protective equipment required when; either, operating or in the working area of vacuum loading equipment. The MSDS or SDS must be reviewed for additional or specific PPE requirements.
- 4.2 Head Protection - All personnel shall wear head protection (hard hat).
- 4.3 Eye and Face Protection - Eye protection, adequate for the purpose of proper fit on the person, shall be provided by SES and worn by all employees within work areas.
 - 4.3.1 Where material is liable to cause eye damage (liquid, vapor, particulate) face shield and goggles shall also be required.
- 4.4 Body Protection - All personnel shall be provided and wear suitable clothing (Coveralls or Company Uniform) in regard to the type of work being performed.
 - 4.4.1 Flame Retardant Clothing (FRC) - Shall be provided and worn by all personnel exposed to areas that may be of combustible or flammable nature, including coal dust, grain dust, etc. atmospheres.



- 4.5 Hand Protection - Suitable hand protection shall be worn by all personnel to protect from chemical exposure, abrasions and high temperature materials.
- 4.6 Foot Protection - At a minimum, consisting of steel toes with either leather uppers, or chemical resistant boots, or rubber boots with full metatarsals. Some jobs and employee classifications require full metatarsal protection.
- 4.7 Hearing Protection - Vacuum-loading equipment may produce noise in excess of 90dBa, adequate hearing protection (muffs and/or plugs) shall be supplied and worn by all personnel using equipment with a minimum of 28 NRR rating.
- 4.8 Respiratory Protection - In accordance with the Respiratory Protection Program, respiratory protective equipment will be issued to and worn by all personnel as required.
 - 4.8.1 Employees will be medically cleared by licensed personnel and by fit tested for a respirator using qualitative or quantitative methods.
 - 4.8.2 Per Appendix D or the CFR1910.134 standards, if an employee requests respiratory protection in areas that it is not required, they must be provided a copy and follow the Appendix D standard.

5. PRE-OPERATION PROCEDURES

- 5.1 Planning - Each job shall be pre-planned with a Job Safety Analysis (JSA). Operators familiar with the equipment and work environment shall meet with the personnel doing the work and outline potential hazards of the work area, environmental problems, safety standards and emergency aid procedures.
- 5.2 Before beginning operations, the operator or supervisor in charge shall obtain any required permits and inspect vacuum truck, equipment, and loading/off-loading sites to assure safe operations.
- 5.3 Hoses shall be arranged in such a manner to prevent tripping hazards. If tripping hazard cannot be eliminated, adequate barricades must be implemented where feasible.
- 5.4 Vertical hose set-up must have whip check devices at each coupling connection and proper rope support to help relieve hose strain on the couplings from weight in the hoses.
- 5.5 All hoses shall be checked for evidence of damage, wear or imperfections. All hoses and valves shall be capped or plugged to prevent leakage of any material.
- 5.6 Electrical equipment in the immediate area that presents a hazard to personnel shall be de-energized, shielded or otherwise made safe, prior to beginning work.
- 5.7 All vacuum-loading equipment; including the hose, shall be properly grounded to reduce risk of static electricity that may shock personnel or cause a fire or explosion from a spark.
- 5.8 All vacuum-loading equipment shall have its rear wheels chocked at two points to prevent accidental movement.
- 5.9 All personnel are to review SDSs that may pose a risk to health and safety of the crew. It is imperative that the review includes all personnel involved; and, must be done prior to beginning work.



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- 5.9.1 SDSs should be obtained from the customer for any substance we will be performing with or near.
- 5.9.2 It is Federal Law that employees have a "RIGHT TO KNOW" what substances they will be working around.
- 5.9.3 Do not proceed until you have received the proper minimum PPE and that you have been trained on the chemical being worked with (Covering the SDS).
- 5.10 Atmospheric Testing must be completed prior operation to ensure that:
 - 5.10.1 The areas where vacuum trucks will operate are free of hydrocarbon vapors in the flammable range.
 - 5.10.2 The areas where the vacuum truck operator and others work without respirators must also be at or below air contaminants PELs/STELs. 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.
 - 5.10.3 Testing shall be conducted prior to starting any operations, and if necessary during operations, including, but not limited to the following:
 - 5.10.3.1 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.
 - 5.10.3.2 When off-loading
 - 5.10.3.4 When atmospheric conditions change, such as wind direction
 - 5.10.3.4 When an emergency situation, such as product release, occurs within the facility that may affect atmospheric conditions in the transfer area.

