

 DALHOUSIE UNIVERSITY <i>Inspiring Minds</i>	<i>Policy Sponsor:</i> Assistant Vice President Facilities Management	<i>Approval Date:</i> June 2016
	<i>Responsible Unit:</i> Facilities Management	<i>Revisions:</i> January 2018
Safe Work Instructions for Snaking Dalhousie Dental Clinic Vacuum System Piping		
Service: Trade Services		Shop: Plumbing

Hazards Identified:

- Falling
- Excessive Noise
- Mercury Vapours
- Bio-hazardous Waste

Personal Protective Equipment Required:

- Goggles and Face Shield, Safety Boots, Tyvek Suit, Nitrile Safety Gloves, Half Face Respirator, Eye Wash Kit(s)

Training Required:

- Proper use of the personal protective equipment to be used.
- WHMIS
- Proper use of any equipment that will be used.
- Hazardous Waste Clean-up

Background Information:

Waste amalgam is a heavy substance that can settle in pipes if it gets past the initial traps or filters in a vacuum system. It may also adhere to dental office plumbing or accumulate in P-traps closest to the point of initial discharge and in other low points in a systems plumbing.

Depending on their proximity to other possible accumulation points, long horizontal runs of piping may be a place where waste amalgam may accumulate. Although amalgam should be very stable and appreciable levels of amalgam and other waste are not likely to adhere to plumbing and cause blockages, Facilities Management believes that if such accumulations / blockages were to occur appropriate control measures must be implemented to protect both our employees and the environment.

The safe work procedures / instructions in this document must be followed by employees performing plumbing work or other activities that might disturb amalgam waste that has adhered to or settled in vacuum system piping.

Circumstances Where Precautions Must Be Taken

Employees must implement appropriate control measures in the following circumstances, as well as any specific plumbing problems that may arise, in order to deal with amalgam that has adhered to or settled in pipes:

- When performing plumbing work in areas where waste may adhere to pipes.
- When performing plumbing work in areas where waste may accumulate and it likely the work will dislodge amalgam waste adhering to other parts of the system.
- During major renovations to labs and their vacuum and piping systems.
- During demolition.
- During the cleaning of pipes.

Safe Work Procedures

1. Meet with the appropriate Dentistry Clinic staff to determine the best time to perform the work and what hazards exist. Except in the case of an emergency work should be performed outside of clinic hours.
2. Complete the Pre-Job Hazard Assessment form attached to the Work Order.
3. When significant waste amalgam accumulation in pipes and traps exists assume that the sludge is a hazardous waste unless a sample size amount can be extracted by a properly trained person and tested by a certified environmental testing lab.
4. Ensure that all required safe work procedures are available at the worksite for review prior to starting work and for reference while work is performed.
5. Make changes to this procedure and any others that may require updates due to hazards and conditions at specific worksites.
6. If necessary, ensure that an electrician will be available at the vacuum system control panel to shut the system down in the case of an emergency.
7. Ensure the following equipment is available at the site; non-porous tarps, garbage bags, rags, absorbent material to soak up spilled liquids, re-sealable buckets for disposal of hazardous waste, sterile wipes, adjustable height work platform, ladder, absorbent dry wipes
8. Hold a Tool Box Talk to review the following with employees:
 - a. Issues associated with mercury and mercury vapour.
 - b. Issues associated with bio-hazardous waste.
 - c. This and any other safe work procedures relevant to the work being performed.
 - d. Proper disposal of the hazardous waste material.
9. Ensure that all employees involved in the work have the required personal protective equipment and that it will be worn while they are working.

