

Project Dashboard

Landfarm, Solid Waste Non-Hazardous Facility, Water and Sewage Treatment Infrastructure

Upgrades, Temporary Camp and Amendment of Water Licence, for the Eureka High Arctic

Weather Station (149476)

Proposal Status: Conformity Determination Issued

Project Overview

Type of application: **New**

Proponent name:	Jean-Philippe Cloutier-Dussault
Company:	Environment Canada

Schedule:

Start Date:	2022-07-01
End Date:	2042-10-31
Operation Type:	Annual

Project Description:

Landfarm Hydrocarbon affected soil has been identified at the Eureka High Arctic Weather Station (HAWS) within the existing runway apron as well as in the vicinity of the existing and proposed future freshwater reservoir site. In order to proceed with upgrades to the runway and Water and Sewage Treatment Infrastructure, a Landfarm is required to treat and store an estimated amount of 4,500-6,000m³ of contaminated soil. The conceptual design of the Landfarm is currently underway with the specific location to be determined this summer 2021. Once the Landfarm is constructed, the contaminated soil will be thinly spread over a low permeable base and left to degrade with regular turning and treatment. When soil contamination is reduced to below guideline levels, depending on recommendations in the Remedial Action Plan, which is currently being prepared for the Eureka site, soils may be left in place, capped in place, used elsewhere on the site or relocated for permanent storage and disposal. Non-Hazardous Solid Waste Facility A new Non-Hazardous Solid Waste Facility (Facility) is required to store waste from the demolition of various structures and infrastructure. The non-hazardous waste stored will be what is remaining after uncontaminated wood waste is burned on site and hazardous waste appropriately containerized and shipped offsite. Further details per the Building Demolition project are provided within application No. 149440 to Nunavut Planning Commission (NPC) submitted on December 18, 2020 with conformity determined and issued on January 22, 2021. The conceptual design of the Facility is currently underway, with the preliminary siting plan having it located southeast of the airstrip. The specific location will be determined this summer 2021. Water and Sewage Treatment Infrastructure Upgrades The project includes the development of a new raw water storage reservoir and associated infrastructure as well as incorporation of the existing raw water storage reservoir. A new packaged wastewater treatment plant will also be constructed, as well as upgrades and conversion of the existing wastewater lagoon to a retention pond. Wastewater discharge piping and overflow will also be upgraded. The overall timing of the upgrades is expected to start in August 2021 and be completed by 2025. In 2021 upgrade activities include obtaining aggregate and preparation of two temporary roads and possible improvements to the existing road depending on aggregate availability. The temporary roads are planned for along the runway as well as approximately 150 m northeast of the station (refer to attached Figures). At this time, it is planned for the construction of a new wastewater treatment plant consisting of three 6m long high-cube shipping containers with peak hour flow capacity of 28m³/day. Once construction is complete, the new packaged wastewater treatment plant will be sea-lifted to site, which may not arrive until 2022. In 2022, site preparation will commence which will include levelling and preparing pads for the areas designated for the new Water and Sewage Treatment infrastructure. Other earthworks will include excavation, placement of granular, compaction and grading including construction of berms. Drains and thermistors will then be installed within the underlying soil for the reservoir. Once this is complete, the sea-lifted packaged wastewater treatment plant can be installed to start treating wastewater which then enables the existing lagoon to be drained. Drained effluent that meets the current Nunavut Water Board limits will be directed to the ocean. Sludge from the existing lagoon will be de-watered for one year within the lagoon, then disposed of onsite at the landfill and buried. In 2023, the construction of the new raw water storage will continue and include installation of sand, drainage piping, a dual liner and geotextiles. As well, pump stations will be positioned, and a raw water storage basin will be filled with water. In 2024, the pump stations