6. OPERATING PROCEDURES

- 6.1 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 take into account the variety of fluids, solids or substances that vacuum trucks typically carry. Before starting any vacuum truck operations, SES shall make sure that vacuum truck operators, as well as facility personnel are aware of the following:
 - 6.1.1 The numerous potential hazards associated with vacuum truck operations in chemical, steel or petroleum facilities including, but not limited to:
 - 6.1.1.1 Sources of ignition, flammable atmospheres, and potential hazards associated with the surrounding area, toxic fumes and vapors, combustible dusts and their PELs and STELs.
 - 6.1.1.2 Additional hazards such as slips and falls, spills and releases, fires and explosions and accidents with the facility or on a public roadway.
 - 6.1.2 The evacuation and rescue procedures in the event of a toxic gas/fume leak.
 - 6.1.3 Ensure that the air quality monitoring at the work site is continuous at such locations as the discharge area of the vacuum truck venting hose.
 - 6.1.4 Ensure that first aid is readily available on-site in the event of exposure to toxic vapors, fumes or combustible dusts. Follow the minimum requirements of the SDS for PPE.



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- 6.1.5 Consult the manufacturer's instructions to confirm that the vacuum equipment is designed for the particular transfer operation.
- 6.1.6 Ensure that all equipment - including tank and vacuum trucks, and pumping equipment - is in safe working condition. Ensure that the tank interior, filter baghouse, and cyclone separators are clean and free of any substances that may react with liquids or solids to be vacuumed or transferred.
- 6.1.7 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.
- 6.2 Keep Clear of rotating parts and potential pinch points.
- 6.3 Be sure all grounds are in place and tested for continuity.
- 6.4 Install a vacuum breaker (Safety Tee) and ensure it is functional. This is required on all systems where the employees will be working within close proximity (3') to the end of the hose or need to manage the end of the hose. The following provide guidance on proper safety tee use:
 - 6.4.1 Safety Tees are required regardless of hose diameter.
 - 6.4.2 Safety Tees must be in place unless the truck is equipped with an emergency vacuum break on the truck which instantly vents the vacuum system to ambient pressure.
 - 6.4.3 Safety Tees or truck vacuum breaks must be manned with the person working the end of the hose in clear sight at all times.
 - 6.4.4 Safety Tees must never be used on discharge lines or feedlines that will be under positive pressure as this will result in release of materials.
 - 6.4.5 Safety Tees are most effective when they are close to the vacuum truck. Placement will be based on job site set up so that line of sight and ease of access to the safety tee is maintained.
 - 6.4.6 The Safety Tee must be at least 15 to 20 feet away from the end of the hose to ensure that sufficient pressure drop is achieved at the end of the hose when the safety tee is opened.
- 6.5 Keep hands and body parts at least 3 feet away from suction inlet (end of the hose). The use of attachments or controls like a broom handle taped to the end of the hose to gain control and keep the body at 3' away must be used.
- 6.6 Never raise the collector tank without the unit being on firm, level ground and wheels chocked.
 - 6.6.1 Open clean out doors and remove material build-up before raising collector tank.
 - 6.6.2 Open dump chute doors before raising collector tank.
 - 6.6.3 Open rear door completely for dry material.
 - 6.6.4 Open rear door partially for liquid material before raising collector tank.
 - 6.6.5 Raise collector tank halfway (1/2) to start material removal.
 - 6.6.6 Use vibrator to assist in material removal from collector tank.



