

The screenshot shows a web browser window with the address bar displaying 'yesabregistry.ca'. The browser's tab bar contains several tabs: 'YEC-Senior Mgmt...', 'Charter: Client Portal', 'YESAB Registry', 'YEC-RP Shared Docs', 'MASTER 2023 Depa...', 'Ensero - WRGS Rel...', 'IG-MGS relicensing', and 'WRGS Swim Lane S...'. The main content area of the browser is the YESAB website, which features a dark blue header with the YESAB logo and navigation links. A modal window is overlaid on the page, titled 'Notice update – August 26, 2024'. The modal contains the following text:

YESAB and its Designated Offices continue to process a record number of active assessments, many of which present a new level of complexity.

As a result, and for the time being, YESAB may not always be able to complete Designated Office Evaluation stages within the timelines outlined in YESAB's [Rules for Evaluations Conducted by Designated Offices](#). Extensions at all stages of assessment should be expected and project proposals may be unassigned until staff are able to commence assessment work on that project.

As an organization, YESAB has engaged with the Government of Canada to discuss solutions required for the current challenges the organization faces. YESAB is now reviewing its processes with an eye to implementing changes aimed at improving the timeliness and effectiveness of the assessment process.

This message will be reviewed and updated by September 30, 2024. For inquiries on this matter, please contact YESAB's Senior Communication Officer at javina.mulchandani@yesab.ca.

At the bottom of the modal, there is a checkbox labeled 'Please don't show me this message again' and an 'Ok' button. The background of the website is partially visible, showing a search bar, filter options, and a list of projects.

August 28, 2024

Adequacy Review started [Show Less](#)

The Designated Office acknowledges that, pursuant to Rules 12 to 15, the Adequacy Review for this project should be made on or before September 26, 2024. However, YESAB and its Designated Offices continue to process a record number of active assessments, many of which present a new level of complexity.

As a result, and for the time being, YESAB may not always be able to complete Designated Office Evaluation stages within the timelines outlined in YESAB's *Rules for Evaluations Conducted by Designated Offices*. Extensions at all stages of assessment should be expected and project proposals may be unassigned until staff are able to commence assessment work on that project.

As soon as operationally feasible, an assessor will be assigned to review this project proposal and will notify the Proponent whether it is adequate or whether additional information is required.

Please note that due to the limitations of the YOR, we are extending this deadline for an additional period until December 27, 2024. However, this deadline will continue to be extended until such time an assessor is available and assigned to the project.

The screenshot shows a web browser window displaying the YESAB Registry website. A central white pop-up box titled "Notice update – September 26, 2024" is overlaid on the page. The background shows a sidebar with project listings and a map of Yukon with various project locations marked. The Windows taskbar is visible at the bottom of the screen.

Notice update – September 26, 2024

YESAB has secured resources to review its processes and add strategic positions with a focus on implementing changes aimed at improving the timeliness and effectiveness of the assessment process. Additionally, the implementation of interim process changes has enabled YESAB to successfully process assessments at a rate that roughly matches the number of projects being submitted.

While these are positive developments, we are still facing the challenge of addressing the existing backlog of submitted projects. Working through the backlog will continue to cause some delays in completing Designated Office Evaluation stages within the timelines outlined in [Rules for Evaluations Conducted by Designated Offices](#). As a result, extensions to all stages of Designated Office assessments continue.

We remain committed to addressing these challenges and improving the assessment process as we continue working towards fulfilling our purpose of conducting neutral, timely, efficient and effective environmental and socio-economic assessments in the Yukon.

Further updates and opportunities to engage with YESAB will be provided.

This message will be reviewed and updated by November 30, 2024. For inquiries on this matter, please contact YESAB's Senior Communication Officer at launa.mulchandani@yesab.ca

Please don't show me this message again OK

Part 1 — Proponent Contact Information

Proponent's Name

Yukon Energy Corporation

Project Title

Mayo Secondary Thermal Capacity Expansion

Mailing Address

Street Address or P.O. Box

Box 5920

City/Town/Village

Whitehorse

Territory/Province

Yukon

Postal Code

Y1A6S7

Country

Canada

Contact

Are you the primary contact person for this assessment?

- Yes
 No

Contact Person

Lindsay Rear

Phone

8673349133

Email

lindsay.rear@yec.yk.ca

If you are working on behalf of the proponent as an agent, the project's proponent must sign an agent consent form to give you permission to act on their behalf.

- Yes, I'm an agent

Part 2 – Requirement For An Evaluation Under YESAA

Specify the Parts and Item numbers from [Schedule 1 of the Regulations](#) * which apply to your proposed project.

* Assessable Activities, Exceptions and Executive Committee Projects Regulations

Part

4. Energy and Telecommunications

View [Schedule 1 of the Regulations](#) to determine which Part(s) your project qualifies for. The Item and Proposed Activities numbers can also be found here.

Item

2b

Proposed Activity(s)

Operation of a fossil fuel-fired electrical generating station

Specify which of the following circumstances apply to your proposed project. (Check all applicable)

- Proponent applied or intends to apply for funding from Housing, Infrastructure and Communities Canada.
- Proponent intends to work in or near a waterbody (i.e. within 30 m of the high water mark of a waterbody) and the waterbody is navigable. (To determine if a waterbody is navigable, please refer to Transport Canada's assessment tool found [here](#).)
- Proponent is a federal agency or federal independent regulatory agency

Name of Agency:

- Proponent is a territorial agency, municipal government, territorial independent regulatory agency or first nation and an authorization or the grant of an interest in land would be required for the project to be undertaken by a private individual.

Proponent requires an authorization or the grant of an interest in land to undertake the project from (list all applicable):

Select agency type:

a territorial government agency

Agency (Department)

Environment

Authorization (describe)

Air Emissions Permit

Part 3 – Project Location

Latitude and Longitude of proposed project



Coordinates	Current format: 61.1063
Latitude	<input type="text" value="63.6541"/>
Longitude	<input type="text" value="-135.9112"/>

Assessment District
Mayo

First Nation Traditional Territory
First Nation of Na-Cho Nyäk Dun

Settlement Land
No Settlement Land

Watersheds and Drainage Regions
Yukon River Drainage Area, Stewart, Upper Stewart

NTS Map Sheet Numbers
105M12

Regional Land Use Plans
No Land Use Plans

Communities within Project Boundary
No Communities

Closest Communities
Mayo: 7.2 km

Part 4 — Project Location and Details

- I would like to provide project details using the online project proposal form
- I would prefer to upload project documents that include all of the required information

Describe the purpose of the proposed project.

This project is an **expansion to the Mayo Secondary Thermal Generation Project** to permit total installed thermal capacity, including generation expected to be used in an emergency. This is consistent with direction received from the regulator under the Air Emissions Regulations of the Environment Act (Yukon) and provides for additional generation capacity on the Yukon Integrated System (YIS).

The Yukon Energy Corporation (Yukon Energy) is applying under Parts 6 and 9 of the Environment Act (RSY 2002, c. 76) and Part V of the Air Emissions Regulations (YOIC 1998/207) for an amendment of **Air Emissions Permit No. 60-010-05** authorizing Yukon Energy to modify the thermal generating component (the Project) of its Mayo Secondary Thermal (the Site).

Yukon Energy seeks an amendment of the current permit (diesel generation of 4.9 MW) to allow for the addition of up to 4.1 MW of additional operational capacity (to a maximum total of 9 MW) for the diesel electricity generators located at the site, including continued burning and storage of diesel fuel up to 150,000 L (existing **Fuel Storage Tank operating permit 2023-47**). The site is currently permitted and operating at a capacity of up to 4.9 MW and was previously assessed for a total fuel storage capacity of 150,000 L (YOR #2023-0090). There are no changes anticipated for the quantity of fuel storage on site.

The backbone of Yukon Energy's generation resources is three hydro-electric and five thermal generation resources (diesel- and natural gas-fired) that, when connected with our transmission, form the electric grid of the YIS. Historically, Yukon Energy has met over 90% of the Yukon's electricity needs with generation from our renewable hydro-electric facilities. The hydroelectricity Yukon Energy generates keeps the Yukon's electricity system stable, reliable, renewable, and inexpensive compared to other jurisdictions across northern Canada. In the winter, the Yukon's peak electricity demand is over twice as high as in the summer and we supplement the hydro-electric generation with thermal generation to meet winter demand. Having access to winter dispatchable diesel generators ensures that Yukon Energy can continue to provide reliable service in the event of an emergency or extreme weather event in the wintertime.

The main drivers for additional diesel mobile/rental units include load growth from population growth and electrification of space heating and vehicles, additional capacity required to account for lower reliability of the mobile rental generating units, scheduled asset retirements, and delays to other capacity projects (due mostly to supply chain).

The main purpose of this project is to ensure sufficient generation capacity to meet increasing peak winter electricity demands and to have sufficient dispatchable winter capacity when hydro-electric and LNG facilities are otherwise unable to meet current demand for electricity. The Project is currently providing emergency winter capacity from the previous installation of mobile rental diesel generation at the existing site (**YOR #2023-0090**). The Project also provides an additional source of electricity supply close to the community of Mayo in the event of a regional transmission line or local hydro electric generation failure.

The additional 4.1 MW generation capacity is proposed to ensure Yukon Energy can meet peak winter demand for electricity considering the lower reliability of the rental units and in the event of an emergency scenario (e.g. extreme weather or other generation resources are unavailable)

The Yukon Government Environment Branch has directed Yukon Energy to assess and permit all potential capacity on sites throughout the Yukon Territory, including back-up spare generator capacity or capacity intended for emergencies. Thus, this YESAA Designated Office level Project application is for the assessment of the remaining 4.1 MW two (2) units previously installed on the site.

Part 5 — Project Description

Describe all applicable aspects of the planning, construction, operation, ongoing restoration activities, decommissioning and reclamation phases of the proposed project. Upload a Site Plan or Diagram.

Yukon Energy is the Project proponent. The proponent's contact information is provided in the YESAA Designated Office Evaluation Form 1.

Yukon Energy is a publicly owned electrical utility and the main generator and transmitter of electricity in the Yukon. Yukon Energy is owned by the Government of Yukon (YG) through the Yukon Development Corporation (a Crown corporation) and is subject to rate regulation by the Yukon Utilities Board under the Public Utilities Act (RSY 2002, c. 186).

Yukon Energy is incorporated under, and is regulated by, the Business Corporations Act (RSY 2002, c. 20), the Public Utilities Act (RSY 2002, c. 186), and the Yukon Waters Act (SY 2003, c. 19).

Project location and site layout maps are attached.

Yukon Energy previously completed all construction and installation activities of the secondary thermal generation site approximately 7 km north of the Village of Mayo and 4 km north of the Mayo Airport (YESAB YOR #2023-0090). The project is located at the existing Mayo Hydro Generating Station (MGS) and will be primarily used to meet peak demand for electricity. As the Yukon's electricity grid is not connected to neighbouring systems, we cannot rely on electricity imports during peak load periods. On the coldest winter days, when electricity demand peaks, Yukon Energy must be self-sufficient to meet the electricity needs of the territory. The Yukon has a cold climate and electricity is critical to the safety and wellbeing of our customers: as more and more Yukoners depend on electricity to heat their homes in winter, power outages in wintertime are a risk to public safety.

Yukon Energy is working towards meeting the Yukon Government's Our Clean Future target of an average of 93% renewable electricity generation on the Yukon integrated system by 2030. In meeting this target, future demand on diesel for electricity will decrease; however, it will not necessarily reduce the Yukon's need for diesel (or other thermal generation resources) for capacity.

Yukon Energy's diesel plants are operated infrequently and typically only for very short durations under the following specific conditions:

1. The need to meet demand for electricity during those times when hydro-electric and LNG facilities are taken offline for routine maintenance;
2. The need to meet demand for electricity during those times when hydro-electric and LNG facilities are offline as a result of an emergency condition;
3. The need to meet demand for electricity during those times when there is a grid separation (i.e., transmission outage) and electricity from some of our generation resources may not be available;
4. The need to exercise a particular diesel unit as a part of routine maintenance;
5. The need to meet demand for electricity during those times when hydro-electric and LNG facilities are otherwise unable to meet current demand for energy.

While Yukon Energy could operate the generators at Mayo Secondary for the five (5) reasons above, generation data from the previous 2023/2024 winter provided in the attachment demonstrates that the generators have not been used for an appreciable amount of time (see attached generator usage in days/month).

Project activities to be assessed:

- **Construction: None.** See YOR project #2023-0090 for details on original construction, installation, and commissioning of all five (5) rental diesel generating engines and fuel storage tanks. Current authorizations were assessed up to 4.9 MW under the Air Emissions permit 60-010-05, and Fuel Storage Tank operating permit 2023-47 (see attached current authorizations).
- **Operation:** Operation of all previously installed and commissioned EPA Approved Tier 2 Caterpillar 3516C Diesel Generators (specifications attached), up to a maximum operating capacity of 9.0 MW, during peak demand (winter) and during emergencies to complement hydro power and other thermal resources on the Yukon's electrical grid, also known as the YIS. Yukon Energy currently operates the system with up to three (3) of the five (5) generators, for not more generation than 4.9 MW. The proposed project will allow for up to 9 MW of generating capacity; however, without transformation upgrades, the site is also limited structurally to less than the requested assessment capacity.

For Yukon Energy, Operating Capacity refers to the maximum generating threshold, in megawatts (MW), as defined under a thermal generating station's Air Emissions Permit.

For Yukon Energy, Capacity may refer to either the nameplate capacity of a specific generator or the current rated capacity of the unit (whichever is less). The term may also be used to describe the overall installed or available generating capacity of the station, which would be the sum of nameplate or rated capacity of the individual units installed at the facility.

- **Operational Resources:** Existing Yukon Energy staff in Mayo operate the units as required; additional local hiring for on-call operators was advertised in fall 2023 and will be considered for the 2024 winter season. The units are connected to Yukon Energy's SCADA system and configured to operate remotely, as required.
- **Scope:** At this time it is unclear for how long the generation capacity at this location will be required. As such, the temporal scope of the project was established as ten years. As per a previous commitment, Yukon Energy re-engaged with FNNND and the Village of Mayo in spring 2024 to report how this generation capacity was used during winter 2023-24 (see attached generator usage in days/month).
- **Fuels:** Storage of diesel fuel with two existing portable double-walled 75,000 litre storage tanks. The tanks include secondary containment and continuous monitoring to detect a loss in pressure, and recovery system. The estimated winter period average fuel requirement is for less than 1 B-train truck load (~62,000 litres) per week between December and April. The site is currently permitted and operating at a total fuel storage capacity of 150,000 L. There are no changes anticipated for the quantity of fuel storage on site or fuel system.
- **Decommissioning/closure:** The units will be seasonally decommissioned until such time as they are no longer needed on the YIS. Depending on the engine supplier's needs the units may be relocated offsite for use with other customers during the non-winter period or left in place for use the following winter.

