Défense nationale National Defence

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DETAILED REPORT: HEATING GLYCOL SPILL-CFS ALERT, 14 DECEMBER 2014

INTRODUCTION

1. This report is intended to detail the discovery and follow-up actions taken in response to the 14 December 2014 spill of heating glycol (Ethylene Glycol) at Canadian Forces Station (CFS) Alert – Outdoor Utility Area. The outdoor utility area is located between the Supply Warehouse (Building #131) and Main Power Plant (Building #145). This spill was a result of a broken heat recovery pipeline; the broken section of the pipeline has since been repaired.

2. This detailed spill report is submitted as required under the conditions in Part G, Section 4.C of CFS Alert's Nunavut Water Board (NWB) Licence, 3BC-ALT1015 pursuant to the Nunavut Waters and Nunavut Surface Rights Tribunal Act.

3. This spill was reported as required under the Arctic Waters Pollution Prevention Act, Subsection 5(1).

4. This spill was reported as required by the Government of Nunavut's Environmental Protection Act paragraph 5.1(a). The spill was reported to the Northwest Territories/Nunavut (NT/NU) 24-Hour Spill Report Line on 15 December 2014. The spill report reference number is 14-448.

DETAILS

1. Time, date, and location of the spill occurrence.

   a. The spill was discovered at 1000 EST on 14 December 2014. The location of the Outdoor Utility Area is: Latitude 82°29'52"N; Longitude 62°20'50"W, as shown in Figure 1.

2. Amount and type of spilled product.

   a. 600 Litres (estimated) of Inhibited Ethylene Glycol (SR-1) was spilled on to the snow.

3. Root cause(s) of the spill.

   a. Corrosion over time on the copper heat recovery pipeline was the cause of the spill.

4. Measures taken to contain and clean up the spill site.

   a. Upon discovery of the spill, glycol contaminated snow (red discolouration, Figure 2) was removed to access the pipeline and placed into barrels as hazardous waste. The corroded section of heat recovery pipeline (Figure 3) was isolated, removed, and replaced with new piping. Spill absorbing materials were deployed by the HazMat Team to collect the glycol. Clean up materials were collected for proper incineration.

   b. The spill area was 6 square metres (Figure 4).

   c. 400L of glycol contaminated snow was collected into two (2) barrels. The spill area will be monitored by Station Staff during spring melt (June) and inspected by DND in the summer months (June-August).

   d. During the spill event, the outdoor air temperature was -29°C, with the wind chill factor nearing -40°C, providing challenges to conducting outdoor work. The site has since been re-covered by drifting snow (Figure 5).

5. Recurrence prevention.

   a. This spill occurrence was due to corrosion by moisture entering the insulation around the copper piping.

   b. For prevention, DND has raised a project file to have the entire glycol heat recovery pipeline inspected during summer 2015.

6. Summary.

a. A spill of 600 Litres of Ethylene Glycol was discovered on 14 December 2014 at the outdoor utility area located between the Supply Warehouse and Main Power Plant. Actions were taken to contain and clean up the spill site. Contaminated snow was recovered for hazardous waste disposal.

b. The spill was reported to the NT-NU 24-Hour Spill Report Line on 15 December 2014 (Spill# 14-448) by 8 Wing Environmental Management.

c. This spill occurrence was a result of corrosion on the glycol heat recovery pipeline. Proactive actions will be taken to inspect the entire heat recovery pipeline and to monitor the spill site during the summer of 2015.

Report compiled by:

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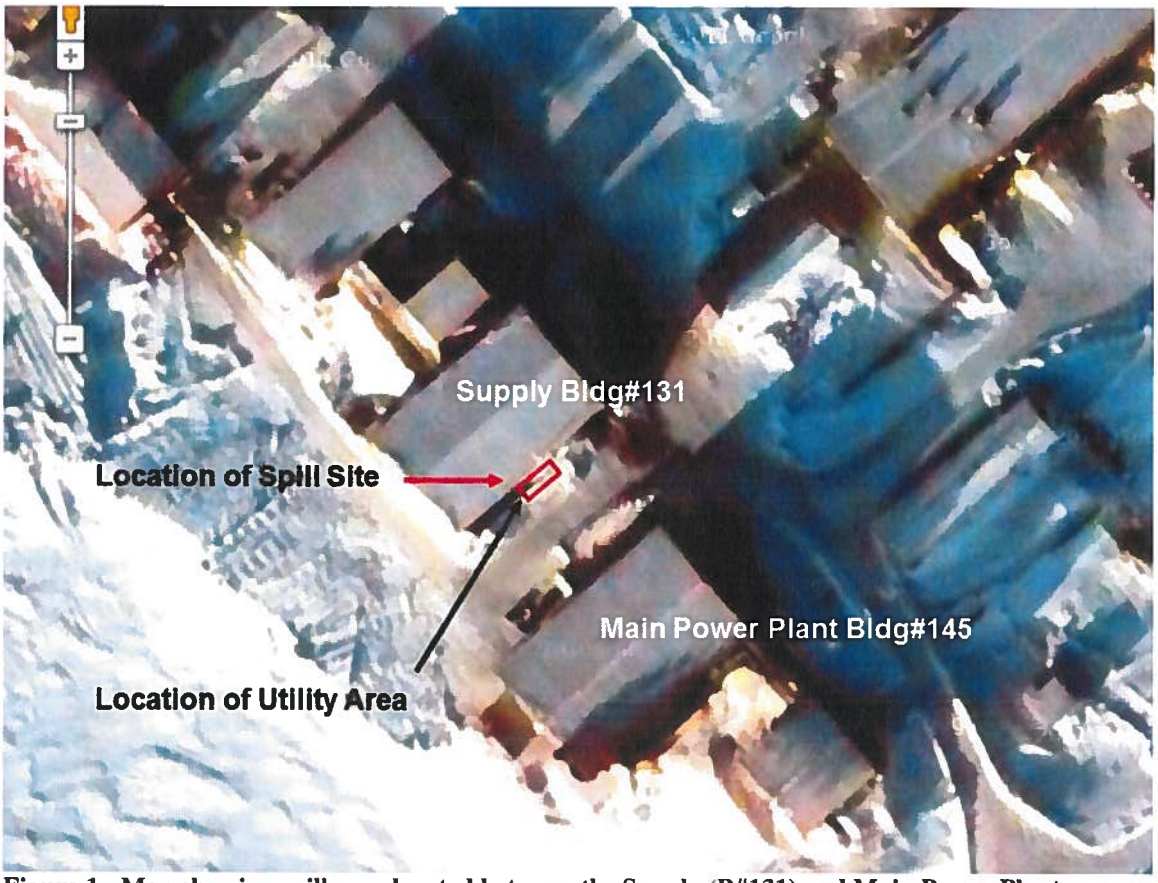

Figure 1 - Map showing spill area located between the Supply (B#131) and Main Power Plant (B#145) Buildings at CFS Alert, Nunavut.

Figure 2 – Photo of the repair effort and glycol contaminated snow at the utility area in CFS Alert (14 December 2014).

Figure 3 – Cause of the glycol spill was due to corrosion of the heat recovery pipeline.

Figure 4 – Photo of the spill area and the glycol heat recovery pipeline (14 December 2014).

Figure 5 – Photo of the spill site as of 30 December 2014.