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- 6.6.7 Never raise collector tank to its full extent when it is still full.
- 6.6.8 Never use lifting lever to rock collector tank up or down to remove material.
- 6.6.9 Always inspect the trucks pathway prior to positioning the truck for dumping.
- 6.7 Never raise the collector tank near power lines, overhead obstructions or in strong winds.
- 6.8 Be certain of bridge and overhead clearances when driving.
- 6.9 Never move the vacuum loading equipment with the collector tank raised.
- 6.10 Do not open or close the rear door, raise or lower the collector tank or engage the vacuum pump; unless certain area is clear of people or obstructions.
- 6.11 Never operate vacuum pump without safety relief device (safety tee) between the unit and the end of the suction inlet.
- 6.12 Never perform vacuuming without properly grounding the unit. (see Bonding and Grounding)
- 6.13 Do not enter collector tank if hazardous chemicals are present. The tank is a confined space. Proper confined space protocol shall be followed.
- 6.14 Do not climb on top of collector tank without a full body harness, shock-absorbing lanyard or a restraint system and tie-off.
- 6.15 Refer to manufacturer's Operating Manual for required servicing instructions.
- 6.16 Only compatible materials can be combined in the collector tank, any mixing of materials requires careful review of SDSs, any doubt requires dumping and cleaning the box.
- 6.17 Shipping documentation or waste manifests shall accompany all loads being transported over public roads, and client documentation for in-house transport that identifies the material, origin of the load, and disposal/dump site by customer representative.
- 6.18 Proper placards shall be posted on all four sides if material being transported requires it.
 - 6.18.1 The new Globally Harmonized System requirements state all trucks regardless of their contents have proper pictogram placards by June 1, 2015.
- 6.19 A guide person or spotter is required for all positioning of vacuum equipment.
- 6.20 Keeping vacuum hoses as short and/or straight as possible will help reduce potential injuries from hose recoil and jumping.
- 6.21 Fall protection is required (even with standard hand railing) while raising or lowering hose, due to the potential of someone being pulled over by rope assembly or failure of the guard-railing from increased loading.
- 6.22 Vertically hung vacuum hose shall always have an anchor rope attached to the house, and anchored, while using another rope for lifting and lowering the hose, in the event of system failure.
- 6.23 Never stand below hoses or other materials being lowered.
- 6.24 Weight considerations must be taken when choosing rope for lowering and raising the hose.
- 6.25 Secure the hose to several fixed points, when vacuuming liquids, greases, or sludge. This will reduce some potential of hose backlash/recoil which occurs more frequently



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- with liquids/sludges than with dry vacuum operations. Backlash effect will be most severe at connection points, particularly at the truck and suction point.
- 6.26 Never stand or straddle the vacuum hose while it is in operation. Bystanders should be a minimum of 10' away. Creating a barrier or warning area around the hose will warn others of the hazard.
- 6.27 Never raise or lower vacuum hose with safety tee inline. Hoses tend to separate at this connection easily causing falling hazards to personnel below.
- 6.28 Always consider any engulfment hazards before and during vacuuming, due to material compacted by the operation, excessive material overhang, material hidden in chutes leading to a confined space.
- 6.29 Never attempt to make repairs to vacuum hose or vacuum system while in operation.
- 6.30 Continue atmospheric testing while operation is being completed
- 6.30.1 To prevent exposure to toxic gases during transfer operations:
- 6.30.1.1 Never transfer fluids from one truck to another unless it has been established that no chemical reaction will occur.
 - 6.30.1.2 Position trucks to minimize exposure to any discharged gases, fumes, vapors or dusts.
 - 6.30.1.3 Ensure that discharge lines are long enough and large enough for safe operation.
 - 6.30.1.4 Position vent lines away from workers and work areas, including control panels, valve handles, gauges, shut-offs, and hose attachment points - if possible, use a vertical exhaust stack to divert exhaust gases away from workers and ignition sources.
 - 6.30.1.5 Check air monitoring equipment during operations to confirm that venting is proceeding safely.
 - 6.30.1.6 Monitor the following:
 - 6.30.1.6.1 Tank level indicators to avoid overfilling (Note: if indicators are in-op, they must be repaired. Variance can be granted for dry materials and must be included with paperwork).
 - 6.30.1.6.2 Tank Pressure gauges to avoid over-pressuring receiving tanks or creating excessive vacuum in supply tanks (Note: if indicators are in-op, they must be repaired).
 - 6.30.1.6.3 Tank temperature gauges to help identify possible chemical reactions (Note: if indicators are in-op, they must be repaired).
 - 6.30.1.7 Minimize the air introduced into the system when pressure loading or unloading - submerge the suction line in liquid or reduce the vacuum pump speed when skimming or nearing the end of a load.
 - 6.30.1.8 Maintain a log of transported fluids and any potential residue that can remain with the truck. Use gravity loading and unloading whenever possible.
 - 6.30.1.9 Never pressure offload flammable or combustible materials.



