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SEWAGE DISPOSAL UPDATE: SUMPS FOR SEWAGE OUTFALLS AT CAM-3, FOX-3, DYE-M, AND BAF-3 ADDENDUM

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CHANGE HISTORY

This sheet is a record of each issue of this document. When the revised document is issued, the previous issue is automatically superseded.

Revision	Date	Author	Pages Changed	Reason for Change
1	13-Jul-2018	W. Wyman	All	Initial Document Release

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1.0 INTRODUCTION

This addendum has been prepared by Raytheon Canada Limited (RCL) for the Department of National Defence, North Warning System Office, in order to meet the requirements of the licence issued 08 June 2018 8BC-FOD1828 Type "B" item D2.

In this licence, a sewage outfall sump is a structure or depression that collects, controls, and filters liquid Waste before it is released to the environment. This structure should be designed to prevent erosion while allowing percolation of liquid Waste.

As of the acceptance of this addendum, the document entitled "Sewage Disposal Update: Sumps for Sewage Outfalls at CAM-3, FOX-3, DYE-M, and BAF-3" is to be read with the following updates:

1. The sewage sump detailed on page 3 was constructed in August 2010; and
2. It has been identified that the sewage is outfall sump too small for the volume of the waste water holding tanks. A project is in the design phase for the replacement of the sewage sump at FOX-3 with a larger sump. The NWB will be notified in writing at least sixty (60) days prior to the beginning of the modifications as per the licence item F.1.a.

2.0 OPERATION AND MAINTENANCE

Sewage (blackwater) and greywater are combined in the sewage system. The sewage system comprises a sump, holding tank, and masticating pump within the building train. Sewage is not discharged daily. When the septic tank nears or reaches capacity, the sewage is discharged out the sewage outfall pipe to the receiving sump.

Up to 10 m³ is discharged from two to five times a year, depending on the number of people that have visited the site.

The sewage sump will be inspected daily when in use.

2.1 Normal Operation

If greater than 5 cm of sludge has accumulated in the bottom of the sump, it will be removed by completing the following:

1. The sludge will be containerized and dried;
2. The sludge will be sampled using Method 1311 Toxicity Characteristic Leaching Procedure (TCLP) Test, US EPA or Leachate Extraction Procedure 164-GP-1-MP Canadian General Standards Board for the criteria listed in Appendix 1; and
3. The sludge will be shipped for disposal either:
 - a. As waste HAZMAT shipped to a licenced disposal facility if the sludge exceeds the criteria stated in Appendix 1; or
 - b. As non-HAZMAT waste if the sludge is less than the criteria stated in Appendix 1.

2.2 Sump Not Draining

If the sump is retaining water and not allowing liquids to percolate, the following steps will be completed:

1. the sump will be pumped out greater than 31 m from the high water mark of any water body;
2. a sample of the effluent will be taken from the discharge point and sent to a CALA accredited Laboratory to be analyzed for the parameters listed in Appendix 2.
3. The sludge will be containerized and dried;

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4. The sludge will be sampled using Method 1311 Toxicity Characteristic Leaching Procedure (TCLP) Test, US EPA or Leachate Extraction Procedure 164-GP-1-MP Canadian General Standards Board for the criteria listed in Appendix 1; and
5. The sludge will be shipped for disposal either:
 - a. As waste HAZMAT shipped to a licenced disposal facility if the sludge exceeds the criteria stated in Appendix 1; or
 - b. As non-HAZMAT waste if the sludge is less than the criteria stated in Appendix 1.

APPENDIX 1 – SLUDGE SAMPLING CRITERIA

Parameter	Concentration (mg/L) ¹	Concentration (mg/kg) ²
Lead (leachable)	5.0	N/A
Mercury (leachable)	0.1	N/A
Chromium (leachable)	5.0	N/A
Cobalt (leachable)	100	N/A
Copper (leachable)	100	N/A
Zinc (leachable)	500	N/A
Hydrocarbons Fraction 1 (C6 to C10)	N/A	210
Hydrocarbons Fraction 2 (C10 to C16)	N/A	150
Hydrocarbons Fraction 3 (C16 to C34)	N/A	1300
Hydrocarbons Fraction 4 (Greater than C34)	N/A	5600

APPENDIX 2 – SEWAGE SAMPLING CRITERIA

Parameter
Biological Oxygen Demand
Total Suspended Solids
Oil and Grease
Faecal Coliforms
pH

¹ Schedule 1 of the GNT Guideline for Hazardous Waste Management, revised October 2017

² Canadian Council of Ministers of the Environment (CCME) Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil, Tier 1 levels of Fine Grain soils for Agricultural use

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