NWB Tools

Ida Porter <ida.porter@nwb-oen.ca>

Fuel Storage Containment Discharge - 3BC-CAM0919, 3BC-DYE0919, 3BC-FOH0919, 3BC-SHE0919

Wyman,William <william.wyman@raytheon.com> Tue, Feb 19, 2019 at 12:47 PM
To: Dave Baines <dave.baines@nwb-oen.ca>
Cc: Licensing Department <licensing@nwb-oen.ca>, "JEREMY.LAFLAMME@forces.gc.ca" <JEREMY.LAFLAMME@forces.gc.ca>, "Beattie, Don" <don.beattie@raytheon.com>

Hello Mr. Baines,

Thanks for taking the time to talk about berm water sampling on the North Warning System sites.

As background, since the subject licences were issued a great deal of effort has been taken to sample and document that the berm water discharged is within the licence limits. A total of 121 samples of the berm water have been taken, analyzed at a CALA accredited laboratory, the results provided to the Water Resources Officer, and only then the berm water discharged. The laboratory results have been included in each site's annual report every year and are summarized in the attached spreadsheet. Of the 121 samples taken only a limited number had detectible results in criteria related to hydrocarbons, and all of these results were within the discharge limits of the licences.

Criteria	Count of detectible results
Oil and grease	14
Phenols	7
Benzene	0
Toluene	1
Ethylbenzene	1

Laboratory analysis of the berm water is positive in that it ensures the quality of the results however, consideration should also be given to the negative impact of leaving water in the berms increases the corrosion rates of the bulk fuel infrastructure. Laboratory analysis of the berm water has resulted in a maximum of one discharge per year for each berm because:

- the water can only be sampled once the snow begins to melt (June to Aug);
- two of these sites are remote so actually pumping them out requires a return trip; and
- if the sample is taken too late in the year (i.e. early September) then the water in the berm will be frozen by the time the sample results are received and the berm water can be discharged.

The field screening technique that we propose using is outlined in section 3.1 of Annex A4 - Berm Water Sampling QAQC Plan. The information sheet test strips that are proposed in step 1 is attached. We propose a couple steps to avoid false negatives:

1. Monitoring and Reporting. If there is a spill in a berm we propose not completing the field screening, but instead taking a sample and testing for the parameters (and thresholds) listed in the FOX-3 water licence (8BC-FOD1828, Item D.12.);

2. Increase the number of samples. Instead of taking one sample per berm which is appropriate for lab analysis, we propose testing four places per berm with the test strips.

In September 2018, I contacted Environment and Climate Change Canada about the berm water sampling. The correspondence between Ms. Melissa Pinto and myself is attached. Environment and Climate Change Canada has agreed that this approach is reasonable.

Given the past results and the consultation with ECCC we believe that the approach outlined in the submitted plan is reasonable, but if laboratory analysis of the berm water for Benzene, Toluene, and Ethylbenzene is required, we request that it be as a monitoring point and not a condition of discharge.

Please let me know.

Regards,

Will

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From: Dave Baines [mailto:dave.baines@nwb-oen.ca]
Sent: Tuesday, February 12, 2019 5:57 PM
To: Wyman,William <william.wyman@raytheon.com>
Cc: Licensing Department <licensing@nwb-oen.ca>
Subject: [External] Fuel Storage Containment Discharge - 3BC-CAM0919, 3BC-DYE0919, 3BC-FOH0919, 3BC-SHE0919

William,

The NWB notes a request to conduct field screening of water quality prior to discharge to ensure compliance with discharge criteria for fuel storage containment discharge related to Licences 3BC-CAM0919, 3BC-DYE0919, 3BC-FOH0919, 3BC-SHE0919.

The NWB also notes that historical data does not indicate the presence of the analytes listed in the Licence.

Typical NWB discharge criteria for fuel storage containment discharge includes pH, TSS, Oil and Grease, Total Lead, Benzene, Toluene, and Ethlbenzene.