6.30.1.10 Use a vapor recovery system, when available, to avoid venting tanks directly to the atmosphere.

7. HOSES AND CONTAINMENT

- 7.1 Vacuum hoses constructed of conductive materials or thick-walled hose with imbedded conductive wiring shall be used when transferring flammable and combustible liquids when the potential for a flammable atmosphere exists in the area of operations.
- 7.2 Conductive hose shall provide suitable electrical conductance less than or equal to 1 mega ohm per 100 feet (as determined by the hose manufacturer). Thin walled metallic spiral-wound conductive hoses should not be used because of the potential for electrical discharge through the thin plastic that covers the metal spiral.
- 7.3 After a load is within the confines of the tank, the heavy duty conductive hose can remain if plugged to prevent material leakage.
- 7.4 If flexible hose was used during the vacuum operation, it must be removed prior to any transport and the flange capped to prevent material seepage. This area is non-negotiable, violations of this policy will be met with swift and strict accountability.
- 7.5 A secondary spill containment should be on-site whenever vacuum operations are taking place. (i.e. empty drum, aluminum pool, etc.)
- 7.6 Operators are to continuously monitor gauges to ensure they are working and tank does not exceed capacity (Recommended that tanks should never exceed 80% of capacity).
- 7.7 Trucks that have been filled with material can become unstable due to substance build-up, weight shifts, etc. Special driving precautions must be adhered to when transporting a load. Steering and braking can become heavily impacted.

8. BONDING, GROUNDING AND VENTING

- 8.1 The complete vacuum transfer system needs to be bonded so that there is a continuous conductive path from the vacuum truck through the hose and nozzle to the tank or source container and grounded to dissipate stray currents to earth (ground).
- 8.2 Prior to starting transfer operations, vacuum trucks need 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:
 - 8.2.1 A metal frame of a building, tank, or equipment that is grounded.
 - 8.2.2 An existing facility grounded system such as that installed at a loading rack.
 - 8.2.3 Fire hydrants, metal light posts, or underground metal piping with at least 10' of contact with earth. (Do not use natural gas lines)
 - 8.2.4 A corrosion free metal ground rod of suitable length and diameter (approximately 9' long and 5/8" in diameter), driven 8' into the earth (or to water table, if less).
- 8.3 Venting



- 8.3.1 A number of methods can be used by vacuum truck operators to safely vent vacuum pump exhaust vapors, including, but not limited, to the following:
- 8.3.2 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.
- 8.3.3 Vapors may be returned to the source container using conductive and closed connections.
- 8.3.4 Vapors may be vented into the atmosphere to a safe location using a safety venturi. (Blow gun)
- 8.3.5 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.
- 8.3.6 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 preferably be extended 50' downwind of the truck and away from the source of the liquids.

9. LIQUID VACUUM TRUCK SAFETY

- 9.1 Listed below are some potential hazards associated with the use of vacuum trucks. These potential hazards, at a minimum, should be considered each time a vacuum truck must be used.
- 9.2 Sources of potential ignition identified, which includes truck engine, exhaust heat, static electricity discharges and outside ignition sources such as other nearby equipment and vehicles.
- 9.3 Discharged vapors can exceed PELs for exposed workers and or may collect in low spots. Vapors and gasses that are not hazardous prior to handling may become concentrated and thereby hazardous at or near the discharge hose.
- 9.4 Volatile organic vapors or leaks of flammable mixtures may create a hazardous situation from hose failures. Hydrocarbon vapors may be aspirated by the vacuum trucks diesel engine.
- 9.5 The removal of liquids from a sump while liquids are in-flowing can increase the potential of releasing hazardous components of liquid being removed or generating a flammable atmosphere in and around the sump are and vacuum truck.

