



3AM-ARV1016 Water Reservoir Cell #3

New

 ΔL^{9b}

5/15/2017 11:29:07 AM

from 2017-05-15 to 2038-05-17

from 2017-05-15 to 2038-05-17

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Canada

D^sb_cDⁿ_c: 867-645-8176, P^br^bd_c: 867-645-8141

$\gamma_b \Delta^c \dot{\bar{N}}_{\sigma^b} \wedge c_n d^{\epsilon_b} \sigma^b d_n d^{\epsilon_L} L^a \sigma^b$

Department of Community and Government Services (CGS), Government of Nunavut (GN) retained exp Services Inc. (exp) to prepare the detailed design for the new water treatment facility and an expansion of the community raw water storage. The scope of the exp assignment includes preparation of the schematic design, design development, preparation of detailed construction drawings and preparation of construction documents such as specifications. Early in this design assignment, representatives of CGS and exp met with the Hamlet Council. Several issues were raised by members of Council. • Safe manoeuvring of trucks at the truck-fill facility was viewed to be an important safety concern, both for water truck drivers and community members. • Appropriate arrangements at the truck loading arm to minimize spilled water and the resulting ice accumulation was considered important. • Measures to minimize the impacts of snow-drifting were viewed to be important. The water treatment plant facility will include two pump houses, the reconditioned pump house which will supply water from the existing reservoirs #1 and #2, and a new pump house supplying water from the new reservoir. The facility will also include a treated water storage tank to provide chlorine contact time for disinfection and process wastewater storage tank to collect waste water from the treatment process (backwashing of the filters). The wastewater storage tank will require to be emptied by the Hamlet's sewer trucks. The water treatment plant will have a dual truck fill arm for simultaneous filling of water trucks. The fill rate for the water trucks will result in the trucks being filled in approximately 13 minutes. The water treatment processes that have been incorporated into the design include the following. • Self Cleaning Strainers This step will remove large colloidal contaminants such as dust and larger debris (grass, sand and weed growth). This step makes the next stage (pressure media filters) last longer and be protected from large items that may be picked up by the pumps. • Pressure media filtration This is the main filtering stage that filters down to 5 microns

[illegible]

Personnel on site: 0
Days on site: 0
Total Person days: 0
Period of operation: from 2017-05-15 to 2017-05-15
Proposed term of operation: from 2017-05-15 to 2038-05-17

$$\Lambda \subset \mathbb{N} \triangleleft \mathbb{N} \hookrightarrow \mathbb{D} \sigma \triangleleft \mathbb{Q}^b \supset \mathbb{C}$$

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ᐸᐸᐸᐸ ᐸᐸᐸᐸᐸᐸᐸᐸᐸᐸᐸ	TC #2017-195 Aeronotical Assessment Form for Obstacle Evaluation	Active	2017-03-31	2018-09-30
ᐸᐸᐸᐸ ᐸᐸᐸᐸᐸᐸᐸᐸᐸᐸᐸ	3AM-ARV1016 Ammendment/Renewal Application filed	Applied, Decision Pending		

[illegible]

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ΔL^{9b} ΔD^{9b} CD^{9b} ΔL^{9b} ΔD^{9b}

 $\Delta^b C_d^c$
$$\Delta^b C d \in \mu \sigma \Delta^c \sigma^c$$

$\Delta^{\text{e}}\Gamma_{\text{D}\bar{\text{C}}} \propto \Delta^{\text{b}}\gamma_{\text{CD}} L$

The contractor must adhere to environmental protection procedures during construction of the new reservoir cell, with measures outlined for the disposal of waste, and protecting drainage systems and waterways. Refer to Environmental Procedures Specifications uploaded to environmental impact documents. Excavated material is to be reused for the construction of the cell berms.

$\Lambda \subsetneq \Delta \subseteq \Gamma$ $P \cap \Delta = \emptyset$ $\Delta \cup P \subseteq \Gamma$

$b_{\alpha}c_{\Gamma}A^{\epsilon}\rho D \leq n \cdot b^{d^C} \cdot dD \leq c' \cdot \frac{1}{n} \log \frac{1}{\delta} \cdot \frac{1}{n} \log \frac{1}{\delta} \cdot L^{\kappa^C}$

N/A

$\Delta^{\circ} \text{J}^{\circ} \text{K}^{-1} \text{mol}^{-1}$

- Site will be accessed by Hamlet road adjacent to the current reservoirs and pumphouse. Road is frequently used, by community residents and large water trucks for the delivery of water. - Dust management will be achieved by following speed limits. - Supplies will be brought into Aviat via sealift. - Modular construction of the new water treatment plant is anticipated, taking place in the south prior to shipping. - No additional flights.

 Δ^6

N/A

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- Heavy equipment will be used for construction purposes only. No equipment will remain on site for operation.