1. Please provide a discussion of suggested field screening techniques that could be used to assess for the typical discharge criteria. Include in the discussion the precision and accuracy of the techniques and risk of false negatives.
2. Should effective field screening not be possible for any criteria, please provide a discussion of alternate methodologies or surrogate criteria. Include in the discussion the strength of the surrogate and risk of false negatives.

Dave Baines MSc EP

Technical Advisor

Nunavut Water Board

867-360-6338 x29

---------- Forwarded message ----------
From: "Pinto, Melissa (EC)" <melissa.pinto@canada.ca>
To: "Wyman,William" <william.wyman@raytheon.com>
Cc:
Bcc:
Date: Tue, 2 Oct 2018 23:26:05 +0000
Subject: [External] RE: Renewal of 5 Nunavut Water Board Licences - Berm Water

Hi William,

I've contacted both our experts and enforcement team regarding your proposed approach. ECCC believes the approach is reasonable.

Please let me know if you have additional questions or need more information.

Thanks,

Melissa Pinto

Senior Environmental Assessment Coordinator
Environmental Protection Operations
Environment and Climate Change Canada, Government of Canada
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From: Wyman,William [mailto:william.wyman@raytheon.com]
Sent: September 27, 2018 1:25 PM
To: Pinto, Melissa (EC)
Subject: Renewal of 5 Nunavut Water Board Licences - Berm Water

Hello Ms. Pinto,

I am drafting the applications for the following licence renewals on behalf of the licensee, the North Warning System Office:

NWS Site	Current Licence	Geographic Location	Region of Nunavut
CAM-M	3BC-CAM0919	Cambridge Bay	Kitikmeot
CAM-3	3BC-SHE0919	Shepherd Bay	Kitikmeot
FOX-M	3BC-FOH0919	Hall Beach	Qikiqtani
DYE-M	3BC-DYE0919	Cape Dyer	Qikiqtani
BAF-3	3BC-BAF0919	Brevoort Island	Qikiqtani

I have not yet submitted the documents for these renewals to the Nunavut Water Board, but I have been in contact with their technical group.

Currently the water licences require water from the Bermed Fuel Storage Facilities to be sampled and analyzed by a CALA accredited laboratory prior to discharge. Since 2014 it has taken up to 32 days between taking a sample and receiving results. The lab results largely show non-detect results or well below the licence limit. The only criteria that was exceeded was the pH, and when the berm was re-sampled it passed. I've compiled all of the lab results from the berm water analysis in the attached spreadsheet.

Sending the sample to the lab means that the berms can only be pumped out at maximum once a year for the following reasons:

- The berm water sample can only be taken once the snow in the berm starts to melt. This year that ranged from late June to August. At DYE-M they could not sample the berms before August, there was an abnormally high amount of snow – Anecdotally, they typically do snow clearing for two weeks and this year it took them two months.
- Three of the sites are remote, so it can be sometime between when the sample is taken and when the staff return to the site to pump out the water.
- If the sample is taken too late in the year, the berm will be frozen by the time that staff return to the sites to pump them out.

I discussed this requirement with Environment and Climate Change Canada (ECCC) Environmental Enforcement Officers during a recent inspection of FOX-M. They recommended that the NWS pursue field screening for sampling the berm water to ensure that the requirements for secondary containment around the bulk fuel tanks be met and to limit the corrosion caused by tanks and piping sitting in water. One ECCC Enforcement Officer also stated that they were familiar with some sites that use hydrocarbon test strips (one in each corner of a berm).

A rough outline of what I propose for the berm water is:

- If there is a known spill in the berm take a sample of the water and send it to the lab, the same as the current process.
- If there is no spill, sample the water with the test strips (photograph the test strips with the colour guide and the tank in the background) – this photo will be provided in each site's annual report.
- If the strip shows any hydrocarbon, take a take a sample of the water and send it to the lab, the same as the current process.

Is this approach reasonable given that we've been sampling the berm water since 2010?

Regards,

Will

William Wyman
Environmental Services Officer
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3 attachments

B+S_Oil_In_Water_Strips_Info_Sheet.pdf
328K

noname.eml
66K

Berm Water Test Results.xlsx
87K