10. MATERIAL CHARACTERISTICS & HAZARDS

- 10.1 The physical characteristics and associated hazards must be determined prior to the use of a vacuum truck.
- 10.2 Consult the SDS for identified material. (This is a requirement)



- 10.3 Unknown or unidentifiable material may require testing to determine hazardous characteristics. (Reid Vapor Pressure, PH, etc.)
- 10.4 Pyrophorics or oxidizing materials may only be loaded after consulting with and obtaining approval from the safety department. Specific SDSs will be requested.
- 10.5 Differing/incompatible materials (such as acids, caustics and hydrocarbons) shall not be mixed in vacuum trucks.

11. LOADING AND OFF-LOADING SITE PREPARATION AND CONDITIONS

- 11.1 The loading/off-loading site and surrounding conditions must be surveyed prior to operation of the vacuum truck.
- 11.2 Vacuum trucks have internal combustion engines, their use may be governed by a customer's hot work permit.
- 11.3 Vacuum trucks shall not enter tank dikes or potentially flammable atmosphere until such areas have been tested for flammable vapors and determined to be safe.

12. VACUUM TRUCK OPERATOR REQUIREMENTS

- 12.1 No flammables will be picked up with a vacuum truck unless it meets the temperature and Reid vapor provisions. (this will include input from the customer's management) Both levels must be determined safe before operations begin.
- 12.2 Personnel operating vacuum trucks must meet DOT, federal and state requirements (on public roadways) to include CDL endorsements for tasks being performed. Likewise, all vacuum trucks must be properly maintained and meet all API, DOT, state and local regulations.
- 12.3 The driver must be knowledgeable of the hazards posed by material being picked up.
- 12.4 At least one maintained and operational 20-pound dry chemical extinguisher must be mounted on the exterior of each vacuum truck.
- 12.5 When in use, the vacuum truck rear wheels shall be chocked and the brakes engaged.
- 12.6 Vacuum trucks must be grounded when loading and un-loading.
- 12.7 Vacuum trucks must be loaded upwind and 50' from the material being loaded whenever possible.
- 12.8 Appropriate PPE must be worn. Consideration should always be given to respiratory protection if airborne concentrations and particulates are present.

13. PORTABLE RAMP OFF-LOADING SAFETY PROCEDURE

- 13.1 Only trained and authorized personnel shall operate vacuum truck loading and un-loading.
- 13.2 Ensure ramps are staged on a flat and level surface.
- 13.3 Be sure guards and safety devices are in place and functional. (i.e. locking spacer bar)
- 13.4 Align ramps to meet edge of the 20 yard bin and secure ramps with center locking support bar.
- 13.5 Visually inspect ramps for any types of defects. Do not use if defects present.



13.6 Some sites require plastic to be placed on ground to prevent contents from coming in contact with the ground.

13.7 Spotters MUST be used if the vacuum truck needs to move backwards.

13.8 Establish how directions will be communicated between driver and spotter.

14. COLLECTOR TANK OFF-LOADING

14.1 Axel locks must be engaged prior to going on the ramps.

14.2 As directed by spotter, drivers slowly back onto ramps to ensure proper alignment.

14.3 Do not open or close rear door, raise or lower collector tank or engage the vacuum pump; unless certain the area is clear of people and obstructions.

14.4 Vacuum trucks shall have front wheels chocked during un-loading on ramps.

14.5 While unloading heavy materials, driver must remain in cab with foot on the brakes and the air brakes engaged until the load decreases in weight.

14.6 Ensure all solids and/or heavy materials are removed from collector tank utilizing the vibrator or water pressure.

15. WASH-OUT PROCEDURE

15.1 Preferred method is to not wash-out on ramps but if necessary the operator shall open the valve tail hose to drain off any liquids then commence to open the rear door slowly to prevent a large volume of material to spill out all at one time.

15.2 Operator will start to raise the collector tank and continue to raise the rear door slowly until materials are flowing slow and smooth.

15.3 Operator to stand to either side of the bin or behind the bin at all times.

15.4 Operator shall never stand inside the bin at any time, this is considered "direct line of fire".

15.5 Operator will commence to wash out materials with a low-pressure fire hose or a 1" water hose.

15.6 If materials are lodged in the collector tank, the operator will lower the tank so materials begin to resettle then re-raise the tank and start wash-out procedure again.