Part 6 — Existing Environmental and Socio-economic Conditions

Describe the environmental conditions in and around the project area including land, water, air, vegetation, wildlife, fish etc.

The project is located within the Yukon Plateau North ecoregion of the Boreal Cordillera ecozone. Moist sites are dominated by black spruce with moss or lichen understory, while white spruce, aspen and/or lodge pole pine are found in more well-drained sites. Mixed canopy forests are common due to frequent forest fires. Willows, sedges and aquatic vegetation dominate the margins of small lakes and wetlands (YESAB, 2020).

The Project area is located adjacent to the Mayo River, which flows into the Stewart River. The Project site is located approximately 175 m east of the Mayo River. Peak discharge into the Stewart River watershed occurs in May to June, from snowmelt. Water levels tend to peak between mid May to the end of June.

The Mayo River is prominent spawning habitat for Chinook salmon; however, most fish do not reach further upstream on the Stewart River than Fraser Falls. Lake trout spawn in September in lakes including Mayo Lake, Janet Lake, and Minto Lake. Fish species that are found in the Mayo area include arctic grayling, northern pike, longnose sucker, lake chub, burbot, and slimy sculpin (EDI, 2009).

Mammal species known to occur in this ecoregion include, but are not limited to, grizzly and black bears, woodland caribou, moose, wolverine, marten, wolf, lynx, red fox, beavers, and other small mammals. This ecoregion also provides breeding habitat for a number of raptors, songbirds, forest birds, and waterfowl. A wildlife key area overlies the Project area, for raptor reproduction (birth, nest) for the summer (June to August; GeoYukon) (YESAB, 2020).

Describe the socio-economic conditions and the extent to which people use, work, recreate or travel through the project area.

The Project is located approximately 5.6 km north of the Village of Mayo, along the Silver Trail Highway. The Project site is also that of the Mayo Hydroelectric Generating Facility, which has been in operation for over 70 years. The Village of Mayo is located at the confluence of the Mayo and Stewart rivers. The Village of Mayo and the Project are located within the Traditional Territory of the First Nation of Na-Cho Nyäk Dun. The average population of the community of Mayo is 450. The economy of Mayo is focussed on providing services to the community and surrounding area. Government services, including First Nation and territorial, make up half of the jobs in the village. The Project is located outside of the community and municipal boundaries of Mayo.

Placer mining, exploration, and mining are prevalent in the area (Village of Mayo, 2023). The majority of placer mining in the area occurs in the Minto Creek, Duncan Creek, and Davidson Creek areas. These creeks all flow into Mayo River or Mayo Lake, as they are part of the Mayo River watershed.

The Project overlies Trapping Concession 84 and 407, and Outfitting Concession 7. Based on a desktop review, using the GeoYukon digital map database, there are no designated historic sites, heritage routes, or heritage sites located within the Project area, or in proximity.

Part 7 — Environmental and Socio-economic Effects and Mitigations

Describe potential positive and adverse environmental and socio-economic effects of the proposed project. For each potential adverse effect, provide a mitigation to minimize or avoid the effect.

Assessors determine the significance of adverse effects based on specific criteria and the relevant context of the project. Provide your understanding of these criteria and their context as they relate to any adverse effects related to your project or proposed mitigations.

Effect:

VALUED COMPONENT 1 - AQUATIC SPECIES AND HABITAT Potential Effect 1: Deterioration of water quality through operational leaks or spills Degradation of surface water quality resulting from a leak or a spill could impact aquatic species and habitat. It is unlikely that a leak or spill would reach a waterbody as there is no surface connection, unless the spill is large and not contained or not properly remediated. Degradation of groundwater quality resulting from a spill could impact surface water quality if contamination reports to a surface water body. Because the nearest water body (Mayo River) is located approximately 175 m away from the project site, the risk of contamination affecting water quality in a surface water body only exists if a spill is not properly remediated.

Mitigation:

Mitigation: The fuel storage tanks will be installed pursuant to non-discretionary codes and standards including a variety of spill prevention and response measures, such as secondary containment, continuous leak detection, and a recovery system. In addition to non-discretionary legislation respecting fuel storage and handling, Yukon Energy has several Environmental Work Practices that will be strictly adhered to, including the following: • Fuels, lubricants and coolants; • Spill Response; • Spill Prevention; and • Hazardous and special waste management.

Significance:

Residual Effect: With the implementation of the above mitigation measures there are no expected residual effects. Significance: n/a

Effect:

VALUED COMPONENT 2 - TERRESTRIAL SPECIES AND HABITAT Potential Effect 1: Soil/vegetation contamination through operational leaks or spills White the Project site is already disturbed and has been in active use since the original development in the early 1950s, the project does have the potential for soil and vegetation contamination from a fuel, lubricant, or coolant leak or spill. This effect would be localized unless the spill is not properly contained or remediated.

Mitigation:

Mitigation: Design and operational mitigation measures outlined in the previous section apply to this potential effect as well (see VC #1, above).

Significance:

Residual Effect: With the implementation of the above mitigation measures, there are no expected residual effects. Significance: n/a

Effect:

VALUED COMPONENT 2 - TERRESTRIAL SPECIES AND HABITAT Potential Effect 2: Habitat avoidance due to increased site activity during operations. Human activity and associated noise during operation of the Project could result in wildlife avoiding habitats near the Project Site. The project is located within a key wildlife area for raptor reproduction (birth, nest) for the summer (June to August). The project is located on the site of an existing industrial development with frequent daily human activities, including the use of vehicles and other machines continuously year-round. The generators are only expected to operate infrequently in winter (see attached Generator Usage attachment), which does not overlap with critical habitat use by raptors and other birds.

Mitigation:

Mitigation: The site is fenced and not used extensively by wildlife. There is significant suitable habitat for terrestrial wildlife outside the immediate project area for wildlife to utilize. Generator operation will be sporadic during the winter (outside of the raptors nesting period) and generators will be enclosed, dampening noise emissions to some degree.

Significance:

Residual Effect: Some direct site avoidance by wildlife is expected, but not predicted to be significant. Significance: n/a

Effect:

VALUED COMPONENT 3 - HUMAN HEALTH Potential Effect 1: Reduced Ambient Air Quality from Diesel Emissions Diesel generators produce air contaminants in combustion gases, including criteria air contaminants (CACs) such as carbon monoxide (CO), coarse and fine particulate matter (PM10 and PM2.5), nitrogen dioxide (NO2) and sulphur dioxide (SO2). Potential adverse effects on human health include irritation of the eyes and of the respiratory system. In Yukon, the Yukon Ambient Air Quality Standards (YAAQS) are used to determine allowable exposure limits and regulate emission rates (Yukon Government, 2019). Effects on human health result from the cumulative interaction of emissions from Yukon Energy and all other sources or air contaminants (e.g. vehicular traffic, home heating, other industrial activity) in the airshed. Yukon Energy and YESAB have previously assessed the potential effects of diesel generator operations on ambient air quality in Mayo (2023-0090), Faro (2021-0115) and Whitehorse (2011-0241). The Mayo Secondary air dispersion model was recently conducted by WSP (2023) (see attachment) and evaluated the effect of diesel generation capacity of up to 4.9 MW on sensitive receptors closest to the project (Five Mile Campground (800 m) and nearest residence (1,150 m)). The emissions worst-case scenarios modelled considered three (3) simultaneously running generators operating continuously, at maximum load capacity, and with worst-case emission rates. This worst-case scenario is highly conservative as the diesel generators are only expected to operate for a small number of hours per year during the winter season, reducing the likelihood of worst-case emissions from the Project coinciding with worst-case meteorological and dispersion conditions that give rise to the highest predicted values. The CO, PMs, and SO2 predicted concentrations at all receptors are below the current and future YAAQS (or if no Yukon standard, the associated Canadian guideline/objective), and concentrations are all highest at the Project fence line, decreasing rapidly with increasing distance from the source. Conservative modelling results for NO2 indicated a potential for exceedances of the current and future (2025) YAAQS, primarily near the modelled fence line and in the immediate vicinity of the Project. The application further describes conversion methods, which when applied decreased the predicted NO2 concentrations with increased distance from the Project site, reducing the potential of predicted NO2 exceedances at sensitive receptors. The initial air quality assessment at the Mayo Secondary (4.9 MW) indicated no significant impacts on air quality, apart from NOx, which was localized to the Project site fence line. Although the total operating capacity of 9 MW has not been modelled, Yukon Energy has assessed similar diesel units at both Faro (15.5 MW) and Whitehorse (>20 MW). Both Faro and Whitehorse assessments indicated minimal air quality impacts while modelling larger operating capacities with closer residential receptors; the nearest residence or sensitive receptor in Mayo is located farther away from the Project site (greater than 1,000 m) than in the modelled cases of Faro (380 m) or Whitehorse (340 m). The air dispersion models predicted occasional short duration exceedances of the NO2 and PM2.5 YAAQS in localized areas for Faro and Whitehorse, but those facilities include generating capacities that are 3 to 6 times greater than what is being proposed for this Project. As such the potential for significant adverse effects to air quality are considered negligible.

Mitigation:

Mitigation: Yukon Energy's use and reliance on its diesel facilities will be constrained by the terms and conditions of its Air Emissions Permit, as well as the requirements of relevant legislation that applies to the project, including the Environment Act and the Air Emissions Regulations. Compliance with the conditions of the air emissions permit are expected to mitigate the potential for environmental and/or human health effects to result from Yukon Energy's occasional use of the thermal generators installed for this project. Furthermore, as outline in the Project Description, Yukon Energy expects that these units will be near the very bottom of the YIS stacking order for thermal resources with most thermal generation being dispatched nearer the largest load centre, which is Whitehorse. Yukon Energy's operational practices and engineering controls for mitigation of the potential human health and air quality effects include the following: • Generators will be operated and maintained regularly in accordance with manufacturer's specifications; • Ultra low sulphur diesel fuel will be used conforming to the latest Sulphur in Diesel Fuel Regulations; • All associated personnel (employees, contractors or volunteers) will receive appropriate training and wear the appropriate personal protective equipment (PPE); • As older diesel units reach their end of life, Yukon Energy will seek to replace them with units that have the best available emissions technology; and • Yukon Energy will run the generator units at the site in order of highest possible efficiency in the circumstances, except for maintenance or test purposes which will be for short durations. Yukon Energy's use and reliance on its diesel facilities will be constrained by the terms and conditions of its Air Emissions Permit, as well as the requirements of relevant legislation that applies to the project, including the Environment Act and the Air Emissions Regulations.

Significance:

Residual Effect: There is potential for residual adverse effects on air quality. Significance: Direction: Negative. Effects represent a real or potential decrease in quantity, quality or other attributes of the environmental component. Magnitude: Low. Measured or estimated effect results in a noticeable affect to the environmental component (i.e., quantity, quality or other attribute) compared to existing conditions. Effects are within the understood range of natural variation and may require specialized mitigation. In this case the cumulative air emissions in the project area are expected to remain below the Yukon Ambient Air Quality Standards. Geographic Extent: Local. Effect occurs within the Project Study Area. Duration: Long-term. Effect persists for the duration of the Project. Reversibility: Reversible Short-term. Effect can be reversed quickly after the activity ceases. Frequency: Sporadic. Effect that occurs at sporadic or intermittent intervals during any phase of the Project Probability: Possible. Overall Significance determination: Not Significant.

Effect:

VALUED COMPONENT 3 - HUMAN HEALTH Potential Effect 2: Increase in noise levels from diesel generators Elevated noise levels in any environment can lead to annoyance, stress, sleep disruption, decreased ability to concentrate, lowered learning performance, and other adverse health effects in humans (enHealth Council, 2004). For this project noise levels may be elevated for short, infrequent periods during operation, originating from the intermittent use of the diesel generating units and will primarily be noticed through the exhaust system of the unit. The diesel units will be housed in containers that will provide some measure of insulation to reduce noise disturbance. It is possible that noise generated by the Project could disturb local residents specifically if noise is generated outside of normal work hours (i.e., Monday to Friday, 7:00h to 22:00h) or on weekends. Of note, during previous rural community engagements related to relicensing of diesel generators, one public perspective shared was the feelings of safety connected with the sound of diesel generators and the knowledge that power was being generated and available. Yukon Energy and YESAB previously assessed the effect of diesel generators operation on noise levels in Faro (2021-0115). The noise impact assessment (WSP, 2020b) evaluated the change in noise levels for an increased capacity of 15.5 MW compared to the existing sound level in Faro, and found that the increase would be less than 1 dBA at the nearest community receptor (380 m). The nearest residential receptor to the Mayo Secondary diesel generators is 1,150 m). The typical threshold for an increase in sound level that is considered to be "barely perceptible" by the human ear ranges from 1 to 5 dBA (Health Canada, 2011). The operating capacity of the proposed Mayo Secondary expansion (9 MW) is less than the modelled scenario for Faro (15.5 MW) and well below the 42 MW of total thermal generation installed at Whitehorse Rapids, therefore the magnitude of effects on noise levels is expected to be much smaller than in Faro and Whitehorse despite the likely low ambient sound levels in this rural setting. However, because noise levels are measured on a logarithmic scale, and the relative increase due to project activities compared to baseline is smaller when baseline levels are higher, effects in Mayo may not be proportionally less. Baseline noise levels in Mayo are not known, so to ensure conservative effects assessment, this effect is carried forward in the assessment of significance of residual effects. Yukon Energy has also maintained a noise monitoring program at the Whitehorse Rapids Generating Station. Results indicated that at Yukon Energy's Riverside substation near homes on Nisutlin Drive (approx. 250 metres from the diesel plant) noise levels were higher than levels permitted by the British Columbia Oil and Gas Commission (BC OGC) and Health Canada, but that near homes on Bell Crescent (approx. 450 metres from the diesel plant) noise levels were lower than BC OGC and Health Canada guidelines (Hemmera, 2020). The acoustic monitoring program also identified that YEC's older permanent diesel engines installed at Whitehorse Rapids had higher sound levels than the mobile rental diesel engines in use at the station.

Mitigation:

Mitigation: No significant adverse noise effects are predicted, but Yukon Energy will monitor the maintenance of the diesel generators. Generators will be enclosed inside containers and the distance of the noise source to the nearest receptor being greater than 1,000 m combined with the presence of significant forest cover is expected to avoid any significant adverse effects.