AL 96

- Construction of a new water reservoir cell (Cell #3) and new water treatment facility is required. It has been requested from the NWB that the amount of water authorized be increased to 175,000 cubic metres annually to meet the water demands of the community. - The community water source is Wolf Creek. No additional water requirements/consumption are required during project construction. - An overland pipeline supplies water to the two water reservoir cells currently in place, seasonally from July-September.

ΔΛΔ^c ΔD^{9b}CD^{9b}Δ^c Δ^{9b}CD^{9b}Δ^c Δ^{9b}Δ^c

- No wastewater is produced by the new reservoir cell. - Wastewater is produced from the new water treatment plant that will be trucked stored in the wastewater tank and trucked to the community sewage lagoon. Wastewater will be produced from the filter backwashing process, operational drains and online analyzers, and the water treatment plant washroom.

▷ 9b 9b 9b C

- Fuel will be stored onsite of the new water treatment plant for heating and for the back-up generator. The fuel oil storage tank at the new water treatment plant will be 34,870 litres. The day tank located in the building will be 1383 litres. This can be found on drawing M-204. Double walled tanks with 110% containment. The current water treatment plant has fuel stored for the same purposes. - Fuel will be delivered to the new water treatment plant by fuel truck; the same type of fuel truck that is used to deliver fuel to buildings throughout the community. - Diesel is used to operate heavy equipment during construction. The estimated fuel consumption during construction is approximately 110,000 litres. It is not anticipated there will be any on-site storage, and that the contractor will utilize the same fuel delivery trucks.

$\Delta^C C_{\alpha}{}^{96} \supset^{96} C_{\beta}^{\gamma} \Delta_{\epsilon} D^{96} J^{96} J L J^{\epsilon} \supset$

- Calcium hypochlorite (granular chlorine) and fluoride (liquid hydrofluosilicic acid) will be used in the water treatment process. The chlorination room is separate from the rest of the water treatment plant in a ventilated room with its own exterior door. Fluoride is contained within a stand-alone structure (Drawing A-208) for the duration of the reservoir refill, approximately 8-12 weeks during summer months (July-September). - Chlorine and fluoride are currently used at the water treatment plant and reservoir. - Granular chlorine and liquid fluoride are stored off-site within the CGS Maintenance Garage. Chemicals are transported to the water treatment plant via trucks. Containers are secured within secondary containment in the truck bed, with personnel wearing appropriate PPE. WHIMS sheets are located at the CGS Maintenance Garage and the current water treatment plant.

[illegible]

- Construction tender will include standard GN NNI Policy.

$$A \otimes A^c \rightarrow A \otimes B \otimes C \otimes D \otimes E \otimes F \otimes G \otimes H \otimes I \otimes J \otimes K \otimes L \otimes M \otimes N \otimes O \otimes P \otimes Q \otimes R \otimes S \otimes T \otimes U \otimes V \otimes W \otimes X \otimes Y \otimes Z \otimes A^c$$

- Arviat Hamlet Council was consulted in the early planning phase of the water treatment plant and storage expansion (Cell #3) project. Hamlet Council passed a motion (77/17) approving this project.

Δ_α^α L C: $\mathcal{M} \models \varphi \rightarrow \psi$ iff $\mathcal{M} \models \varphi$ and $\mathcal{M} \models \psi$. Δ_α^α L C: $\mathcal{M} \models \varphi$ iff $\mathcal{M} \models \varphi$ and $\mathcal{M} \models \psi$.

- The Hamlet of Arviat requires additional water storage and water treatment to meet the needs of the growing municipality. The municipality is responsible for supplying treated water to residents, with the assistance of CGS. Construction is being managed through CGS. - The existing water reservoir includes two cells adjacent to the road out of town to the north of the community. A third cell with an estimated active volume of 103,427 metres cubed is required to meet the water needs of the community to 2038. Locating the new cell (Cell #3) to the west of Cell #1 will share the western berm of Cell #1, reducing the volume of granular needed to be imported, and avoid exposure to high tides, small ponds, or the

L^ae dēnāc' ḡmΔ'^c-enṽσ^s: meṽc' ḡmΔ'^cσ^s

[illegible][illegible][illegible]

- Further developing the area of the current water reservoir cells and water treatment plant will create a larger impacted area. However, the health needs of the community have to be met and the alternative would be to develop a new area.

Impacts

[illegible]
$$(P = \langle b \rangle \dot{a} \cap \langle a \rangle \dot{b})^c, N = \langle b \rangle \dot{a} \cap \langle c \rangle \dot{a} \dot{b})^c \cap \langle c \rangle \dot{a} \cap \langle b \rangle \dot{c})^c, M = \langle b \rangle \dot{a} \cap \langle c \rangle \dot{a} \dot{b})^c \cap \langle c \rangle \dot{a} \cap \langle b \rangle \dot{c})^c, U = \langle b \rangle \dot{a} \cap \langle c \rangle \dot{a} \dot{b})^c$$

Project Map