16. DOCUMENTATION

16.1 Shipping documentation (recovered material) or waste manifest (Hazardous waste) must accompany loads transported over public roadways.

16.2 All DOT requirements must be met prior to transporting material.

16.3 The unit/area generating the material to be picked up is responsible for assuring proper documentation. (Proper placards must also be placed by the operator)

17. CONTINUITY TESTING

17.1 Testing continuity is important to ensure proper control of static electricity build-up in a vacuum system. Continuity of the entire system is necessary for the charge build-up to be dissipated through the ground cable. To test continuity, the vacuum hose must be connected to the intake of the truck, one end of the continuity tester is hooked to the



intake end of the vacuum hose and the other connection to the ground clamp cable to confirm continuity. If continuity is not established, multiple hoses may need to be broken down and checked individually or the ground cable may need to be checked.

17.2 When vacuuming materials from drain pans, it must be metal, and must be grounded to the pipe draining it. If you are vacuuming a spill or leak from the ground you must use a duckbill skimmer to minimize air intake as well as lessening the chance of vacuuming a rock or bolt that could cause a spark when it enters the tank.

18. NATURE OF VACUUM INJURIES

18.1 Industrial vacuum trucks have been designed to move large amounts of material at a very rapid rate. These trucks can create up to 28" of mercury and will suck up anything that it can fit into the hose. An energized vacuum hose can create severe injuries to the person in a matter of seconds. Once attached, the vacuum force begins drawing blood toward the vacuum source and does not stop until the vacuum is shut off. The blood will flow at a fast pace until the blood vessels begin to collapse. Once the vessels collapse the vacuum will continue to shut the vessels until the blood does not have a pathway to the extremity. Once this happens, it is possible that the limb will have to be amputated.

18.2 Other injuries include back strains from handling heavy hoses, slip, trip and fall related injuries due to hose being on the ground.

19. TRAINING REQUIREMENTS

19.1 Vacuum truck operators shall be trained and properly licensed in accordance with applicable regulations. Vacuum truck personnel working in facilities that contain petroleum, hazardous chemicals, combustible dusts, steel plants, etc., shall be trained in:

19.1.1 The safe operation of the vacuum equipment and be familiar with hazards of the chemical products, byproducts, wastes and materials be transferred.

19.1.2 Aware of relevant government and facility safety procedures and emergency response requirements.

19.1.3 SDS (or MSDS) of the substances being vacuumed or transferred (NOTE: Before any chemicals, dusts, wastes are vacuumed, SES must be provided a copy of the compounds. This should be attained post-award by Sales, or operations managers who negotiated the work. ALL employees who will be subjected to working in or around the material must be briefed prior to job start and before the shift in a pre-task huddle/JSA meeting).

19.1.4 Supervisors are to keep copies of the provided SDSs on-site with them at all time while the operation is taking place. If the operation is passed to another crew leader or supervisor, the SDSs must be communicated to the next supervisor and remain on-site until job completion. A copy of the SDS should be forwarded with the JSA for that shift.

19.1.5 Wear appropriate PPE (Must wear at a minimum what the SDS states as minimum precautions).



- 19.1.6 The requirement that all personnel shall leave the vacuum truck cab during loading and off-loading operations.
- 19.1.7 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.
- 19.1.8 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.
- 19.1.9 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.
- 19.1.10 The requirement that vacuum trucks shall not enter into a tank dike area until such areas have been checked/monitored and rendered safe.
- 19.1.11 Vacuum truck cargo tanks shall be depressurized.
- 19.1.12 The effect of speeds, turns, and the changing center of gravity.
- 19.1.13 Maintaining proper distance when operating vacuum trucks inside facilities with restricted clearances.
- 19.1.14 The requirement that spotters must be available when backing and positioned as such to see any obstructions and have full eye contact with the operator (Spotter must not be positioned to be in harm's way).
- 19.1.15 Operator is responsible for checking clearances, ensuring that they can safely travel without striking walls or any overhead obstructions
- 19.1.16 The requirement that vacuum truck operations cannot take place within 20' of any overhead power lines.