Significance:

Residual Effect: There is low potential for residual adverse effects on noise levels. Significance: Direction: Negative. Effects represent a real or potential decrease in quantity, quality or other attributes of the environmental component. Magnitude: Low. Measured or estimated effect results in no noticeable effects to the environmental component (i.e., quantity, quality or other attribute) compared to existing conditions. Effects are within the understood range of natural variation. Effects are predicted to be under thresholds established by the British Columbia Oil and Gas Commission (BC OGC) and Health Canada. Geographic Extent: Local. Effect occurs within the Project Study Area. Duration: Short-term. Effect occurs during relatively short periods of operations (minutes to hours in most cases, with a few days at maximum). Reversibility: Reversible Short-term. Effect can be reversed quickly after the activity ceases. Frequency: Sporadic. Effect that occurs at sporadic or intermittent intervals during any phase of the Project Probability: Possible Overall Significance determination: Not Significant

Effect:

VALUED COMPONENT 4 – RELIABLE ENERGY SUPPLY Potential Effect 1: Increase reliability of energy source As an islanded grid with no connection to another electrical grid, without the project there is a potential for the utility to be unable to meet non-industrial customer demand during winter months potentially resulting in distributed or rolling blackouts. Effects associated with an unreliable or insufficient electrical system in winter can include infrastructure damage due to freezing, operational disruptions to institutions such as hospitals, governments, and schools, as well as local businesses. Human health and wellness effects associated with the ability to provide sufficient heat and lighting during freezing conditions may also occur. As stated in the project description having winter dispatchable diesel generators ensures that Yukon Energy can continue to provide reliable service in the event of an emergency or extreme weather event in the wintertime.

Mitigation:

Mitigation: The Project will support the provision of dependable winter electricity during periods of peak demand or in emergencies when sufficient electricity is otherwise unavailable.

Significance:

Residual Effect: The Project will result in a positive effect on Socio-economic Context in Yukon. Significance: n/a

Part 8 — Additional Information

Provide information respecting any matter a decision body has asked the Designated Office to take into consideration under paragraph 42(1)(i) of the Act.

Additional information or documentation specific to the activity being proposed can also be included in this section as it may assist in evaluating your project proposal.

Information could include:

- Applications for authorizations or permits required to undertake the project.
- Record of any public participation and comment. Include details on people and organizations involved, comments and issues raised and any subsequent changes to project planning.

REFERENCES

enHealth Council. 2004. The Health Effects of Environmental Noise – Other than Hearing Loss.

EDI. 2009. MAYO B PROJECT: FISHERIES AND AQUATIC RESOURCES REPORT VOLUME 1 – REPORT.

Health Canada. 2011. DRAFT: Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise. Environmental Health Bureau, Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.

Hemmera Envirochem Inc. (Hemmera). 2020. Yukon Energy, Whitehorse Rapids Generating Station – Nois Monitoring Assessment. May 22, 2020.

Village of Mayo. 2023. About Mayo. [Site visited April 1, 2023].

WSP. 2020b. Noise Impact Assessment Faro Facility. Yukon Energy Corporation. Final. February 12, 2021.

WSP. 2023. Yukon Energy Mayo Secondary Thermal Generation Project Screening Air Quality Assessment. Final. October 12, 2023.

Yukon Government. 2019. Yukon Ambient Air Quality Standards (YAAQS). Updated October 23, 2019. ENVIRONMENTAL PROTECTION AND ASSESSMENT POLICY.

Yukon Energy Corporation (YEC). 2021. Faro Generating Station Capacity Expansion Project. YESAA Project Proposal Supporting Document. August 2021.

Yukon Environmental and Socio-Economic Assessment Board (YESAB). 2020. Designated Office Evaluation Report Mayo Area Public Gravel Pit Leasing Project. Project Number: 2019-0166.



November 19, 2024

Bryna Cable
Director Environmental Protection & Assessment
Yukon Government, Department of Environment

Submitted via email to bryna.cable@yukon.ca

Subject: Status Update of YESAB Assessments for Thermal Generating Stations

Dear Bryna:

Yukon Energy's thermal generating stations provide critical dependable winter capacity to the Yukon Integrated System (YIS). While ~90% of the electricity Yukoners use each year is renewable hydroelectricity, winter demand is over twice that of summer, so thermal generation is used to meet that need.

Yukon Energy is forecasting higher than average thermal burn for winter 2024/25 for three main reasons:

1. Lower than average inflows into the Aishihik Lake watershed. The Aishihik Generating Station provides the majority of winter generation for the YIS;
2. Reduced generating capacity at Aishihik Generating Station due to a failure of AH1, one of three turbines at AGS, which expected to last the winter season; and
3. In 2023 and early 2024 Whitehorse experienced 2-3 times the typical number of housing starts, and twice the typical number of commercial building permits, increasing winter demand from building heating even more than expected.

In 2024, we submitted five project proposals to YESAB's Designated Offices to assess thermal generation at five generating sites. A summary of the proposals is listed below:

- Three project proposals to assess operations of thermal generating units at existing facilities whose air emissions and fuel storage permits expire December 31st, 2024; and
- Two proposals to assess expansions of thermal generation at existing facilities.

Under the *Designated Office Rules* these assessments are expected to take 3-4 months. In April, YESAB provided written notice through the YESAB Online Registry that they were unlikely to adhere to the

assessment timelines established under the *Rules*. The earliest proposal submission was in May and four of the five proposals remain in either the Adequacy or Evaluation Stages of the YESAB process. The generating stations and their permitted air emissions values are listed in Table 1, below.

Table 1. Status of Thermal Generating Station Project Proposals in YESAB Registry

Generating Station	Amount Under Permit Review (MW)	Permit Expiry	Proposal Submission Date	YESAB Status	YESAB Status Notes
Whitehorse Generating Station	42.2 ¹	31-Dec-2024	3-Jun-2024	3-Recommendation	Recommendation sent on Nov 7
Dawson City Generating Station	7.1	31-Dec-2024	6-May-2024	2-Evaluation	SV&I until Nov 26
Mayo Downtown Generating Station	3	31-Dec-2024	6-May-2024	2-Evaluation	SV&I until Nov 22
Mayo Secondary Generating Station Expansion	4.1	None	5-Nov-2024	1-Adequacy	In Adequacy until Dec 4
Faro Generating Station Expansion	4.9	None	26-Aug-2024	1-Adequacy	In Adequacy until Dec 27
TOTAL	60.3				

¹Includes 13.2 MW of gas and 29 MW of diesel.

Relying on dispatchable thermal generation is critical to ensure Yukon Energy can meet customer demand this winter and reduce risks to public safety and infrastructure. A total of 60.3 MW of thermal generation (of a total 80.7 MW) on the YIS is at risk of not having an active permit either prior to existing permits expiring and/or before the coldest time of the year in January and February 2025. The failure of AH1 increases this risk, so we also continue to explore options to connect additional emergency generation near the Whitehorse load centre to be able to meet demand in the event of a YIS grid-split.

Consistent with direction received, Yukon Energy is working diligently to assess and permit all of our installed thermal generation capacity. This winter, Yukon Energy is anticipating needing to operate thermal generating units this winter that may not have an active permit in order to avoid outages. Consistent with past practice, Yukon Energy will inform the Department of Environment in the event thermal generating units are run without an active air emissions permit or exceed emissions.

Sincerely,



Michael Muller
 Vice-President, Planning, Environment and Health & Safety

Yukon Environmental and Socio-economic Assessment Act

Decision Document

This document meets the decision bodies' requirements as set out in the *Yukon Environmental & Socio-economic Assessment Act*.

Decision Bodies for this Project

Yukon government

Project

Project Name	YEC - Whitehorse Air Emissions Permit Renewal	YESAB File	2024-0103
Proponent Name	Travis Ritchie		
Company Name	Yukon Energy Corporation		

Project Description

The project involves the continued operation and maintenance of the existing Whitehorse Thermal Generating Station, with no change in production capacity. Decommissioning is not contemplated as a project activity. The Project is located in the City of Whitehorse and is within the Traditional Territories of the Kwanlin Dün First Nation and the Ta'an Kwächän Council. Project activities are proposed to occur over a twenty-year period from licensing approval.

- Operation and maintenance of:
 - 3 x 4.4 MW natural gas generators
 - 1 x 3.5 MW diesel generator (Pre-Tier)
 - 1 x 2.7 MW diesel generator (Pre-Tier)
 - 2 x 2.5 MW diesel generator (Pre-Tier)
 - 2 x 2.5 MW diesel generator (EPA Tier 4)
 - 7 x 1.8 MW rental diesel emergency backup generators (EPA Tier 2)
 - Total production capacity is 42 MW
 - No change to total production capacity is proposed
 - Use of previously disturbed land currently owned by the Proponent
- Fuel storage and use
 - Fuel delivered to site by licensed carrier
 - Secondary containment and in some cases tertiary containment
 - Regular visual inspection of tanks
- Spill Contingency Plan
 - Fuel spill kits and materials are readily available onsite
 - Personnel are trained in emergency spill procedures
- 160 000 L permanent diesel fuel storage tank
 - To be modified or replaced to address new connection requirements and code changes.
 - This activity will not increase the facility's production capacity
- 3 x 75 000 L portable diesel fuel storage tanks (for rental generating units)
- 3 x 90 m3 liquid natural gas storage tanks (previously assessed under 2013-0115 and permitted under a different license, therefore operation of these tanks is not within the scope of this assessment)
 - Waste management
 - Special and hazardous waste stored in sealed and labelled containers
 - Domestic wastewater collected in holding tanks and removed by local education truck service provider
 - Monitoring for noise emissions to continue until 2026

Yukon Environmental and Socio-economic Assessment Act

Decision Document

Decision Bodies for this Project

Consolidated Decision Not Applicable

First Nations Consultation

A. Consultation under YESAA section 74 Not Applicable

B. First Nations Consultation - General

The Government of Yukon sent an initial consultation letters to Kwanlin Dün First Nation and the Ta'an Kwäch'än Council on August 6, 2024. No response was received. The Government of Yukon sent Kwanlin Dün First Nation and the Ta'an Kwäch'än Council consultation letters for YESAB's Evaluation Report on November 15, 2024. Kwanlin Dün First Nation responded to this letter via email on November 15, 2024, indicating Kwanlin Dün First Nation had reviewed the Evaluation Report and found that their submission to YESAB on the project was adequately addressed in it. On November 19, 2024, the Ta'an Kwäch'än Council emailed the Government of Yukon regarding the November 15, 2024 letter and followed up with a phone conversation and email regarding a draft variation to term 4 proposed by the Government of Yukon. On November 20, 2024, the Ta'an Kwäch'än Council sent the Government of Yukon a letter discussing the project, proposed variation of term 4, and issuance of the decision document.

YESAB Recommendation

Under s. 56(1)(b) of the *Yukon Environmental and Socio-economic Assessment Act*, the Whitehorse Designated Office recommends to the Decision Bodies that the Project be allowed to proceed, subject to specified terms and conditions. The Designated Office determined that the Project will have significant adverse environmental and socio-economic effects in or outside Yukon that can be mitigated by those terms and conditions.

Decision

Pursuant to section 75 and 80, the Yukon government has considered the assessment of this project and:

- Accepts the recommendation and the terms and conditions as follows:
- Rejects the recommendation and the terms and conditions as follows for the reason(s) specified:
- Varies the recommendation and the terms and conditions as follows for the reason(s) specified:

Rationale for Decision

One term expanded to reflect concerns raised by residents during the assessment.

Yukon Environmental and Socio-economic Assessment Act

Decision Document

Term	Term &	Status	Reason
1	YESAB: 1. The Proponent's air emission permit application shall be subject to a technical review by the regulator. Results of the technical review may require the Proponent to submit an air emissions management plan for review and approval. The management plan should outline appropriate monitoring, mitigation and management actions to reduce, control and mitigate air emissions from the Whitehorse Rapids Thermal Generating Station.	Agree	--
2	YESAB: 2. The Proponent shall design and install an effective noise barrier or other equivalent noise control(s) associated with generators WD4 to WD7.	Agree	--
3	YESAB: 3. The Proponent shall ensure appropriate noise control measures for each rental generator (i.e. silencers/mufflers, acoustic linings or acoustic enclosures) are installed and in good working condition at all times.	Agree	--
4	YESAB: 4. The Proponent shall maintain a Complaint Management System (CMS) and install signage at the Whitehorse Generating Station with contact details for concerns and complaints. The CMS shall include a process for noise monitoring, mitigation measures, and dispute resolution. If ongoing noise complaints are received, the Proponent shall use the established process to work with the community to resolve noise-related concerns resulting from the operation of the Whitehorse Rapids Thermal Generating Station. The Proponent shall share outcomes from the CMS with the regulator as a component of their annual report.	Change	The Complaint Management System should provide an avenue for members of the public to share concerns around both air quality and noise, as these topics were both raised by residents throughout the assessment.
	NEW Term: The Proponent shall maintain a Complaint Management System (CMS) at the Whitehorse generating station for addressing potential noise and or air quality concerns/complaints from members of the public. The CMS shall include all the same elements currently in place at the Faro and Mayo Secondary generating stations. The Proponent shall share outcomes from the CMS with the regulator as a component of their annual report. The proponent shall install signage at the station, in a conspicuous location, with YEC contact details for complaints/concerns.		

Date

Project Recommendation

2024-11-14

Recommendation Received From

Designated Office - Whitehorse

Yukon Environmental and Socio-economic Assessment Act

Decision Document

Authority

By signing below, the Yukon government has exercised its authority as per YESAA section 75 to issue a decision document on this project.

Name Bryna Cable

Position Director - Environmental Protection and

Phone 8676675683

Email bryna.cable@yukon.ca

Signature

Date

Original signed by Environment

Distribution

Project Proponent	Yes
Other Decision Bodies	No
Major Projects Yukon, Executive	Yes
YESAB Designated Office	Yes
YESAB Executive Committee	No
Yukon Surface Rights Board	No
Yukon Water Board	No
Land Use Planning Commission	
Independent Regulatory Agency	
Other Body/Person as Required	

The screenshot shows the YESAB Registry website interface. A central modal window displays a notice update dated November 25, 2024. The notice explains that YESAB has secured resources to review its processes and implement changes to improve the assessment process. It also mentions that interim process changes have enabled YESAB to successfully process assessments at a rate that roughly matches the number of projects being submitted. The notice acknowledges the challenge of addressing the existing backlog of submitted projects and states that working through the backlog will continue to cause some delays in completing Designated Office Evaluation stages within the timelines outlined in the Rules for Evaluations Conducted by Designated Offices. As a result, extensions to all stages of Designated Office assessments continue. The notice expresses commitment to addressing these challenges and improving the assessment process as they continue working towards fulfilling their purpose of conducting neutral, timely, efficient and effective environmental and socio-economic assessments in the Yukon. Further updates and opportunities to engage with YESAB will be provided. The message will be reviewed and updated by January 31, 2025. For inquiries on this matter, please contact YESAB's Senior Communication Officer at lauren.mitchardson@yesab.ca.

Below the notice, there is a checkbox labeled "Please don't show me this message again" and an "OK" button. In the background, a map of the Yukon region is visible with various project locations marked by colored pins. A legend for the map is also present, listing stages such as Pre-submission Engagement, Adequacy, Evaluation / Screening, Recommendation / Report, Decision Document Issued, Final Review, and Reconsideration.