will be connected so water from the existing reservoir can be transferred to the new reservoir. In 2025, inspections will be undertaken, deficiencies repaired and equipment sea-lifted off site. An archaeological assessment will be completed for all potentially impacted areas that haven't been previously assessed. Archaeological assessments will be conducted in spring 2021 in conjunction with other investigations. If any archaeological areas of significance are identified, they will be protected through fencing and an applied setback. A permit to conduct the archaeological assessment will be requested from Crown-Indigenous Relations and Northern Affairs Canada prior to March 31st, 2021. Note that this has been discussed with Sylvie LeBlanc of the Nunavut Department of Culture and Heritage. For water use, Station Creek, Black Top Creek and West Remus Creek are proposed to be used for dust management as well as water use at the temporary camp. When water is pumped, a portable gas powered water pump fitted with a fish screen will be used to pump an estimated 4 m3 per day. This estimate is based on previous camp water consumption and these amounts will be confirmed in spring 2021. Temporary Camp A Temporary Camp for approximately thirty (30) staff will be required for the projects mentioned above. This camp will be installed in a way that will minimize impacts to the environment and will be removed upon completion of the work. Camp facilities will include power generators, fuel storage facilities, garbage disposal containers, heating and cooling units, and necessary appliances and furniture. Amendment of Water Licence As part of this application, an Amendment of the current and Extended Water Licence No. 8B-EUR1621 (Water Licence) is being requested. The current Water Licence allows for water pulling from Station Creek. The request as part of this application is to include an Amendment for the use of Black Top Creek and West Remus Creek as sources of water to support station construction activities and dust suppression. The Water Licence is due to expire on August 10, 2021 with the extension requested per application No. 149440. Due to the limited time for acquiring permits, the extension request was included within this initial application to ensure existing water usage can continue at HAWS.

Personnel:

Persons:	30
Days:	704

Project Map

List of all project geometries:

ID	Geometry	Location Name
7084	polygon	f2021291189053-Eureka_LandReserveBoundary_20210204

Planning Regions:

Kivalliq

Affected Areas and Land Types

Settlement Area

North Baffin Planning Region

Project Land Use and Authorizations

Project Land Use

Permanent Structures

Airport

All-Weather Road Access

Permanent Structures

Site Cleanup/Remediation

Temporary Structures

Winter Access

Licensing Agencies

INAC: Class A Land Use Permit

INAC: Class A Land Use Permit

INAC: Quarry Permit

INAC: Quarry Permit

NWB: Type B Licence

NWB: Type B Licence

CH: Archaeology and Paleontology Research Permit, Class II

Other Licensing Requirements

No data found.

Material Use

Equipment

Type	Quantity	Size	Use
Excavator	tbd	various	Load borrow material
Rock trucks	tbd	various	Aggregate transport
Bulldozer	tbd	various	Grading and fill spreading
Vibratory roller	tbd	various	Compact the soils
Grader	tbd	various	Grading of granular material
Loader	tbd	various	Load borrow material
All Terrain Vehicle (ATV)	tbd	various	Crew Transportation
Side by Sides	tbd	various	Crew Transportation
Pick Up Truck	tbd	various	Crew Transportation
Bobcat	tbd	various	Liner installation
Loader	tbd	various	Excavation of granular material
Excavator	tbd	various	Removal and transportation of granular material
Dump Truck	tbd	various	Transportation of granular material
Bulldozer	tbd	various	Removal and transportation of granular material
Small Loader	tbd	various	Excavation of granular material
Till Handler	tbd	various	Removal of granular material
Bobcat	tbd	various	Transportation of granular material
Backhoe	tbd	various	Excavation/digging of granular material
Generator	tbd	various	Temporary camp operations

Tractor and Trailer	tbd	various	Movement of equipment
Snowblower	tbd	various	Snow Removal
Snowmachine	tbd	various	Crew Transportation

Fuel Use

Type	Container(s)	Capacity	UOM	Use
Gasoline	7	200	Liters	Fuel for equipment
Gasoline	52	5000	Liters	Excavation equipment
Diesel	8	60000	Liters	Temporary Camp

Hazardous Material and Chemical Use

Type	Container(s)	Capacity	UOM	Use
No records found.				

