



QA/QC Plan for Sampling from CDL-2 (Final Discharge Point of Sewage Treatment Facility) at CAM-M

Licensee: Department of National Defence,
Government of Canada

Licence: 3BC-CAM0919 Type "B"

Location: CAM-M North Warning System Site,
Cambridge Bay, Victoria Island, Kitikmeot Region, Nunavut

Plan submitted by: Nasittuq Corporation

Date: 26 January 2010

Objective

This QA/QC plan applies to CAM-M's Monitoring Station Number CDL-2, the final discharge point of the Sewage Treatment Facility. It has been prepared to ensure that sampling, sample preservation, and analyses are done in accordance with methods in the current edition of the Standard Methods for the Examination of Water and Wastewater as required by the Nunavut Water Board Water Licence 3BC-CAM0919 Type "B".

Review

This plan shall be reviewed annually by Nasittuq's Environmental Services and will be updated as required. Updated plans will be submitted to the NWB with an approval letter from a laboratory accredited to ISO/IEC Standard 17025.

Feedback

Feedback such as comments, complaints, and suggestions for improvements are to be submitted to: Nasittuq Corp., 100-170 Laurier Ave. W., Ottawa, ON, K1P 5V5, Attention: Supervisor, Environmental Services.

Approval

This plan has been reviewed and accepted.

Original signed by Barb Thomson

26 Jan 2010

Supervisor, Environmental Services
Nasittuq Corp.

Date (dd/mm/yy)

Background

The sewage and greywater at CAM-M is treated by the Cycle-Let advanced tertiary wastewater treatment system. Some of the treated water is recycled as on site urinal/toilet flush water. Excess liquid bypasses the final UV treatment, goes into the disposal tank, and then out a pipe to the designated outfall.

Samples are taken of the excess liquid as it flows into the disposal tank. This sampling point is Monitoring Station Number CDL-2, the final discharge point of the Sewage Treatment Facility. The liquid is adequately represented by single grab samples.

Equipment

The Sewage Testing Kit is a cooler which contains:

- a Chain of Custody form which includes an area for the sample analysis request;
- cold packs; and
- sample bottles

provided by Exova Accutest Laboratories. The sample bottles are listed in the table below. The sample bottles are clean and free of contaminants.

Table 1. Sample bottle requirements

Bottle	Parameters	Sampling	Storage Instructions
2 x 500 ml wide-mouth plastic chem. bottles (no preservative)	General chemistry (pH, BOD, TSS)	Grab	Keep cool. Return to the laboratory within 7 days of sampling.
1 liter amber glass (no preservative)	Oil & Grease (total, mineral, and non-mineral), Visible sheen.	Grab	Keep cool. Return to the laboratory within 7 days of sampling.
3 x 300 ml plastic bacteria bottle with sodium thiosulphate preservative	Faecal coliforms	No rinsing. Be careful not to touch open top of sterile bottle.	Keep cool. Arrange shipping so that laboratory receives sample within 24 hours (48 hours max) from the time of sampling.

Personal Protective Equipment (PPE)

Eye protection (safety glasses or goggles) and disposable gloves are to be worn.



Sample Collection

1. Co-ordinate taking the samples with the air cargo flight schedule to minimize sample storage time.
2. The day before sampling, get the cold packs from the sewage testing kit and place in freezer overnight.
3. The day of sampling, gather these items at CDL-2:
 - a. eye protection (safety glasses or goggles);
 - b. disposable gloves;
 - c. Sewage Testing Kit from Logistics;
 - d. plastic bag (garbage bag is OK);
 - e. isopropyl alcohol and clean cloth; and
 - f. permanent marker.
4. Once liquid has flown for at least 15 minutes into the disposal tank, turn off process pumps 1 and 2.
5. Wash end of white plastic hose with a clean cloth soaked in isopropyl alcohol.
6. Turn on process pumps 1 and 2.
7. Let liquid flow for 1 minute.
8. Put on disposable gloves. Remove caps from bottles.
9. Fill all bottles in kit leaving a little headspace at the top.
 - Note 1: Don't rinse the bottles before collecting the sample.
 - Note 2: Don't touch the open top of the 300 ml sterile bottle (the smallest bottle).
 - Note 3: Be careful to sample from a constant flow of liquid, and don't jar the white plastic hose (any dislodged drops can result in high counts).
10. Cap bottles.
11. With permanent marker, mark each bottle with site, "Cycle-let sample", unique sample #, time, and date.
12. Put bottles in garbage bag and place in cooler. Add cold packs.
13. Complete Chain of Custody form. See attached example. Keep the pink sampler copy. Place the remaining copies in the cooler.
14. Seal cooler with packing tape and air freight as soon as possible to: Exova Accutest Laboratories, 146 Colonnade Rd, Unit 8, Nepean, ON, Tel 613-727-5692. If any delay, keep samples cool (4 degrees C.).

Analyses

Exova Accutest Laboratories is accredited to ISO/IEC Standard 17025. Exova has an established QA/QC program for the analyses required under this water licence (pH, Oil and Grease, Biological Oxygen Demand (BOD5), Total Suspended Solids (TSS), and Faecal Coliforms).

Results

Results are sent to Nasittuq's Supervisor, Environmental Services.



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26 January, 2010

Nasittuq Corporation
100-170 Laurier Ave. W.,
Ottawa, ON,
K1P 5V5

Ms. Barb Thomson
Supervisor, Environmental Services

Re: QA/QC Plan for Sampling from CDL-2, 26 Jan 2010
License Number 3BC-CAM0919 Type "B"
CAM-M, Cambridge Bay, NU

Dear Ms. Barb Thomson,

This letter is to confirm that we accept the QA/QC plan submitted for the project.

We are an ISO17025 accredited laboratory through Canadian Association of Laboratory Accreditation (CALA). We are committed to fulfill the QA/QC requirement outlined in your letter.

Thank you for interested in our analytical services.

Sincerely,

A handwritten signature in black ink, appearing to read "W.Y." or "W. Yu".

Herbert Yu
Quality Assurance Coordinator
Exova Accutest Laboratories