On the left side of the website, there is a search bar and a list of projects. The projects listed include:

- 2024-0188: Copper Hill Road Fuel Abatement Timber Harvest Plan. Government of Yukon, Forest Management Branch. Withdrawing.
- 2024-0187: Placer Mine - Yauyover Creek. Lead Property and Rd Section. Map.
- 2024-0186: Placer Mine - California Creek. Sulphide Processing Ltd. Decision.
- 2024-0185: Placer Mine - No Name Creek Amendment. YEC Inc. Name Submission.
- 2024-0183: Road Creek Winter Road Renewal. Road Section. Name Submission.
- 2024-0182: [Project Name]. Name Submission.

The footer of the website includes links for YESAB.ca, Contact, Terms of Use, Cookies / Privacy, Privacy, and Confidentiality.

YESAB - Project 2024-0177, Extension of Time for Adequacy Review

✉ Email Notification 📅 2024-12-03 Adequacy

Mayo Secondary Thermal Capacity Expansion

Dear Proponent,

The period for determining the adequacy of your project proposal has been extended to February 03, 2025, in accordance with s. 15 of the *Designated Office Rules*. The explanation for this extension is set out below:

The Designated Office is extending the Adequacy Review period for Mayo Secondary Thermal Capacity Expansion to February 3, 2025.

YESAB and the Designated Offices are currently in the process of working through a backlog of projects submitted for assessment by the Designated Offices. Unfortunately, and as a result, an assessor has not yet been assigned to commence the adequacy review for your project. You will be notified, by way of a project note, as soon as an assessor has been assigned to commence the adequacy review for your project.

The Designated Office recognizes that February 3, 2025, is outside of the time periods contemplated by the *Rules for Evaluations Conducted by the Designated Offices*. However, it is necessary given YESAB's current operational realities. Adequacy review is an essential component of ensuing a timely, effective, and efficient assessment process. This extension will enable the Designated Office to fulfill its legislated duties, and meet the overall statutory purposes related to comprehensive, effective and efficient assessments.

If you have any questions related to this Assessment, contact the Mayo Designated Office.

Signed By: Brad Farrow

Mayo Designated Office
PO Box 297
Mayo, Yukon
Toll Free: 867-996-4040 Email: yesab@yesab.ca



Re: Winter 2024/25: Additional work to prevent prolonged outages

From Mayor Bowers <mayor.bowers@faroyukon.ca>

Date Wed 12/4/2024 9:10 AM

To Stephanie Cunha <Stephanie.Cunha@yec.yk.ca>; Faro CAO <cao-faro@faroyukon.ca>

Cc Paul Murchison <Paul.Murchison@yec.yk.ca>; Lisa Wiklund <Lisa.Wiklund@yec.yk.ca>

Thank you Stephanie for the update, I support your efforts to ensure that all of Yukon can have a secure source of electrical power.

Jack

Get [Outlook for iOS](#)

From: Stephanie Cunha <Stephanie.Cunha@yec.yk.ca>

Sent: Wednesday, December 4, 2024 9:00:36 AM

To: Faro CAO <cao-faro@faroyukon.ca>; Mayor Bowers <mayor.bowers@faroyukon.ca>

Cc: Paul Murchison <Paul.Murchison@yec.yk.ca>; Lisa Wiklund <Lisa.Wiklund@yec.yk.ca>

Subject: Winter 2024/25: Additional work to prevent prolonged outages

Hi Mayor Bowers and Larry,

Following up on my voicemails this morning, I wanted to give you both a heads-up about an additional step we are taking later this winter to prevent the potential of prolonged power outages, specifically in southern Yukon where most electricity is consumed.

As you know, one of our three Aishihik hydro units is down for the winter. While we have enough generation here in the Yukon without that generator (thanks to the rentals), we are taking additional steps to prevent a potential prolonged power outage. Those steps include:

- performing maintenance on our other generation resources to prevent potential failures;
- performing preventative maintenance (removing danger trees) on major transmission lines;
- starting the rental diesel generators earlier than we usually would have to make sure they start in cold temperatures;
- using back-up contractors to help us restore power outages more quickly in the event of an emergency;
- re-assessing the location of our existing rental diesel generators to ensure there is enough generation in the north and south in the event the grid is split like it was earlier in the fall; and
- adding infrastructure to our existing generation site in Whitehorse to allow for the potential relocation of rental diesel generators in the event we require additional generation in the south. Currently, around 80% of electricity used in the Yukon is in the Whitehorse region, meaning this is where we need the most generation.

For now, nothing changes in terms of the configuration of rental diesels in Faro (or Mayo for that matter).

Seven rental units have been installed in Faro and remain available to us, along with the existing and new permanent diesel engines, in case they're needed. We expect the additional infrastructure at our Whitehorse plant to be ready sometime in mid to late January. After that work is done, there may come a time before this winter is

over when we will choose to move some rentals out of Faro and/or Mayo to Whitehorse to make sure we have enough power supply in the south. I'll keep you posted on those plans.

With the hydro and thermal generation we currently have and will soon be bringing online in the North in Faro and Callison (Dawson), we have more than enough generation in the north, even if there were to be an issue with the transmission line that connects the rest of the Aishihik Generating Station to the north. We could also curtail mining customers in the north if needed to keep lights on for residents and commercial customers.

I apologize that Paul and I weren't able to share this information when we met on Friday but we first had to let our Board and a number of other internal stakeholders know before we could share that information publicly. That has since happened.

Please don't hesitate to call or email me should you or Council have questions. If I don't hear from you, Happy Holidays and I'll see you on January 14th in Faro.

Stephanie



Stephanie Cunha

Vice President, Partnerships and Business Services

Telephone: 867-393-5333 | Mobile: 867-334-7760



SustainableElectricityCompany™



This message may contain confidential or privileged material. Any use of this information by anyone other than the intended recipient is prohibited. If you have received this message in error, please immediately reply to the sender and delete this information from your computer.

[http://]  Please consider the environment before printing this e-mail

SM-YEC-20141008



December 4, 2024

Dennis Berry
Deputy Minister
Yukon Government, Department of Environment

Submitted via email to dennis.berry@yukon.ca

Subject: Status Update of YESAB Proposals for Thermal Generating Stations

Dear Dennis:

Yukon Energy’s thermal electricity generating stations provide critical dependable winter capacity to the Yukon Integrated System (YIS). In 2024, we submitted five project proposals to YESAB’s Designated Office and one proposal to YESAB’s Executive Committee to assess thermal generation at six generating sites. Following up on our November 19, 2024 letter to Ms. Cable, Director Environmental Protection and Assessment, we are providing you with an update on the status of assessment and regulatory processes and asking for direction to operate these facilities so that there is necessary electricity for Yukoners as temperatures drop and demand increases.

Table 1 provides the generating station capacities, their permit expiry (if applicable), and status of the project proposal according to the YESAB Registry.

Table 1. Status of Thermal Generating Station Project Proposals in YESAB Registry

Generating Station	Permitted Amount (MW)	Permit Expiry	Amount Under Permit Review (MW)	Proposal Submission Date	YESAB Status	YESAB Status Notes
Whitehorse Generating Station	29.3	31-Dec-2024	42.2 ¹	3-Jun-24	3-Recommendation	Decision Document Issued Nov 25
Dawson City Generating Station	7.1	31-Dec-2024	7.1	6-May-24	2-Evaluation	SV&I extended until Dec 6
Mayo Downtown Generating Station	3	31-Dec-2024	3	6-May-24	2-Evaluation	SV&I extended until Dec 6
Mayo Secondary Generating Station	4.9	2026	4.1	5-Nov-24	1-Adequacy	In Adequacy extended until Feb 3, 2025
Faro Generating Station	15.5	2031	4.9	26-Aug-24	1-Adequacy	In Adequacy until Dec 27
Callison Generating Station	0	N/A	6.5 ²	7-Jun-24	6- Screening Report & Recommendation sent	Air emissions permit application in progress

¹Includes 13.2 MW of gas and 29 MW of diesel.

²Initial install planned for winter 2024/25 is 6.5 MW, but total amount under review is 15.5 MW.

Though the Designated Offices of the Yukon Environmental and Socio-economic Assessment Board have legislated timelines for their evaluation process under the *Designated Office Rules*, those timelines have not been adhered to and a total of 67.8 MW of thermal generation on the YIS. This represents 75% of the total thermal generation on the YIS. Yukon Energy will not be able to meet electricity demand without permission to operate the generating units currently in permitting processes.

Yukon Energy will need to operate all thermal generating units this winter. We plan to do the following to ensure we can meet winter demand:

- We expect to commission the Callison Generating Station in January 2025 and an air emissions permit application is in progress. We are looking for direction to be able to operate Callison Generating Station this winter until permitted;
- We are looking for direction to operate under existing air emissions permits at the Whitehorse (60-010-04), Downtown Dawson (60-010-03), and Mayo Downtown (60-010-02) Generating Stations while the assessment and permitting processes to renew these permits is in process;
- We are preparing to relocate four mobile rental generating units (7.2 MW) from the North region to the Whitehorse Generating Station to be used only in the event of an emergency; and
- Consistent with direction received in 2023, we are actively assessing and permitting all of our installed thermal generation capacity, including capacity typically only used in emergencies. Consistent with past practice we will only operate above the active air emissions permit amounts in Whitehorse, Mayo Secondary, and Faro Generating Stations in the event of an emergency and will notify your department immediately.

The above measures are required to ensure the safety of Yukoners this winter. We are asking for clarity from the Department of Environment on requirements for operating necessary generation that is currently in the assessment and permitting process.

Sincerely,



Chris Milner
President and CEO
Yukon Energy



Department of Environment
PO Box 2703 (V-8), Whitehorse, Yukon Y1A 2C6

Chris Milner, President and CEO
Yukon Energy Corporation

Via email: Chris.Milner@yec.yk.ca

December 11, 2024

Dear Mr. Milner,

I am writing in response to your December 4, 2024, letter addressed to Dennis Berry, Deputy Minister, regarding Yukon Energy's (YEC) YESAB proposals for its thermal generating station and YEC's request for direction.

We recognize that YEC provides Yukoners an essential power generation service and that YEC has communicated serious challenges with load capacity and infrastructure that present a safety risk to Yukon communities. We also recognize that YESAB is experiencing capacity issues and has acknowledged that the assessment process is taking longer than in the past.

Your letter seeks direction from Yukon Department of Environment on how to operate a number of thermal generating projects that may soon be out of compliance with the *Environment Act* and the *Air Emissions Regulations*. We cannot officially authorize or direct you to operate any power generating station without a valid air emissions permit. If these projects operate without a valid permit, YEC will be considered in non-compliance with the *Environment Act* and the *Air Emissions Regulations*.

However, Environmental Protection and Assessment Branch (EPA) acknowledges the essential nature of power generation and recognizes that YEC is in the process of working towards compliance by going through the YESAA assessment and permitting processes. For those thermal generating projects that are seeking renewal, but that are out of compliance, EPA requests that YEC continue to operate in accordance with the terms of the existing permits until new permits can be issued. As with any *Environment Act* permit, the obligations included in the existing permit survive the permit's expiry date. For any new projects, should YEC choose to operate prior to the issuance of a permit, YEC should notify Environmental Compliance and Inspections immediately.

.../2

Chris Milner
Page 2
December 11, 2024

Environmental Compliance and Inspections will use their authorized discretion in managing any non-compliance. YEC should expect increased inspections from Environmental Protection Officers at YEC facilities should they become necessary.

Our primary goal is to ensure compliance with the *Environment Act*. EPA recognizes YEC has numerous critical projects moving through assessment and licensing, many of which are struggling to meet critical timelines. As such, EPA will be requesting information on how YEC's assessment and permitting planning framework is adapting to the changing assessment landscape, including longer timelines. This information may inform Environmental Compliance and Inspections' approach to addressing non-compliances like those anticipated in this letter.

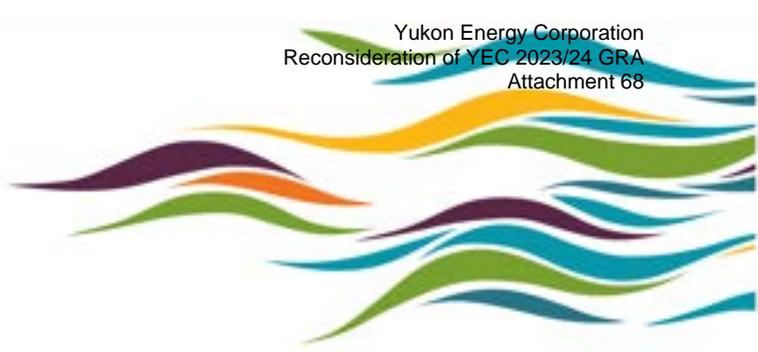
Thank you for your letter and seeking our input ahead of these pressing timelines. We will update you on any developments going forward regarding these projects and permits. If you have questions on the status of any air emissions permit, please do not hesitate to contact me at bryna.cable@yukon.ca.

Sincerely,

A handwritten signature in cursive script that reads "B. Cable".

Bryna Cable, Director, Environmental Protection and Assessment Branch

cc Dennis Berry, Deputy Minister, Department of Environment



December 17, 2024

Yukon Energy Corporation,
2 Miles Canyon Road, Yukon, Y1A 6L4

Dear Chris Milner:

I am writing to you regarding the need to run diesel and LNG generators to meet energy demands during colder weather this winter to support public safety while assessment and permitting processes are underway.

Yukon Energy has numerous critical projects moving through assessment and permitting processes and delays may not allow for some critical generators to operate this winter prior to receiving permits. I am aware that these applications were made months ago, and that Yukon Environmental and Socio-economic Assessment Board (YESAB) is experiencing capacity issues and has acknowledged that the assessment process is taking longer than in the past. Some Yukon Energy permits expire on January 1st, and I understand that you are in various stages of renewal and expect processes to be finalized in some cases after the expiry date.

The Yukon Government recognizes that Yukon Energy provides Yukoners with essential power generation. Given the public safety risk of not having generation available, Yukon Government expects Yukon Energy to operate generators beyond January 1st, as required, to maintain system reliability. Yukon Government also expects that Yukon Energy will continue to be diligent in navigating assessment and regulatory processes and continue regular communication and notifications with the relevant Yukon Government departments while necessary operations are maintained prior to receiving operating permits.

Sincerely,

A handwritten signature in blue ink, appearing to read "John Streicker".