Water Consumption

Daily Amount (m ³)	Retrieval Method	Retrieval Location
4.5	Pumping from Station Creek, Black Top Creek, and West Remus Creek	Station Creek, Black Top Creek, and West Remus Creek

Waste and Impacts

Environmental Impacts

Air Quality Interactions: Construction activities have the potential to temporarily increase ambient air concentrations of dust (i.e., particulate) and greenhouse gas emissions. Effects: During construction activities, there will be an increase in local airborne particulate (dust) and tailpipe (fuel combustion) emissions from the operation of heavy-duty equipment. The tailpipe emissions will include greenhouse gas emissions and therefore have the potential to contribute to climate change. Mitigation: •Optimize fuel consumption and minimize dust production resulting from vehicle/equipment travel: Employ standard operating procedures for equipment/machinery and ensure that regular maintenance is performed in accordance with good engineering practices or as recommended by suppliers such that the equipment is kept in good operating condition. Other activity-specific mitigation measures will include the use of appropriate exhaust emissions controls such as catalytic converters and diesel particulate filters to mitigate fuel combustion emissions from heavy equipment and vehicles. Additionally, the number of equipment/vehicle movements and travel distances will be optimized to reduce fuel consumption and minimize dust and greenhouse gas emissions. Lowering vehicle speeds on unpaved road surfaces, applying water as well as implementing good road maintenance practices will minimize the potential for road dust emissions. All work will be completed by methods that minimize dust generation from operations. •Reduce dust resulting from construction activities: Execute work using methods to minimize raising dust from construction activities. Implement and maintain dust and particulate control measures as determined necessary by applicable regulations and standards during quarry expansion and in accordance with applicable authorities. The use of oil for dust control is prohibited. Prevent dust from spreading to beyond the immediate work area. A Departmental Representative or designate may stop work at any time when Contractor's control of dusts and particulates is inadequate for worker exposure, or when air quality monitoring indicates that release of fugitive dusts and particulates into the work area equals or exceeds specified levels. If Contractor's dust and particulate control is not sufficient for controlling dusts and particulates into atmosphere, work must be stopped immediately. Contractor must then discuss and implement procedures to resolve the problem. Make all necessary changes to operations prior to resuming work that may cause release of dusts or particulates. Prevent sandblasting and other extraneous materials from contaminating air beyond application area, by providing temporary

