THE TOWN OF SWAN RIVER

PHONE (204) 734-4586 FAX (204) 734-5166
BOX 879 SWAN RIVER, MANITOBA ROL 1ZO

Portable Fire tube Boiler: Town of Swan River Unit #124
Saskatoon Boiler Model Ser. No.3639 15 HP Mb. Unit # B-1342
See Revisions: Feb.2 ,2010

Safe Work Procedure # PW-4 Saskatoon Boiler

PPE Required: *High Visibility vests, Rubber Gloves, Eye protection*
Equipment required: *Fire Extinguisher, traffic cones*

Start up

1. *If unit is preheated indoors, move the top exhaust pipe under the exhaust collection pipe in the NW corner of the PW shop. This is not required if the unit is preheated outdoors.*
2. *Fill front holding tank with water*
3. *Be sure valve supplying steam to hose is turned off*
4. *Be sure valves that open sight glass are turned on*
5. *The valve from the pump supplying the pressure tank with water must always be left open.*
6. *Start Genset engine to start burner and water pump or plug Genset cord into any other electrical 120 v power source.*
7. *Water pump will activate to fill pressure tank and the Diesel burner will fire up and begin heating when the water reaches the proper level in the tank.*
8. *The pump will automatically fill the pressure tank to the correct level and shut off, only starting up again when the water level drops inside the pressure tank*
9. *Watch the pressure gauge till it reaches 40psi, no more, before transporting.*

Set up & Operation

1. *Move unit to job site and reconnect electrical and bring boiler to proper operating pressure (90 psi).*
2. *Install warning traffic cones around the unit and around any manholes or basins. Keep bystanders away.*
3. *Lay out required lengths of hose and sewer tape, and place the end of the hose down into the sewer pipe before turning on the valve supplying steam to the hose.*
4. *Once hoses are in position, turn on steam supply valve. Be careful of steam blowback and flying debris.*
5. *Operator will monitor conditions and make adjustments as required.*
6. *Continue operations until complete.*

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Shut Down:

1. *Turn off steam supply valve to hose before removing the hose from the sewer line.*
2. *Unplug all power supplies and reroll hoses and sewer snakes*
3. *Be aware of hot hoses and surfaces during all operations*
4. *Inspect pressure hoses for damage and flaws while rerolling*
5. *Replace all manhole covers, sewer drain lids, etc. before leaving.*

Emergency Response:

If at any time there is a problem, disconnect the power supply to the Genset or turn off the engine.

If the operator sees that the tank pressure is above the high cut off limit (90 psi), and safety features have not responded, immediately, suspend work and clear the area of workers and bystanders.

1. *Turn off the burner by unplugging it at the Genset or turning off the engine running the Genset.*

Pressure from the tank may be released manually (not recommended)

1. *Slightly open the Valve on the RHS back on the water level control.*
2. *Slightly open valve on RHS front pointing down.*

In any case, be very careful about steam and/or water being discharged. It is extremely hot and will seriously injure or kill a person.

In case of burns, transport immediately to hospital or call 911

_____ _____

Committee Co-Chair *Safety Officer*

Date: _____

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Machine notes:

This is a pressurized steam vessel mounted on a trailer and used to unthaw sewer lines using pressurized steam.

On the front of the unit there is a 7 hp gasoline engine which powers an Oman 3.0 Genset, used to run the units controls, 2 electric motors and also supplies additional on site 120 v power for lighting and tools. It may not be necessary if an alternate 120v power source is available.

One electric motor operates a Diesel fired burner on the rear of the unit which heats the vessel water and creates pressurized steam. The other electric motor runs a water pump in the compartment on the LHS of the unit. This pump is used to fill the pressure vessel with water from the front holding tank.

There are 2 sewer snake reels on the front RHS of the unit which roll and neatly store the lengths of flat steel bar that is attached to the steam line and is used to push the steam line through frozen obstacles.

There is a water drain valve located on the front RHS side of the vessel, which is used to drain water from the tank if required or release pressure. The output line for this valve points down to the ground in a safe manner.

A power control panel is located on the RHS of the vessel. Inside the panel are a primary high/low pressure limiter switch and a secondary limiter switch to automatically control the steam pressure in the vessel. If the primary switch fails, the secondary switch takes over. If the secondary switch fails, excess pressure is released through the pressure relieve valve located on the top of the vessel. This valve disperses directly up and is in no danger of contacting a worker. This relieve valve will blow if exposed to 100 psi. The pressure gauge to the left of the control panel shows the pressure of the steam in the vessel and the limit switches maintain low/high operating limits of 60 & 90psi. Also on the control panel is a specification chart for how close the unit may operate to combustible construction. Observe all clearance information.

The burner unit on the back lights automatically when it is plugged into a power source and the water inside reaches the proper level. It is protected on the top and sides by a metal shroud. Access to the burner and motor should never be required during operation and adjustments may be made only by a trained mechanic, and when the vessel is cooled, depressurized and all Lock-Out procedures are followed.

Reinforced rubber pressure hose is rolled on to a reel on the rear LHS of the unit. It has a hand crank which is used to re-roll the hose. Check the condition of hoses and couplers regularly and before re-rolling the hose.

On the LHS rear of vessel, there is a clear sight glass used to watch the water level inside. It is controlled by two valves which allow water levels to be shown. The valves may be turned off to bypass the sight glass and the system will operate normally. Water levels may also be verified by using the additional blow valves on the tank beside the site glass… only qualified persons may operate valves and controls.

The water pump in the LHS compartment fills the pressure vessel to the proper level automatically and tops it up while it is in use. This water level is controlled automatically.

The operator must be certain that there is always enough water in the water storage tank at the front of the unit.

If the water storage tank runs out, and the pressure vessel water gets too low, the burner will automatically shut off and will not restart until water is added to the vessel.

*A **Certified Boiler operator** is required on all boiler sites. He may leave the unit unattended for short periods of time (10 minutes or less), if in close proximity to the work being done, to be able to aid another worker with work operations.*

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Operator must check at regular intervals and in this order:

1. *Check Tank Pressure gauge*
2. *Check Sight glass water levels*
3. *Check Water in holding tank*

Warning cones or other devices shall be used to surround the unit to warn others.

- *Fire Extinguisher required on board or in the towing vehicle.*

Hazard Assessments:

- *Hot water , steam and high temperatures*
- *Hot surfaces and hoses*
- *Pressurized hose*
- *Sewage exposure (added Feb.2,2010)*
- *Public access*
- *Gas vapor, electrical contacts.. risk of explosion*
- *Biological hazard from sewer water on lines*
- *Flying debris from pressurized steam*
- *Street traffic when working around manholes & basins*