John Streicker
Minister responsible for the Yukon Development Corporation and Yukon Energy Corporation

cc Rod Savoie, Chair, Yukon Energy Corporation Board of Directors
Gary Gazankas, President, Yukon Development Corporation



Permit No: 60-010-04

AIR EMISSIONS PERMIT

Issued Pursuant to the *Environment Act* and
the *Air Emissions Regulations*

Permittee: Yukon Energy Corporation

Mailing Address: #2 Miles Canyon Road, Box 5920, Whitehorse, YT Y1A6S7

Site Location: #2 Miles Canyon Road, Box 5920, Whitehorse, YT Y1A6S7
GPS: 60.698441, -135.045368

Authorized Representative: Travis Ritchie
Phone: (867) 393-5350
Email: travis.ritchie@yec.yk.ca

Effective Date: January 1, 2025
Expiry Date: December 31, 2034

Scope of Authorization: In accordance with your application, you are authorized to operate electricity generating equipment at the above site location (the "site"), **to a maximum production capacity of 42.0 megawatts** as set out in the terms and conditions of this permit.

Dated this 19th day of December, 2024

A handwritten signature in black ink that reads "Bryna Cable".

Bryna Cable
Director, Environmental Protection and Assessment Branch
Department of Environment, Government of Yukon

PART 1: DEFINITIONS

1. In this permit,

“Act” means the *Environment Act*, R.S.Y. 2002, c. 76, as updated from time to time;

“approved plan” means a plan that is submitted by the permittee and approved by an environmental protection analyst under this permit and includes any terms and conditions specified by the environmental protection analyst in the approval;

“associated personnel” means all employees, contractors and volunteers involved in the permitted activities;

“Branch” means the following sections within the Environmental Protection and Assessment Branch, Department of Environment, Government of Yukon: Standards & Approvals; the Environmental Compliance & Inspections Section; and/or the Directorate;

“emission factor” means the mass emission of a pollutant per unit of energy produced in either grams per kilowatt-hour (g/kWh) or kilograms per megawatt-hour (kg/MWh);

“emission rate” means the average rate in grams per second (g/s) or kilograms/hour (kg/h) at which a pollutant is emitted from a source, determined either:

- i) as estimated based on emission factors derived from published literature regarding sources of similar type and age (estimated emission rates); or
- ii) as derived from measured data obtained from manual stack testing carried out by the permittee (measured emission rates);

“environmental protection analyst” means an employee of the Branch so designated by the Minister of Environment under the Act;

“environmental protection officer” means an employee of the Government of Yukon so designated by the Minister of Environment under the Act;

“nameplate capacity” means the maximum amount of energy that can be produced, as indicated on the generator’s nameplate;

“production capacity” means the capacity specified in the Yukon Environmental and Socio-Economic Assessment Board decision document for project 2024-0103;

“Regulations” means the *Air Emissions Regulations*, O.I.C. 1998/207;

“source” means a fuel-fired electricity generator which has a maximum nameplate capacity equal to or more than 1.0 megawatts;

“total annual emissions” means the emissions derived by multiplying emission factors or measured emission rates for each source by the previous three-year average total energy production for that source; and

“YESAA” means Yukon Environment and Socio-economic Assessment Act.

2. Any term not defined in this permit that is defined in the Act or the Regulations has the same meaning as in the Act or the Regulations.

PART 2: GENERAL

1. No condition of this permit limits the applicability of any other law or bylaw.
2. The permittee shall ensure that all activities authorized by this permit occur on property that the permittee has the right to enter upon and use for that purpose.
3. The permittee shall ensure that all associated personnel:
 - a. have access to a copy of this permit;
 - b. are knowledgeable of the terms and conditions of this permit; and
 - c. receive the appropriate training for the purposes of carrying out the requirements of this permit.
4. The permittee shall provide notice in writing to an environmental protection analyst prior to any significant change of circumstances at the site, including without limitation:
 - a. discontinuation of any regulated activity at the site;
 - b. change of ownership of the site or any of the sources; and,
 - c. change to the mailing address or phone number of the permittee.
5. The permittee shall obtain approval from an environmental protection analyst prior to:
 - a. any addition, modification, removal or replacement of any equipment or components related to the release, abatement, control or treatment of air emissions; or,
 - b. any movement of the source(s) offsite.
6. Where conflicts exist between this permit, the permit application or any plans, this permit shall prevail.

7. If an inspection reveals that the site or source(s) is in any way not in compliance with this permit, the permittee shall repair the damage or take other actions as required to bring the site or source(s) into compliance.
8. For clarity, all obligations of the permittee under this permit survive the expiry date to the extent that each is not superseded by one or more conditions in a subsequent permit.

PART 3: OPERATION AND MAINTENANCE

1. The permittee is authorized to operate generators at the site up to a maximum production capacity of 42.0 megawatts.
2. In accordance with the manufacturer's recommendations and best management practices, the permittee shall inspect, maintain and operate the sources, any stand-alone air pollution control equipment, and testing and monitoring equipment as necessary to provide optimum control of air contaminant emissions during all operating periods.
3. Except for maintenance or test purposes, the permittee shall run the sources at each site in order of highest possible efficiency under the circumstances.
4. The permittee shall ensure that the fuel used by the source(s) conforms to the most recent Canadian federal *Sulphur in Diesel Fuel Regulations* for off-road applications.

PART 4: RELEASE OF CONTAMINANTS

1. The visible emissions from any source shall not exceed an opacity of 20% as measured by a qualified professional.
2. In the event that the opacity of emissions from any source exceeds the criterion established in Part 4.1 of this permit, the permittee shall take measures to reduce the opacity of the emissions below that criterion as directed by an environmental protection officer.
3. The permittee shall ensure that particulates collected using emission control equipment are contained so that there is no release of contaminants to the atmosphere or into an open body of water.

4. If ambient air quality monitoring data within the area of influence of the permittee's facility indicates that one or more of Yukon's Ambient Air Quality Standards is being exceeded, and the environmental protection officer is satisfied that the permittee's facility is the cause or a significant contributor to the prevailing ambient air quality condition, the permittee shall undertake such mitigation measures as may be specified by the environmental protection officer to improve the ambient air quality condition.

PART 5: MONITORING EMISSIONS

1. The permittee shall submit to an environmental protection analyst for approval, by June 30 2025, an environmental monitoring plan with three sections identifying:
 - a. An ambient air quality monitoring plan for nitrogen dioxide subject to term 1 of YESAA decision document 2024-0103;
 - b. Noise mitigation measures, including terms 2 and 3 outlined in YESAA decision document 2024-0103; and,
 - c. A complaint management system, as outlined in term 4 of YESAA decision document 2024-0103.
2. The permittee shall carry out any commitments in the approved environmental monitoring plan on a schedule that is approved by the analyst.
3. The permittee shall quantify, through monitoring or calculations based on emissions data and published emissions factors, the levels of volatile organic compounds (VOCs) released in normal operations annually from the liquefied natural gas operations at the site.
4. The permittee shall quantify the fugitive emissions of methane (CH₄) from the point of unloading of the liquefied natural gas into the storage tank to and including any emissions from the generator not emanating from the stack at the site.

PART 6: REPORTING

1. The permittee shall submit to an environmental protection analyst a report which identifies:
 - a. the total annual operating hours for all sources at the site;
 - b. the estimated total annual emissions of sulphur dioxide, fine particulate matter, carbon monoxide, nitrogen dioxide, and nitrous oxide from each source at the site, including the calculation used to determine those results;
 - c. total annual emissions of VOCs as required in Part 5.3 of this permit;
 - d. a summary of the fugitive CH₄ monitoring program including methodology, data, and total fugitive emissions as required in Part 5.4 of this permit; and,

- e. actions taken, results and outcomes of the environmental monitoring plan, by March 31st of each year of this permit for the previous calendar year.

PART 7: UNAUTHORIZED EMISSIONS

1. The permittee shall report to either an environmental protection officer or the 24-hour Yukon Spill Report Centre (**867-667-7244**) as soon as possible under the circumstances in the event of an unauthorized release or emission, such as fugitive emissions or emissions resulting from burning fuel other than that allowed for under this permit.

PART 8: RECORDS

1. The permittee shall keep all records required under this permit in a format acceptable to an environmental protection officer for a minimum of three years and make them available for inspection by an environmental protection officer upon request.
2. The permittee shall keep the following records:
 - a. a copy of each report and approved plans developed under this permit, and any amendments to and approvals (if applicable) of each report and plan;
 - b. summaries of all inspections carried out under this permit (including the name of the person conducting the inspection, the date of each inspection, any observations recorded during the inspection, actions taken as a result of those observations, and the date each action was taken);
 - c. notes concerning any spills, leaks or unauthorized emissions occurring at the site, including substance involved, estimated quantity, date of observation of the spill or leak, spill reports made and clean-up procedures implemented;
 - d. any and all deficiencies remedied in accordance with Part 2.7, and how and when they were remedied; and,
 - e. notes concerning any instance where the most efficient source was not used in accordance with Part 3.3 and the reason for use of the less efficient source.



December 20, 2024

Bryna Cable
Director, Environmental Protection & Assessment
Yukon Government, Department of Environment

By email: bryna.cable@yukon.ca

Subject: Operational Plan for Thermal Generating Stations as of January 1, 2025

Dear Bryna,

Thank you for your letter of December 11, 2024.

Yukon Energy very much appreciates the Environmental Protection and Assessment Branch's (EPA) understanding of the practical reality that we will have to continue to rely to a limited extent on our currently permitted thermal generation facilities in downtown Dawson and Mayo to ensure we can meet customer demand this winter, as described in our December 4th letter to the Deputy Minister, even if the renewals of our air emission permits for those two sites are unavoidably delayed.

We understand that this will be considered non-compliance with the Environment Act and the Air Emissions Regulations. We take this very seriously. Unfortunately, however, given the current status of the assessment and permitting processes – including unanticipated delays in the YESAB assessments for the downtown Dawson and Mayo permit renewals – we simply see no alternative pathway to being able to meet our duty to supply electricity and avoid the unacceptable risk of immediate harm to public health and safety that would result from an outage under cold winter weather conditions.

We believe that we must always put public safety first and foremost.

In the circumstances, we acknowledge that EPA has asked us to continue to operate in accordance with the terms of our existing permits until new permits can be issued, on the understanding that all of Yukon Energy's obligations included in its existing permits will survive their expiry date. We intend to comply with this direction.

We also commit to cooperating fully with any and all efforts by Environmental Compliance and Inspections to manage non-compliance, including any increased inspections by Environmental Protection Officers.

In the meantime, we wish to be fully transparent about how we plan to operate our facilities as of January 1, 2025 to minimize non-compliance to the extent it will be reasonably possible to do so.

In particular, we intend to notify and curtail supply to industrial customers when the Yukon Integrated System (YIS) reaches 85% of existing permitted capacity.

To provide local reliable electricity supply during peak winter loads and avoid unacceptable risks to public safety, we will need to continue to use our diesel generating units in downtown Dawson, even if the Dawson permit renewal is delayed. In doing so, however, our operations will continue to comply with Yukon Energy's obligations under its expired permit for Dawson, until a renewed permit is issued.

We expect that we will be able to curtail any use of the downtown Mayo diesel generating units as of January 1, 2025, until after a renewed permit is issued for that site – except if it becomes necessary to temporarily operate those units to protect public safety in response to emergency conditions.

Should it become necessary under emergency conditions to temporarily operate any of our additional unpermitted diesel generating capacity at the Mayo Secondary or Faro sites in order to protect public safety, we will also report that emergency use immediately to EPA, consistent with permits and our past practice.

During this challenging time, we believe that our plans are as consistent as possible with the directions given in your letter of December 11, 2024, having regard to our assessment of potential risk to public health and safety, and system stability concerns.

We will update Environment Yukon promptly of any change to the plans described in this letter.

Sincerely,

A handwritten signature in black ink, appearing to read "M. Muller", written in a cursive style.

Michael Muller
Vice-President, Planning, Environment and Health & Safety

Additional Time Required to Review the Response to Information Request 1 # 2024-0145-0009

The Designated Office requires additional time to complete the review of the response to the Information Request. As per s. 13(2) of the *Rules for Evaluations Conducted by Designated Offices*, the deadline to complete this review is January 3, 2025. However, due to high project/workload, as well as the timing of the response over the holiday season, the Designated Office is not able to complete the review by this date. The Designated Office will endeavor to complete the information review as soon as possible.

Response to YESAB Information Request #2 (2024-0145)

IR2.01

In your response to IR-1 question 5, which asks if the proposed generators FD8, FD9 and YM26 were currently installed, you responded “Generating units FD8, FD9, and YM26 are now installed at the site.” Please clarify if these generators have been used operationally.

Yukon Energy Response:

Yukon Energy holds an active air emissions permit (60-010-01) that expires on December 31, 2031, and permits the use of diesel generation for up to 15.5 MW. As such, any combination of available units at the site may be used up to this operating limit. At this time FD8 and FD9 are still in commissioning and have only been used for related testing. Neither unit has been used operationally, whereas YM26 has been used operationally.

IR2.02

In your response to IR-1 question 6, which seeks a clarification on nameplate and operational capacities of existing and proposed generators, you provided Table 3-1 with those capacities. Adding the capacities of all ten generators, from table 3-1, nameplate capacity totals 21 725 kW and operational capacity totals 20 855 kW. In your Project Proposal Supporting Document (YOR 2024-0145-0003) on page 1, you originally state that the Project is seeking “an amendment of the permit to allow for the addition of up to 4.9 MW of additional operating capacity (to a maximum of 20.4 MW)”. The operational capacity of 20.855 MW, described in your response to IR-1 represents a 5.355 MW increase, not a 4.9 MW increase. Please clarify what is the total intended capacity proposed for the Project.

Yukon Energy Response

The total additional capacity proposed for the Project is 4.9 MW for a total generating capacity of 20.4 MW. Yukon Energy acknowledges that both the installed nameplate capacity and maximum operational capacity totals provided in Table 3-1 exceed the total proposed generating capacity of 20.4 MW.

Yukon Energy stated the nameplate capacity of FD7 incorrectly in IR-1 question 6. The nameplate capacity of FD7 is 3,000 kW, reducing the installed nameplate capacity at the site from 21,725 to 20,975 kW. See revised Table 3-1, below.

Updated Table 3-1: Summary of Diesel Generator Units at the Site

Unit No.	Manufacturer	Nameplate Capacity (kW)	Operating Capacity (kW)
FD7	Caterpillar 3612	3,000	2,880
FD8	Caterpillar C175-16	2,600	2,600
FD9	Caterpillar C175-16	2,600	2,600
YM20	Caterpillar 3612C	1,825	1,825
YM21	Caterpillar 3612C	1,825	1,825
YM22	Caterpillar 3612C	1,825	1,825
YM23	Caterpillar 3612C	1,825	1,825
YM24	Caterpillar 3612C	1,825	1,825
YM25	Caterpillar 3612C	1,825	1,825



Unit No.	Manufacturer	Nameplate Capacity (kW)	Operating Capacity (kW)
YM26	Caterpillar 3612C	1,825	1,825
Total		20,975	20,855

As stated in response IR2-01, Yukon Energy holds an active air emissions permit that permits the use of diesel generation for up to 15.5 MW. In 2023, Yukon Government’s Environment Branch asked Yukon Energy to permit all emergency thermal generation at the site. Yukon Energy defines emergency generation as generation needed in the event of the loss of our largest winter hydro generation asset, the Aishihik Generating Station (referred to as an N -1 scenario).

