Ken Blair (Occupational Health and Safety Officer)

Worker and Employer Services Division, WorkSafeBC

1066 Vancouver St.

Prince George, BC

V2L 5M4

**Re: Submission of Alternative Measures for entry into Sanitary Lift Stations and Wet Wells**

Dear Ken,

Please find below the Village of Pemberton’s updated submission for Alternative Measures as required under Section 9.22 of the OHSR, for entry into sanitary lift stations and wet wells located within the Village.

These alternative measures apply to a grouping of spaces listed in the table listed below, some with platforms above the wet well and some with no platform. Workers will be entering these confined spaces to replace or repair the water (sump) pump, the float balls or the inline valves, to clear blockages, or to replace hardware.

Required ventilation for a minimum of 20 air exchanges per hour has been calculated as per the volume of each space.

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| Name | Location | Volume  (m3) | Blower capacity (cmm) | Air Exchanges per Hour | Platform  Y/N |
| #1 | Highway 99 | 49 | 16 | 20 | Y |
| #2 | Walnut St. | 5 | 16 | 184 | N |
| #3 | Laburnum St. | 10 | 16 | 96 | N |
| #4 | Oak St. | 16 | 16 | 62 | Y |
| #5 | Industrial Park | 23 | 16 | 42 | Y |
| #6 | Poplar St. | 18 | 16 | 54 | Y |
| #7 | The Ridge | 18 | 16 | 54 | N |
| #8 | Eagle Drive | 13 | 16 | 73 | Y |

**Sample photographs of these types of spaces are provided in the table below**.



Information required in OSHR 9.22 for submission of an Alternative Measure is listed below and in the attached Confined Space Hazard Assessment, Entry Procedure and Rescue Plan for this grouping of spaces.

1. Description of the space: See attached Confined Space Hazard Assessment, Entry Procedures and Rescue Plan and the description on page 1 of this submission.
2. Isolation as per OSHR 9.18 is not practicable as it could cause a backup of effluent into residential homes and public spaces, posing a significant risk to the health and safety of the general public. All the stations contain 2 pumps which pump the sewage through forced mains. Backflow check valves and isolation valves are installed on both pipes leading from the pumps to the forced main.
3. This submission was prepared by the following individuals:

**Confined Space Program Administrator**

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| Wendy Olsson, HR Coordinator  [wolsson@pemberton.ca](mailto:wolsson@pemberton.ca)  604-894-6135 ext. 238 |
| **Qualified Persons** |
| Jeff Westlake, Water Operator II  [jwestlake@pemberton.ca](mailto:jwestlake@pemberton.ca)  604-894-6135 ext. 101 |
| Lincoln Ferguson, Heavy Equipment Operator, JOHS Committee Representative  [lferguson@pemberton.ca](mailto:lferguson@pemberton.ca)  604-894-6135 ext. 103 |
| Cameron Adams, Public Works Lead Hand  [cadams@pemberton.ca](mailto:cadams@pemberton.ca)  604-894-6135 ext. 102 |

1. Hazards to be addressed by these Alternative Measures: hazards that arise due to the inability to isolate adjacent piping include engulfment, exposure to hazardous atmosphere, contact with or inhalation of biohazards, and potential for fire and explosion. Further details are included in the Entry Hazards section of the attached Hazard Assessment.
2. Control Measures

A minimum of two workers will be on site during the Confined Space entry. The entrant will stay attached to a Type 3 SRL throughout the entry including while entering and exiting on the ladder.

In the event that the entrant requires assistance exiting the space the attendant will switch the Type 3 SRL to the winch mode and lift the entrant out of the space. Please see the Confined Space Rescue Plan for additional details.

The pumps will remain energized during this entry to control sewage levels. The entrant and standby person will monitor the sewage level. Entry will be aborted if the sewage level rises to within 2 feet of the mid-level grating, or in spaces with no grating, if the sewage level rises to the top of the pumps.

The spaces have been assigned a Moderate Atmospheric risk due to the potential of sewer gases, spills or dumping of chemicals and bioaerosols in the sewer system.

Atmospheric monitoring will be performed with a calibrated, bump-tested detector prior to the entry, continuously throughout the entry, and recorded at a minimum of every 20 minutes throughout the entry to ensure there is clean respirable air being delivered to the entrant.

Sufficient ventilation will be supplied to maintain a positive pressure inside the station to minimize the infiltration of gases into the station. The ventilation equipment will result in a minimum of 20 air exchanges per hour (ACPH) in the space to ensure clean respirable air to the entrant.

The maximum volume in this grouping of spaces is 49 m3. The minimum ventilation of 20 ACPH can be achieved with a blower capacity of 575 cfm (16 cmm).

The ventilation system will be placed upwind of the entry point and away from roads to reduce the chances of re-circulation of purged air or pick up of vehicle exhaust. Any equipment (generators) that could generate exhaust will also be positioned down wind of the space.

A Traffic Safety Zone will be set up as required to protect workers and ensure no vehicle exhaust is inadvertently blown into the space.

Work will be done during low-flow periods wherever possible.

Inoculations against biohazardous diseases will be offered to workers.

Rescue drills will be performed annually for each type of space.

Equipment to be in place during the entry include:

* Ventilation providing 20 Air Changes per Hour in the space – pre-entry and continuous
* Atmospheric Monitoring with four-gas detector, monitoring for H2S, CO, O2 and LEL: pre-entry and continuous
* Fall Protection / Rescue – Tripod & Type 3 SRL with winch
* Intrinsically safe lighting if required
* Personal Protective Equipment:
  + Full-face Mask respirator with Organic Vapour/Acid Gas/P100 combination cartridges
  + CSA Waterproof steel-toed boots
  + Impervious rubber gloves
  + Coveralls for entries above the wet well
  + Tyvek Suits for entries into the wet well
  + Hearing protection as required
* All equipment will be inspected prior to entry.

1. The Joint Occupational Health and Safety Committee representative for Public Works, Lincoln Ferguson, was involved in the development of these procedures as one of the Qualified Persons. Workers will be informed of the Alternative Measures to be taken for entry during toolbox talks, drills and at the pre-entry tailboard meeting prior to performing work in the lift station.
2. Supervision of the Confined Space work will be performed by the responsible supervisor in charge of the entry. This person will be stationed at the entrance to the confined space for the entire duration of the entry.
3. This submission is proposing that the Alternative Measures be in place for three years.

We look forward to discussing this submission with you in the near future.

Yours truly,

**VILLAGE OF PEMBERTON**



Wendy Olsson

Human Resources Coordinator