enclosures. Cover or wet down dry materials to prevent blowing dust and debris. Provide dust control for temporary roads. Noise Interactions: Construction activities have the potential to temporarily increase ambient noise. Effects: During construction, there will be an increase in noise emissions from heavy-duty construction equipment operation and construction activities. These effects are typical of a construction site, localized, and of a temporary nature. The physiological and ecological impacts of noise on wildlife needs to be considered, acutely loud noises can cause hearing loss in wildlife. Behavior patterns of wildlife may differ from their natural suite of behaviors. Mitigation: •The Project will employ standard operating procedures for equipment/machinery and ensure that regular maintenance is performed. As well, personnel will adhere to conditions outlined in all permits, authorizations and/or approvals. Sediment and soil quality Interactions: Water and Sewage Treatment Infrastructure upgrade activities and the creation of a Landfarm and Non-hazardous Solid Waste Facility have the potential to affect the soil including removal of infrastructure, material handling (loading and dumping); and the refueling of vehicles/equipment. Effects: During construction activities, soil quality is most likely affected as a result of fuel spills and leaks from equipment refueling efforts or otherwise, and from compounds located inside the materials of existing infrastructure. Conduct a complete on-site evaluation of the area to determine exact measures to be taken to protect permafrost. Mitigation: •Prevention of fuel spills/leaks: Refueling of vehicles and equipment to occur in designated areas following all applicable regulations. •Sediment, erosion and drainage control: Effective sediment and erosion control measures will be installed prior to starting work to prevent entry of sediment into watercourses and waterbodies. These measures will be inspected daily and repaired if damaged by construction, precipitation or snowmelt. Sufficient supplies for erosion, sediment and drainage control will be available on site to keep in compliance with federal and territorial fisheries and environmental protection legislation. Aquatic Environment Interactions: Construction activities have the potential to affect the hydrology and water and sediment quality of the site. These activities include, removal of infrastructure, material handling (loading and dumping); and the refueling of vehicles/equipment. Effects: surface water contamination could potentially occur due to leaks/spills that may occur during the re-fuelling of vehicles and construction machinery on site. Mitigation: •Suitable erosion and sediment suppression measures will be implemented to prevent sediment from entering Black Top Creek, Station Creek or other water bodies. Erosion control structures (temporary matting, geotextile silt control filter (curtains) fabric, etc.) are to be used. Vehicles/machinery are to be checked for leakage of lubricants or fuel and are maintained in good working order. Re-fueling should occur in designated areas only. Basic petroleum spill clean-up equipment will be kept on-site. Barriers will be required during extraction of contaminated soils to prevent material from entering surface water, Station Creek or the reservoir. Aquatic Community Interactions: The construction work does not involve direct disturbance of the water bodies. Work projects are isolated from the water bodies, although movement of heavy equipment may increase sediment transport during the summer construction period. Effects: Concerns about sediment loading in nearby water bodies are important to address. Mitigation: •Best practice is to mirror aquatic environment mitigations. Should water pulling be required during the construction period, the most appropriate time of year to do so would be during the freshet period. •All water intake hoses will be equipped with a screen of an appropriate mesh size to ensure fish are not entrained. Water will be withdrawn at a rate such that fish will not become impinged on the screen. •Sediment and erosion control measures will be implemented prior to and maintained during water intake operations to prevent entry of sediment into the water. Vegetation Communities and Species Interactions: Physical damage to vegetation during construction and changes in the soil surface layer, leading to potential soil and permafrost erosion, changes in surface water hydrology and thermokarst. Fugitive dust may also suppress plant growth within a zone around construction zones. Effects: The damage to the vegetation will be equal to the footprint of the demolition, storage and the dust footprint. Mitigation: •Due to the extreme conditions at Eureka, construction will be conducted during the brief summer months. Damage can be reduced by covering the ground, possibly using matting, prior to construction to reduce physical disruption of the soil. Fugitive dust can be suppressed at its source. Additionally, vehicles will remain on pre-established roads/trails. Workers are to be advised of sensitivity of environment and limits of equipment travel will be determined. Wildlife Communities and Species Interactions: Construction activities will occur during the summer, the time that nesting and denning occur for many bird and mammal species. For birds and mammals, the interactions include behavioral changes such as avoidance and/or attraction to the site and changes in the dominant species in areas adjacent to the site. Effects: Effects are unlikely as construction activities will keep to areas of existing buildings and established roads, or will be in areas that have already been previously disturbed. However, minimization of impacts is important as the area in general has the potential for sensitive species migration. Mitigation: •The Wildlife and Wildlife Habitat Management Plan (SLR, 2018) will be followed. •Temporary workers will be informed of station protocols for the control and disposal of food and refuse to ensure that local wildlife is not attracted to the site. •Temporary workers involved with construction activities will be trained to avoid contact with all wildlife and their nests (particularly with species at risk) and to report sightings to a central authority (i.e., supervisors) immediately. Movements of workers in off-hours should also be restricted to ensure nesting sites and denning areas are not disturbed. •Site personnel will use trained wildlife monitors prior to, and during construction to ensure a coordinated, appropriate response to wildlife sightings and to ensure protection of local species during construction. •In the event that SARA listed birds or mammals are located in the area, construction crews will be prepared to modify, or delay, activity that might harm the protected species. For example, if nests with eggs are located for a protected species, activity in the area might be delayed until after hatching.

Waste Management

Waste Type	Quantity Generated	Treatment Method	Disposal Method
Greywater	9000 cubic metres / year	Sewage lagoon sedimentation	Decant into Slidre Fjord
Greywater	35,000 gallons	Not Applicable	Contained in holding tanks and released to the environment pending receipt of acceptable weekly lab test results. Kitchen will be provided with grease traps.
Overburden (organic soil, waste material, tailings)	40,000 litres	Ashes deposited in non-hazardous waste facility and capped	Food Waste and Paper Waste from Temporary Camp Activities - Incinerated
Combustible wastes	5000 lbs	Not Applicable	Incinerated on site Temporary Camp Activities - Pacto toilets
Sewage (human waste)	4500 lbs	Residual ash waste from incinerator 400 lbs	will be provided to handle black water waste which will be incinerated on site
Overburden (organic soil, waste	tbd	Not Applicable	Non-Hazardous Solid Waste, to be

material, tailings)			disposed on-site in non- hazardous waste facility
Overburden (organic soil, waste material, tailings)	30 cubic metres	Not Applicable	Water and Sewage Treatment Upgrades - Solid Sludge to be disposed on-site in non- hazardous waste facility
Overburden (organic soil, waste material, tailings)	1.5 cubic metres	Not Applicable	Water and Sewage Treatment Upgrades - Solids Sludge per year during operations. To be disposed on site in non- hazardous waste facility