Yukon Energy pursued a Designated Office level assessment as it was deemed most appropriate for the following reasons:

1. At present time, the site transformation capacity (i.e., limit on site output) is 18.4 MW; if site transformation upgrades were to be completed, the site cannot output more than 20.6 MW; and
2. To expedite compliance with Yukon Government’s request given that the additional generation could be needed in the event of an emergency.

Please consider that individual unit capacities may vary over time as units are replaced, derated, or uprated. Given this, the generating station is expected to be regulated based on a facility-level (measured in megawatts), and not regulated on an individual generator capacity basis. Yukon Energy’s System Control Centre maintains an alarm that notifies Yukon Energy’s System Controller when generation is approaching the permitted threshold at any of our thermal facilities. This helps to ensure that the total generation at the facility remains within the permitted capacities.



Designated Office Evaluation Report

Faro Generating Station Capacity Expansion

Project Number: 2024-0145

Proponent: Yukon Energy Corporation

Assessment Completion Date: June 20, 2025

Watson Lake Designated Office

watsonlake.do@yesab.ca

PO Box 294

Watson Lake, YT Y0A 1C0

Tel: (867) 536-4040

Fax: (867) 536-4049

www.yesab.ca

Watson Lake Designated Office Evaluation Report

Faro Generating Station Capacity Expansion – 2024-0145

Summary

The Project

The proposed project is to amend the existing Air Emissions Permit (Permit No. 60-010-01) for the Faro Generating Station to increase the operational capacity of existing diesel electricity generators from 15.5 MW to 20.4 MW. The Project involves the installation of two additional fuel tanks at the project site, each 75 000 L in size.

The Designated Office defines production capacity as the proponent's 'intended operational production capacity' rather than the theoretical maximum production capacity a project's proposed infrastructure, equipment, and operation could allow. The amendment will allow the operation of any combination of ten diesel generators to a total operational capacity of 20.4 MW. The Project is within the community of Faro and within the Territories of Ross River Dena Council and Liard First Nation.

The Project will operate throughout the year. The maximum permit term under the *Environment Act* is 10 years; however, at the Proponent's request, the Designated Office will assess the Project over a 20-year temporal scope of assessment, with an end date of 2045.

The Watson Lake Designated Office solicited views and information on the Project from February 17 to March 10, 2025, which includes an extension as requested by a member of the public. Comment submissions were received from the Government of Yukon, Ross River Dena Council and residents of Faro. This Project received comments from 18 unique members of the public, within 20 comment submissions. On April 29, 2025, the Designated Office provided an additional 10-day period for the public to review the information provided in the response to Information Request 4. During this period, an additional five comments were received from members of the public.

Based on comments received and other considerations, the Watson Lake Designated Office identified the following valued environmental and socio-economic components that may be adversely affected by the Project: air quality, community wellness, wildlife, and soils and vegetation. The Designated Office determined that the Project will result in, or is likely to result in, significant adverse effects to air quality and community wellness that can be mitigated and recommended terms and conditions.

The Role of the YESAB Assessment Process

YESAB has specific obligations and authorities under YESAA which it must consider when making recommendations regarding significant adverse effects of a project. YESAB is only one part of the system that makes determinations on whether a project should proceed or not. The *Yukon Environmental and Socio-economic Assessment Act* (YESAA) directs assessors to determine if a project will, or is likely, to result in significant adverse effects by characterizing likely project effects (which includes consideration of project design, proponent's measures/commitments, and applicable legislation) and placing those effects within the context they will occur. YESAA directs assessors to determine if a project will result in *significant* (emphasis added) adverse effects. Therefore, if a determination is made that there are no significant adverse effects (without or with recommended mitigation), there may still be adverse effects of an activity on a value. Once the assessment and Recommendation Report is finalized, YESAB provides the recommendation to the Project's Decision Body(s).

The Decision Body also plays a role in determining whether a project proceeds or not and has the final decision in this regard. The Designated Office is of the understanding that the Decision Bodies take into account not only the recommendations by YESAB, but also potential adverse effects, further

Watson Lake Designated Office Evaluation Report

Faro Generating Station Capacity Expansion – 2024-0145

considerations on cumulative effects particularly in relation to First Nations rights, and discussions held during consultation. The Designated Office also understands that the Decision Body may have information that the Designated Office does not have available to it (e.g. studies/surveys not yet public, information gained from site visits/inspection reports, information gained through previous and present consultation, etc.). As such, the Decision Body may come to a different conclusion regarding whether they will permit a project to proceed or not.

Recognizing that a Designated Office assessment is only a component of the assessment-regulatory regime in the Yukon, the Designated Office encourages decision bodies, regulators, and territorial and federal governments to utilize and reference information and concerns submitted for the Project. The views and information provided for the assessment should, in part, be used to advance consultative discussions to address concerns of First Nations.

The Recommendation

The Decision Body, Government of Yukon, will review the Recommendation and the accompanying reasons described in this Evaluation Report. The Decision Body will issue a Decision Document that will either a) accept the recommendation, b) vary the recommendation, or c) reject the recommendation.

The Designated Office makes this recommendation under section 56(1) of the *Yukon Environmental and Socio-economic Assessment Act* based on the Designated Office's analysis of the information provided/available at the time of assessment. Information presented in this report represents the most updated information provided to the Designated Office at time of assessment and as such forms the basis of this assessment. Adherence to the mitigations below is recommended to reduce the significance of adverse effects. The Designated Office recognizes that the Decision Body may vary or remove any or all recommended mitigation measures. In order to maintain the findings of this recommendation, it is the expectation of the Designated Office that the original intent of the mitigation measures are maintained or strengthened.

Assessment Outcome

Under s. 56(1)(b) of the *Yukon Environmental and Socio-economic Assessment Act*, the Watson Lake Designated Office recommends to the Decision Body that the Project be allowed to proceed, subject to specified terms and conditions. The Designated Office determined that the Project is likely to have significant adverse environmental and socio-economic effects in or outside Yukon that can be mitigated by those terms and conditions.

The terms and conditions of the recommendations are as follows:

1. The Proponent's air emission permit application shall be subject to a technical review by the regulator; this review is to occur on a regular basis as determined by the regulator. Results of the technical review may require the Proponent to submit an air emissions management plan for review and approval. The management plan shall outline appropriate monitoring, mitigation and management actions to reduce, control and mitigate air emissions from the Faro Generation Station.
2. The Proponent shall design and install an effective noise barrier or other equivalent noise control(s) associated with the generators on site (e.g. sheds to house generators) to reduce the current noise contamination/pollution prior to receiving authorization to increase the operational capacity of the Faro Generating Station. The efficacy of the method of noise

Watson Lake Designated Office Evaluation Report
Faro Generating Station Capacity Expansion – 2024-0145

- reduction must be proven, by working with the Regulator and the Town of Faro, *prior* to granting the amendment requested.
3. The Proponent shall maintain a Complaint Management System and install large signage in a safe, easily accessible location at the Faro Generating Station with contact details to submit formal concerns/complaints, including the contact information for the Regulator. The Complaint Management System shall include a process for community engagement, noise monitoring and mitigation measures, and dispute resolution. If ongoing noise complaints are received by the Proponent and/or Regulator, the Proponent shall use the established process to work with the community to resolve noise related concerns resulting from the Faro Generating Station. The Proponent shall share the outcomes from the Complaint Management System with the Regulator as a component of their annual report.
 4. In addition to the Complaint Management System, the Proponent shall host a public/town hall meeting annually, inviting the Regulator to attend, to discuss concerns and possible solutions to be implemented. Attendees will have the opportunity to formally submit complaints at these meetings to the Complaint Management System.
 5. The Proponent shall ensure appropriate noise control measures for each rental generator (i.e. silencers/mufflers, acoustic linings or acoustic enclosures) are installed and in good working condition at all times.

For more information, please contact:

Watson Lake Designated Office

Watson Lake Designated Office Evaluation Report
Faro Generating Station Capacity Expansion – 2024-0145

Table of Contents

Part A. Background	1
1.0 Requirement for an Assessment	1
1.1 DECISION BODY	1
2.0 Project Description	2
2.1 PROPONENT INFORMATION	2
2.2 GEOGRAPHICAL CONTEXT	2
2.3 PROJECT HISTORY	5
3.0 Project Scope	5
3.1 PROJECT DETAILS	6
3.1.1 Generation of Electricity	6
3.1.2 Timing	7
3.1.3 Fuel Storage, Delivery and Spill Response	7
4.0 Scope of the Assessment	8
4.1 VIEWS AND INFORMATION SUBMITTED	8
4.1.1 Noise	9
4.1.2 Air Quality	13
4.1.3 Lighting	14
4.1.4 Public Trust	14
4.1.5 Traffic	15
4.1.6 Kaska Lands, Rights and Title	16
4.2 CONCERNS AND INTERESTS CONSIDERED BUT NOT ASSESSED FURTHER	16
4.2.1 Traffic	16
4.2.2 Lighting	16
4.3 DETERMINATION OF SIGNIFICANCE	17
4.3.1 Consideration of Cumulative Effects	17
4.4 VALUED ENVIRONMENTAL AND SOCIO-ECONOMIC COMPONENTS EVALUATED	18
Part B. Assessment and Reasons for Recommendation	19
5.0 Air Quality	19
5.1 OVERVIEW	19
5.2 SPATIAL AND TEMPORAL SCOPE	19
5.3 CONTEXTUAL CONSIDERATIONS	19
5.3.1 Reference Conditions	19
5.3.2 Consideration of Past, Present, and Likely Activities	20
5.3.3 Relevant Legislation	21
5.4 EFFECT CHARACTERIZATION	21
5.4.1 Project Effect: Decreased Ambient Air Quality, and Affects to Human Health	21
5.5 SIGNIFICANCE DETERMINATION	32

Watson Lake Designated Office Evaluation Report
Faro Generating Station Capacity Expansion – 2024-0145

6.0	Community Wellness.....	32
6.1	OVERVIEW.....	32
6.2	SPATIAL AND TEMPORAL SCOPE	32
6.3	CONTEXTUAL CONSIDERATIONS.....	33
6.3.1	Reference Conditions.....	33
6.3.2	Consideration of Past, Present, and Likely Activities	36
6.3.3	Relevant Legislation	38
6.4	EFFECT CHARACTERIZATION	38
6.4.1	Project Effect: Noise Disturbance	38
6.4.2	Project Effect: Degraded Public Trust.....	53
6.5	SIGNIFICANCE DETERMINATION.....	59
7.0	Wildlife	60
8.0	Soils and Vegetation.....	62
9.0	Conclusion of the Assessment.....	63
9.1	AUTHORIZATION OF RECOMMENDATION / REFERRAL	64
Appendix A	References	65

Watson Lake Designated Office Evaluation Report
 Faro Generating Station Capacity Expansion – 2024-0145

List of Figures

Figure 1: Project location 2
 Figure 2: Project location 3
 Figure 3: Faro Generating Station Site Overview (provided by Proponent) 7
 Figure 4: Illustration of 3-sided shed noise abatement enclosure for the temporary generators, included in the as a separate comment submission YOR 2024-0145-0025..... 12
 Figure 5: CALPUFF modelling domain with sensitive receptors indicated (provided by Proponent) 24
 Figure 6: Contour plots showing exceedances for NO₂ annual and hourly averaging times (Panel A and B), as well as PM₁₀ (Panel C). The wind rose used for modelling is also presented (Figure created from the figures provided by the Proponent) 27
 Figure 7: Average run time, from 2021 – March 2025, of the Faro Generating Station generator by month (Figure created using information provided by the Proponent) 30
 Figure 8: Total generator runtime at the Faro Generating Station (2021 -March 2025)..... 31
 Figure 9: The spatial boundary for community wellness includes most of the civic addresses within the municipal limits of the Town of Faro 33
 Figure 10: Map of three noise level monitor locations (provided by Proponent) 34
 Figure 11: Comparison of sound levels at monitoring location 2 (generators running versus generators not running) based on averages from December 11, 2023, to May 31, 2024 (provided by the Proponent)..... 35
 Figure 12: Comparison of sound levels at monitoring location 3 (generators running versus generators not running) based on averages from December 11, 2023, to May 31, 2024 (provided by the Proponent)..... 36
 Figure 13: The Yukon grid 37
 Figure 14: Site layout (provided by the Proponent) 40
 Figure 15: Receptor locations, used in noise model (provided by the Proponent) 41
 Figure 16: Monitoring locations: the distance to the nearest residence is measured in red, and the distance to monitoring location 2 is measured in blue 44
 Figure 17: Base Case Portfolio, Capacity (Figure taken from 10 -Year Renewable Electricity Plan) 58

List of Tables

Table 1: The Decision Body 1
 Table 2: Project Location, Coordinates and Geographical Parameters 3
 Table 3: Indigenous Governments Identified for the Project..... 4
 Table 4: Summary of Spill Protection Controls for Existing and Proposed Fuel Storage Tanks (provided by Proponent)..... 8
 Table 5: Possible CACs Formed Through Diesel Combustion and Potential Health Effects 22
 Table 6: Yukon Ambient Air Quality Standards 22
 Table 7: Summary of Maximum Cumulative Modelling Results at the MPOI (Maximum Point of Impingement) from the Expanded Capacity Scenario (provided by Proponent) 26
 Table 8: Total Generator Run Time by Month for 2021-2025 (table created from information provided by the Proponent)..... 29
 Table 9: Noise Modelling Results (provided by the Proponent) 42

Watson Lake Designated Office Evaluation Report
Faro Generating Station Capacity Expansion – 2024-0145

Table 10: Difference in Average Sound (dBA) Measured With and Without Generators Running at Monitoring Location 2 (Table created from information provided by Proponent).....	45
Table 11: Difference in Sound Level Between the Generators When not Running and When Running (Using L90) Areas in Red Indicate Where dBA Increases Are Greater than 5 dBA for Prolonged Operational Times (i.e. when at least one generator was running > 20 %) (Table created using information provided by Proponent)	47
Table 12: Total Generator Run Time by Month for 2021-2025 (Noise survey months highlighted in yellow, recent months of operation in orange) (Table created from information provided by the Proponent)	48
Table 13: Facility Sound Power Levels.....	49

Watson Lake Designated Office Evaluation Report
 Faro Generating Station Capacity Expansion – 2024-0145

PART A. BACKGROUND

Part A provides the context and background information required for the assessment of Faro Generating Station Capacity Expansion (the Project). Section 1.0 identifies the requirement for an assessment under the *Yukon Environmental and Socio-economic Assessment Act* (YESAA), while Sections 2.0 and 3.0 provide information and baseline data relating to the Project and project area. Section 4.0 identifies the scope of the assessment, including matters that were considered in evaluating the significance of potential effects of the Project.