10. Removed any furniture etc. from the immediate work area if possible.
11. Cordon off the work area to prevent unauthorized entry.
12. Place non-porous traps on the floor under the work area to collect any material or liquids that may fall or drip from piping and miss, or overflow, any bucket or container. Tarps should be large enough to provide an adequate safety zone beyond the area immediately beneath the spot(s) where work is performed.
13. Place an adjustable height work platform or ladder on the tarp to facilitate removal of ceiling tiles and accessing the piping.
14. If using an auger on a ladder ensure it can be operated without endangering the safety of the employee operating the auger.
15. Ensure that reasonably sized containers are available to put in place to catch any liquids or waste that may drip, or fall, from the plumbing during cutting the pipe, accessing the amalgam via a cleanout and removal of the amalgam from the pipe.
16. If the affected area of pipe cannot be accessed by a cleanout select the proper tool for cutting the pipe.
17. Take precautions such as wrapping the pipe with duct tape to avoid splintering the pipe during cutting.
18. Avoid using cutting torches, cut-off saws with abrasive wheels or any other tool that may cause the pipe and the amalgam to heat up excessively and vaporize the mercury. If such tools must be used take precautions to prevent the pipe and / or amalgam from overheating.
19. If a plumbing auger is used to clean the pipe:
 - a. ensure that the employee operating the auger is standing on a stable safe surface.
 - b. be prepared to catch any dislodged material that falls from the end of the pipe.
20. Once the pipe has been cleared of accumulated amalgam and other material slowly remove the auger from the pipe by hand, wiping it off with absorbent dry wipes as it is removed.
21. If possible coil the auger on the tarps as it is wiped off. Once the entire auger has been removed from the pipe, wipe it down a second time using absorbent dry wipes and a cleaner recommended by dental clinic staff.
22. Check vacuum pump filters and P-taps downstream of where work was performed to ensure that dislodged waste materials have not created blockages elsewhere.

If the blocked section of pipe must be cut out in sections because it cannot be cleared using an auger do the following:

1. Follow steps 17 and 18 above.
2. Cut the pipe in lengths that can easily be handled.

3. Make every effort to catch any amalgam or other waste that falls from cuts as they are made.
4. Tape over each pipe end as it is exposed.
5. Once both ends have been securely taped over place each piece of pipe in a strong plastic bag. Do not over pack the garbage bag.
6. Place each garbage bag in a waste disposal bin.

Disposal of Hazardous Waste

1. Treat all material dislodged from pipes and any sections of pipe that have been removed as hazardous waste.
2. Dispose of waste material, pieces of pipe, gloves, Tyvek suits, Tyvek booties (if used), absorbent wipes, tarps if they can not be cleaned adequately and any other contaminated items in recycling container or re-sealable container. Mark the container as being hazardous waste and list the type of waste.
3. Follow the Dalhousie University procedures for disposal of hazardous waste.

Procedures For Dealing With Contractors

- If a contractor is hired to perform the work ensure that:
 - contract documentation requires compliance with all relevant provincial regulations and where necessary with municipal bylaws.
 - the contractor is informed of all hazards associated with this type of work and in particular hazardous conditions associated with amalgam and small amounts of bio-hazardous waste that might exist.
 - the contractor does a pre job hazard identification and assessment of the worksite
 - the contractor prepares written procedures to deal with all health and safety related hazards and environmental hazards involved in the removal process.
 - the contractor will work with a reputable waste firm that is licensed to handle waste amalgam and bio-hazardous material.
- Have the contractor's procedures reviewed and approved by the Dalhousie Environmental Health and Safety Office.

Glove Removal Procedures

To avoid contaminating your hands as you remove your gloves you must take care not to touch your skin with the outside of contaminated gloves. The following procedures are to be used to remove gloves:

1. With both hands gloved, peel one glove off from the top to bottom and hold it with the gloved hand.
2. Grasp the inside of the cuff of the second glove with the exposed hand and peel it off from the top, tucking the first glove inside the second. S.
3. Dispose of the gloves promptly to an appropriate waste container.
4. Never touch the outside of the glove with bare skin.
5. Wash hands as soon as possible using proper hand washing technique.
6. Upon removing your gloves immediately wash your hands following infectious disease hand washing technique