1.0 REQUIREMENT FOR AN ASSESSMENT

The purpose of the proposed project is to amend an existing Air Emissions Permit for the Faro Generating Station to increase the operational capacity of the existing diesel electricity generators from 15.5 MW to 20.4 MW. While several activities are likely to be undertaken in conjunction with the Project, under s. 47 of YESAA, the Project is subject to an assessment by the Watson Lake Designated Office due to the following circumstances:

- The proposed activity is listed in column 1 of Schedule 1 of the *Assessable Activities, Exceptions and Executive Committee Projects Regulations* (Activity Regulations) and not listed in column 2 as excepted. The proponent proposes to undertake activities listed in Part 4, item 2 of the Activity Regulations. The specific activity is listed as:

Construction, operation, modification, decommissioning, or abandonment, or other activity in relation to, b.) a fossil-fired electrical generation station
- Is proposed to be undertaken in Yukon; and
- An authorization or the grant of an interest in land by a government agency, independent regulatory agency, municipal government, or First Nation is required for the activity to be undertaken.

1.1 Decision Body

Based upon the definition of Decision Body in YESAA, the Designated Office has identified Government of Yukon as Decision Body for the Project. The Decision Body will review the Recommendation and the accompanying reasons described in this Evaluation Report. The Decision Body will issue a decision document that will either a) accept the recommendation, b) vary the recommendation, or c) reject the recommendation. While several authorizations may be required from the Decision Body, the authorizations associated with the specific activity listed above in Section 1.0 are identified in Table 1. This information is based on the project proposal and other information submitted to the Designated Office during the assessment.

Table 1: The Decision Body

Decision Body	Authorization Required	Act or Regulation
Government of Yukon	Air Emissions Permit (Amendment)	<i>Environment Act, Air Emissions Regulation</i>

Watson Lake Designated Office Evaluation Report
Faro Generating Station Capacity Expansion – 2024-0145

2.0 PROJECT DESCRIPTION

2.1 Proponent Information

Yukon Energy Corporation (the Proponent) is proposing the Project. Contact information for the Proponent is available on the YESAB Online Registry (YOR) in the project proposal.¹

2.2 Geographical Context

The location of the Project is shown in Figure 1 and Figure 2. Table 2 includes further details on the project’s location and other geographical information. Table 3 sets out the Indigenous Governments identified for this assessment.

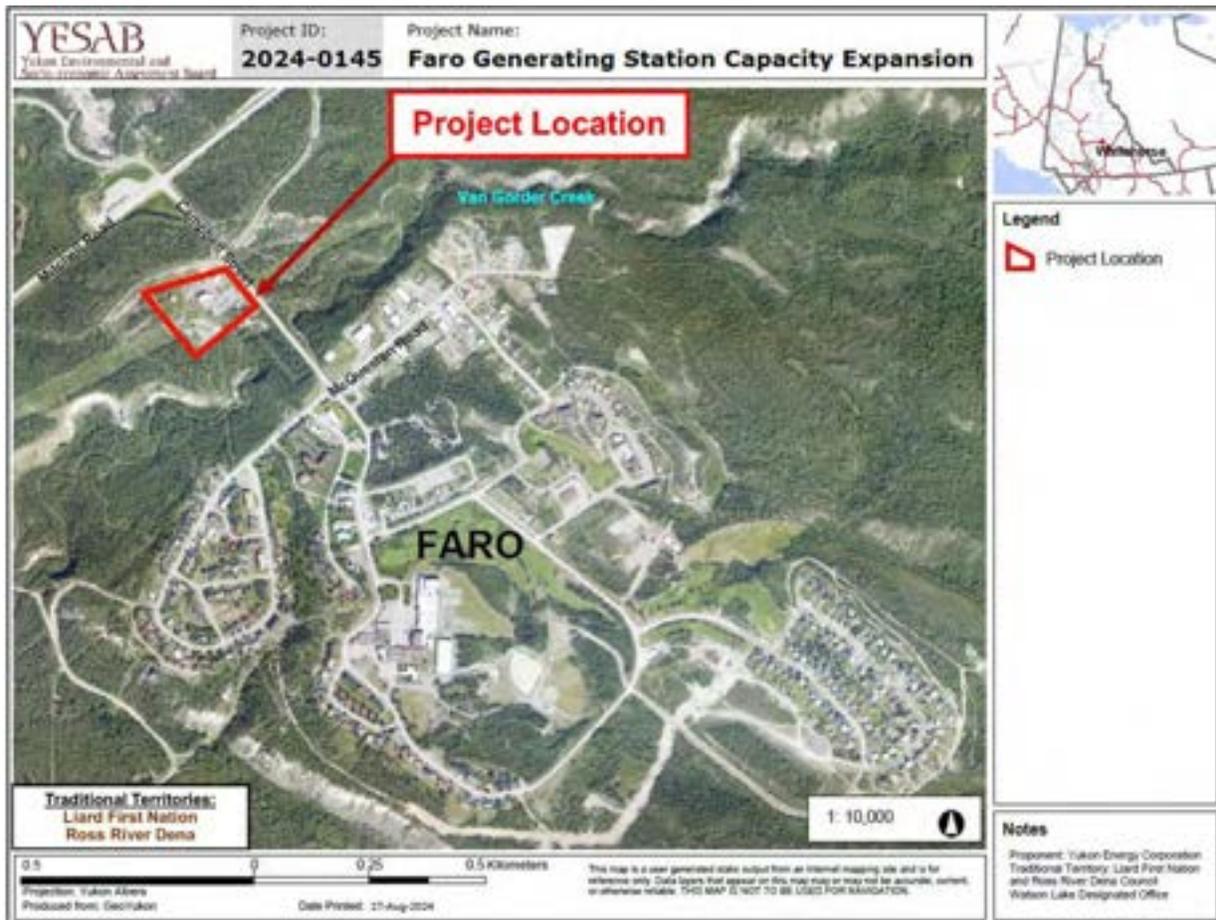


Figure 1: Project location

¹ YOR 2024-0145-003

Watson Lake Designated Office Evaluation Report
 Faro Generating Station Capacity Expansion – 2024-0145



Figure 2: Project location

Table 2: Project Location, Coordinates and Geographical Parameters

Project Coordinates: Map Sheet: 105K03	Decimal Degrees	
	62.23345 °N	133.36411 °W
	62.23394 °N	133.36065 °W
	62.23323 °N	133.35935 °W
62.23223 °N	133.36188 °W	
Drainage Region:	Major Drainage Area: Yukon Drainage Area Sub Drainage Area: Pelly Sub-sub Drainage Area: Lower Pelly	
Nearby Watercourses or Waterbodies:	Pelly River, Van Gorder Creek	
Land Use Planning Region:	Not Applicable	

Watson Lake Designated Office Evaluation Report
 Faro Generating Station Capacity Expansion – 2024-0145

The Designated Office’s duties to notify and seek views of Indigenous Governments in an assessment may arise out of different provisions of YESAA and the *Rules for Evaluations Conducted by the Designated Offices*.

An Indigenous Government will be identified for these purposes if any of the following apply:

- the Indigenous Government is a First Nation, as defined in YESAA,² and:
 - the Project will be located in the territory³ of the First Nation and/or might have significant effects in the territory of the First Nation;⁴ or
 - they have advised the Designated Office of their interest in the Project or in projects of this kind;⁵
- the Project is located on the Yukon North Slope, in which case the Inuvialuit are notified;⁶ or
- the Indigenous Government has asked to be added to the notification list for the Project.⁷

The Indigenous Governments identified for this assessment are set out in Table 3

Table 3: Indigenous Governments Identified for the Project

Indigenous Government	Reason for identification
Ross River Dena Council	Overlap with the territory of the First Nation
Liard First Nation	Overlap with the territory of the First Nation

² “First Nation” is defined as: a Yukon First Nation as defined in the *Umbrella Final Agreement*, and includes the Gwich’in Tribal Council, in relation to consultation, or the Tetlit Gwich’in, in relation to any other matter.

In this evaluation report, the term “First Nation” refers to one or more of the following: Tetlit Gwich’in, Carcross/Tagish First Nation, Champagne and Aishihik First Nations, Tr’ondëk Hwëch’in, Kluane First Nation, Kwanlin Dün First Nation, Liard First Nation, Little Salmon/Carmacks First Nation, First Nation of Na-Cho Nyak Dun, Ross River Dena Council, Selkirk First Nation, Ta’an Kwäch’än Council, Teslin Tlingit Council, Vuntut Gwitchin First Nation, and/or White River First Nation.

³ “Territory” is a defined term in YESAA, and means:

- (a) in relation to a first nation for which a final agreement is in effect, that first nation’s traditional territory and any of its settlement lands within Yukon that are not part of that traditional territory;
- (b) in relation to the first nation known as the Tetlit Gwich’in, the areas described in Annex A of Appendix C to the Gwich’in Agreement; and
- (c) in relation to any other first nation, the geographic area within Yukon identified on the map provided by that first nation under the *Umbrella Final Agreement* for the purpose of delineating the first nation’s traditional territory.

The term “traditional territory”, above, has the same meaning as in the *Umbrella Final Agreement* (see s.2(2) of YESAA).

⁴ See s.55(1) and 55(4) of YESAA.

⁵ See s.55(4) of YESAA.

⁶ For projects occurring on the Yukon North Slope, the Designated Office will notify and seek views of the Inuvialuit to assist the Designated Office to discharge the duty, under s.90(2) of YESAA, to consider the need to protect the rights of the Inuvialuit under the *Inuvialuit Final Agreement*.

⁷ Rule 31(c) provides that the notification list for a project will include any person who has requested, in writing, to be added to the notification list.

Watson Lake Designated Office Evaluation Report

Faro Generating Station Capacity Expansion – 2024-0145

2.3 Project History

The Project involves amending the existing Air Emissions Permit (#60-010-01) from an operational capacity of 15.5 MW to 20.4 MW for the Faro Generating Station. Past assessments of the Faro Generating Station include 2008-0230, 2011-0246, 2014-0119 and 2021-0115. The most recent assessments in 2021 and 2014 were renewals of the Air Emissions Permit to operate existing diesel generators at an operational capacity of 15.5 MW and 10.5 MW, respectively. In 2021, the Designated Office determined that valued components of air quality and community wellness would result in significant adverse effects, and additional mitigations were suggested for the project to proceed.

3.0 PROJECT SCOPE

The project scope defines the project to be assessed and includes all activities described in the project proposal and any subsequent information provided by the Proponent. It also includes the project summary, activities, and details, as well as measures that will support the mitigation of adverse project effects.

Project Summary:

Yukon Energy Corporation is seeking an amendment to the Faro Generating Station's Air Emissions Permit to expand the site's operational capacity by 4.9 MW, which will increase the site's capacity from 15.5 MW to 20.4 MW. This site was previously assessed in 2021 for a production capacity of 15.5 MW (YESAB project #2021-0115).

The existing facility includes a fenced yard, an existing substation, thermal generating units, fuel storage, and other buildings. No new land or site clearing is required for the Project. Two new permanent generators (FD8 and FD9) and one temporary rental generator (YM26) have already been installed at the site. Two new fuel storage tanks to support the increased fuel use for the latest generators may be installed as required.

The Designated Office defines production capacity as the proponent's 'intended operational production capacity' rather than the theoretical maximum production capacity a project's proposed infrastructure, equipment, and operation could allow. The amendment will allow the operation of any combination of ten diesel generators to a total operational capacity of 20.4 MW. The Project is within the community of Faro and within the Territories of Ross River Dena and Liard First Nation.

The Project will operate throughout the year. The maximum permit term under the Environment Act is 10 years; however, at the Proponent's request, the Designated Office will assess the Project over a 20-year temporal scope of assessment, with an end date of 2045.

Project Activities:

Operation and maintenance of 10 currently installed generators:

- 1 x 2.880 (operational capacity) MW Caterpillar 3612 existing diesel generator (FD7)
- 7 x 1.825 (operational capacity) MW Caterpillar 3612C existing diesel generators (YM20-YM26)
- 2 x 2.6 (operational capacity) MW Caterpillar C175-16 diesel generators (FD8 & FD9)

Watson Lake Designated Office Evaluation Report Faro Generating Station Capacity Expansion – 2024-0145

Fuel storage and use:

- 1 x 105 000 L (existing tank)
- 3 x 75 000 L (existing tanks)
- 2 x 65 000 L (existing tanks)
- 2 x 75 000 L (proposed tanks)
- Total fuel volume: 610 000 L
- Fuel to be delivered to the site by a licensed carrier
- All fuel tanks to have secondary containment at a minimum
- Proposed fuel storage tanks will be double-walled with secondary containment
- Spill Contingency Plan in place
 - Personnel are trained in emergency spill procedures
 - Fuel spill kits and materials are readily available onsite

Other:

- Complaint management system in place

3.1 Project Details

Unless otherwise indicated, project details are summarized from information provided by the Proponent in their online proposal⁸, the YESAA Project Proposal Supporting Document⁹, and the responses to Information Request 1,2, 3, and 4.¹⁰ The Designated Office has assessed the Project with the understanding that the Project will be carried out as described in these documents and summarized in the following sections.

3.1.1 Generation of Electricity

The Proponent will use up to ten generators at the site to produce a maximum of 20.4 MW of energy for Yukon's electrical grid, serving various communities. These diesel-powered generators will produce energy to meet the needs of public, industrial, and governmental purchasers, ensuring grid stability to prevent blackouts.

The Proponent operates multiple facilities across the Yukon, including the Faro Generating Station. The energy produced in Faro supplies communities beyond the community itself. A stacking order dictates the sequence in which generators are activated to meet demand; the Faro YM 20-26 generators rank third, while FD7, FD8, and FD9 rank seventh among nine groups. Demand is typically higher during the winter months when electrical heating is required. The general location of all ten generators is shown in Figure 3.

⁸ YOR 2024-0145-0001

⁹ YOR 2024-0145-0003

¹⁰ YOR 2024-0145-0008, -0013, -0017, -0057, -0058

Watson Lake Designated Office Evaluation Report

Faro Generating Station Capacity Expansion – 2024-0145



Figure 3: Faro Generating Station Site Overview (provided by Proponent¹¹)

It is important to note that although this figure indicates purple polygons represent proposed sites for generators, the Proponent has confirmed in the response to Information Request 1¹² these generators are now installed at the site.

3.1.2 Timing

The Project is expected to span 20 years. While activities are proposed to occur throughout the year, the Proponent has noted that thermal generating facilities are used more frequently in the winter, when energy demand is at its highest. Although renewable energy is prioritized when available, energy demand is significantly lower in the spring, summer and fall, leading to the majority of energy being supplied by hydroelectric generation during those months.

According to the Proponent, they do not plan to run all ten generators at the Faro Generating Station during the cold winter months. The Designated Office acknowledges that the Faro Generating Station may still operate all generators during particularly cold or emergency situations.

3.1.3 Fuel Storage, Delivery and Spill Response

Up to 615 000 litres of diesel will be stored on-site in nine tanks, all with secondary containment. Two of the eight tanks, each with a 75 000-litre capacity, are still to be installed. Fuel will be delivered by the licensed carrier, North of 60 Petroleum, using B-Train trucks, approximately every two days during winter, with an average delivery of 37 000 litres. The Proponent has provided a spill response plan, which

¹¹ YOR 2024-0145-0003

¹² YOR 2024 -0145-0008

Watson Lake Designated Office Evaluation Report
 Faro Generating Station Capacity Expansion – 2024-0145

includes emergency contact information, a site safety plan, and site-specific scenarios, among other details, in case of an accidental fuel spill. Table 5 includes a summary of spill protection controls and fuel storage tanks.

Table 4: Summary of Spill Protection Controls for Existing and Proposed Fuel Storage Tanks (provided by Proponent)¹³

Tank No.	Volume (L)	Spill Protection Controls
1	105,000	Containment berm constructed around the tank
2	75,000	Double-walled tank, leak sensor, tank installed on gravel bed which acts as a layer of electrical isolation, within a containment berm
3	75,000	
4	75,000	
5	65,000	
6	65,000	
7	75,000 (Future)	Propose following same spill protection controls as Tanks 2-6
8	75,000 (Future)	

4.0 SCOPE OF THE ASSESSMENT

The scope of the assessment identifies the matters considered in an assessment. The scope of assessment is determined by considering the activities described in the scope of the Project (identified in Section 3.0), matters set out in s. 42(1) of YESAA, and by identifying the valued environmental and socio-economic components (VESECs) that may be adversely affected by project activities. Views and information submitted during the assessment help to identify VESECs and potential adverse effects of the Project to these VESECs.

4.1 Views and Information Submitted

The Watson Lake Designated Office solicited views and information on the Project from February 17 to March 10, 2025, which included an extension request from a resident of Faro.¹⁴ Comment submissions were received from the Government of Yukon (YG)¹⁵, Ross River Dena Council (RRDC)¹⁶ and residents of Faro. This Project received comments from 18 unique members of the public, within 20 comment submissions. On April 29, 2025, the Designated Office provided an additional 10-day period for the public

¹³ YOR 2024-0145-0008

¹⁴ YOR 2024-0145-0030

¹⁵ YOR 2024-0145-0026

¹⁶ YOR 2024-0145-0043

Watson Lake Designated Office Evaluation Report Faro Generating Station Capacity Expansion – 2024-0145

to review the information provided in the response to Information Request 4.¹⁷ During this period, an additional five comments were received from members of the public.

4.1.1 Noise

Overview

The vast majority of comments raised concerns about an increase in noise pollution from the generating station and how additional capacity will further exacerbate the adverse effects currently experienced by the town residents. Many describe how the sound carries throughout the town, disrupting sleep, the quiet enjoyment of their homes, and outdoor recreation. Some report feeling vibrations in their homes and windows due to the noise, which is said to travel several kilometers, affecting those living far from the facility. People expressed concern about how noise is impacting sense of place, human health, wildlife health, and property values.

- “However, the impacts on our town, are significant and alarming. As residents living in close proximity to the power plant, we are deeply concerned about the alarming noise levels and their significant impact on our well-being. The current diesel facility already causes considerable disturbance. The noise pollution generated by the existing diesel generators has already had a profound effect on the well-being of our residents, disrupting daily life and diminishing our quality of living.”¹⁸
- “Faro WAS a community that is blessed with peace and quite and warm enough during winter to go out and enjoy the peace and QUIET, now we have to listen to generators that can be heard for more than 5 km away. EVEN during summer, we lost the quite in our peaceful, beautiful place of paradise.”¹⁹
- “These things are loud, and when running, have become a dominant feature of Faro, drowning out other sounds outside and even audible indoors with windows closed.”²⁰
- “The noise and pollution that these generators have made is totally unacceptable, the citizens of Faro should be up in arms as the people of Faro are getting no benefit to them for all the noise and pollution that these units are causing.”²¹
- “Our home is pretty much the furthest it can be from the generators in Faro, but the sound is still incredibly disruptive. The sound carries from the generators up the hills like an amphitheater. We can hear them running from inside our own home and it is not pleasant for our family. Faro has been a quiet peaceful place that we have lived in for the last 18 years, but this constant disruptive noise is making us question staying. Then we also wonder if that noise will affect things like the re-sale value of our home if we were to leave.”²²

¹⁷ YOR 2024-0145-0057, -0058

¹⁸ YOR 2024-0145-0034

¹⁹ YOR 2024-0145-0036

²⁰ YOR 2024-0145-0021

²¹ YOR 2024-0145-0032

²² YOR 2024-0145-0042

Watson Lake Designated Office Evaluation Report Faro Generating Station Capacity Expansion – 2024-0145

- "The sound affects me when I am outdoors. When hiking on trails nearby, the sound permeates the stillness of the forest. Last year during the annual sandhill crane migration, I could not hear the cranes until they were directly overhead."²³
- "Faro was a community blessed with peace and quiet... now we have to listen to generators that can be heard more than 5 km away."²⁴
- "Will the pollution from running diesel generators have an affect on our health and our local environment?"²⁵
- "Have there been any studies on the affect this noise is having on our local wildlife populations? If the noise is irritating humans, what is it doing to our unique Fannin sheep population that is often seen close to town, the sandhill cranes who pass through on their migration route, or birds and other animals that live in the area year round?"²⁶
- "I honestly can't imagine what the noise levels are like in locations closer to the generators. There are numerous studies that speak to the negative effects of noise pollution on human health. Impacts include stress, annoyance, and sleep disturbance, as well as physiological effects including changes in muscle tension response, respiratory reflexes, and changes in heartbeat pattern (Elmenhorst et al., 2019; Health Canada Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise, 2017; Kim et al., 2012; Münzel et al., 2014)."²⁷
- "The noise limits quoted would be equally applicable to the remote edge of Faro as in downtown Vancouver (since YE is using BC sound limits). Further, YE is saying that the difference in "average" sound level between no generators running and all generators running is insignificant, without acknowledging that people don't complain about "average" but about the maximum, so going on and on about average levels is pointless. Its the maximum sound, and the tonal quality of that sound that is important."²⁸

Ineffective Noise Mitigations

Comments expressed concern that current mitigations are ineffective at reducing noise pollution for the 15.5 MW currently permitted to operate at the site and that further increasing the capacity to 20.4 MW through this Project will intensify the adverse effects from noise.

- "Mitigation seems to have been limited to a "complaint management system" which I recently found out consists of a sign at the plant with a phone number for complaints - only readable when close to the fence. A small sign on a fence has not done anything to mitigate the noise and pollution issues."²⁹

²³ YOR 2024-0145-0031

²⁴ YOR 2024-0145-0036

²⁵ YOR 2024-0145-0042

²⁶ YOR 2024-0145-0042

²⁷ YOR 2024-0145-0045

²⁸ YOR 2024-0145-0059

²⁹ YOR 2024-0145-0021

Watson Lake Designated Office Evaluation Report Faro Generating Station Capacity Expansion – 2024-0145

- “A fence around the plant does nothing to block the noise. The sound also bounces off of outside walls of some buildings, amplifying the noise.”³⁰
- “Now looking at sound mitigation, what YEC has proposed is clearly inadequate, and even less than what was presented to the town above with only 4 rentals running instead of 7. YEC is no longer proposing an (insufficient) acoustic barrier for two of the rentals.”³¹

Timing

Comments brought up concern around the seasonal timing of noise disturbance from the generators.

- “YE said Faro would only hear these during Nov-Jan during the coldest months and now we are listing to them year round...Faro WAS a community that is blessed with peace and quite and warm enough during winter to go out and enjoy the peace and QUIET, now we have to listen to generators that can be heard for more than 5 km away. EVEN during summer, we lost the quite in our peaceful, beautiful place of paradise.”³²
- “The generators do not run very often. REALLY? No one can tell how often they will be running. It depends on things like extended low temperatures and Whitehorse needing more power, or else some ageing infrastructure failing. If there is a 2 week sub minus 30 weather, they will need to run, possibly 24/7. Been there, done that. It was not pleasant. There was no relief to the sound. Forget about going out into the forest to relieve any daily stress. It just gets worse. (It has been proved that spending time in the forest greatly helps health).”³³

Reduction Style Mitigations

Several comments propose potential measures to minimize the project's impacts, utilizing reduction-style mitigations.

- “If nothing else, YE should be building a 3-sided shed all around the "temporary" generators, facing open away from town, large enough to provide service access to the generators on all sides. It could be framed like any other sound-insulating wall (offset 2x4s on 24" centres) with rockwool safe'n'sound in the cavity and rockwool board on the faces, with resilient furring strips on the outside supporting fibre-cement siding. The inside face can be left exposed to further absorb sound. No air or vapour barrier required. Put it on PWF foundation on the existing or extended compacted gravel on grade and use soil-auger anchors with cable anchors where needed. Not hugely expensive and would mitigate all but the lowest frequency sounds that escape the open end and reverberate around.”³⁴

³⁰ YOR 2024-0145-0031

³¹ YOR 2024-0145-0047

³² YOR 2024-0145-0036

³³ YOR 2024-0145-0063

³⁴ YOR 2024-0145-0022

Watson Lake Designated Office Evaluation Report
Faro Generating Station Capacity Expansion – 2024-0145

- “Further to my previous comment regarding a 3-sided shed noise abatement enclosure for the temporary generators, here's a pdf scan [see Figure 4 below] of a sketch to illustrate what I said in my comment.”³⁵

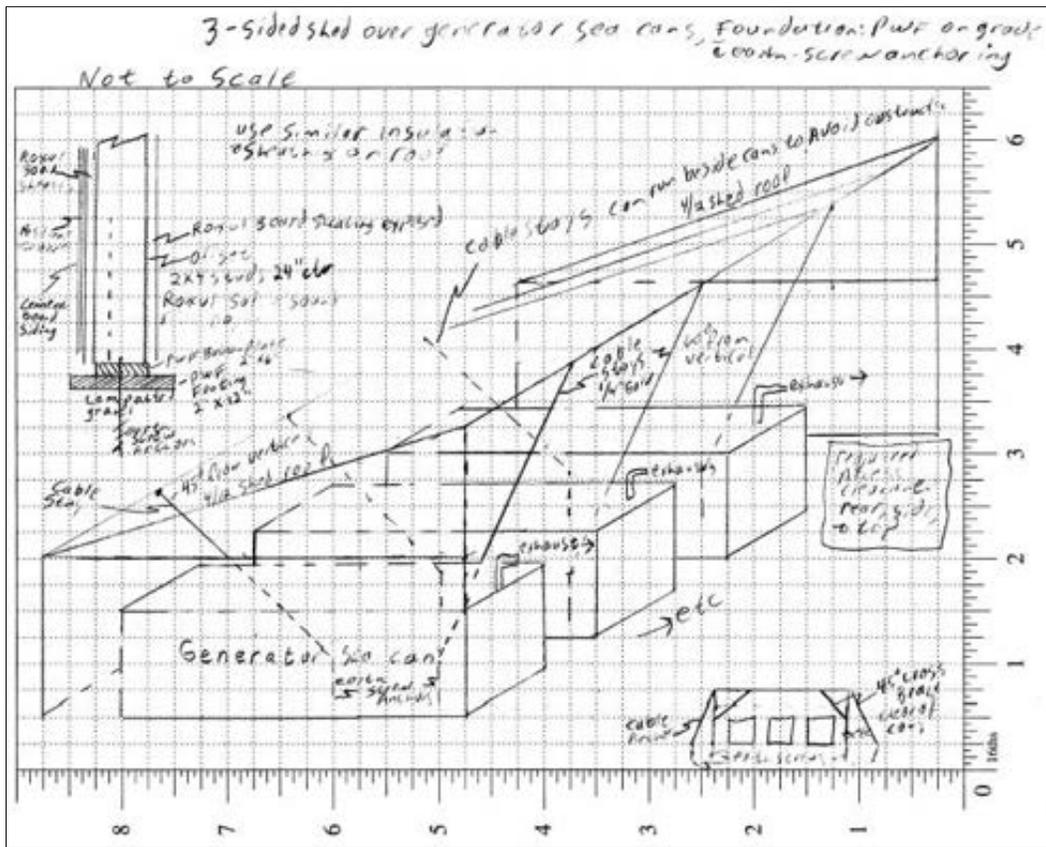


Figure 4: Illustration of 3-sided shed noise abatement enclosure for the temporary generators, included in the as a separate comment submission YOR 2024-0145-0025

- “YEC has occasionally proposed sound barriers for FD7, and has once again suggested that option. However, according to YEC’s permit terms, the most efficient generators are at the top of the stacking list, so sound barriers for FD7 at the bottom of the stacking list won’t do much. When this project was presented to residents in 2023, FD8 and FD9 were being added, and at least two rentals were going to be removed – and capacity was not going to be increased so no assessment would be needed. That’s what we were told. So an alternative is to keep FD7, FD8 and FD9 – and remove enough rentals to keep the facility within permissible sound levels – or at least within the previous permit’s capacity limits. The sound of the rentals needs to be controlled, and I look forward to YEC presenting a plan and timeline for doing this before adding any more capacity. Is a wall around the facility the best option? What other ideas does YEC have? This noise has changed the character of the town and also affects property values. Before we had the

³⁵ YOR 2024-0145-0024

Watson Lake Designated Office Evaluation Report Faro Generating Station Capacity Expansion – 2024-0145

sound of nature and the occasional vehicle. Now, surrounded by natural beauty, it sounds like living by an airport.”³⁶

- “I would like to see some effort towards noise mitigation. In a building with a noisy machine such as an industrial sized compressor it would be set aside in an acoustically treated room or off-building. That might be the “Cadillac” of solutions. Still, concrete barricades and earth berms as a minimum should be considered.”³⁷

Offset/Compensation Style Mitigations

Several comments discuss potential measures for minimizing impacts in this project, using offset-style mitigations.

- “In light of this, the residents of Faro would like to put forth a counteroffer that ensures fairness and acknowledges the sacrifices we endure for the benefit of other communities. We propose the following: Significant Reduction or Elimination of Power Costs: We request a significant reduction, if not complete elimination, of power consumption charges for Faro residents, while maintaining the current flat rate. as a form of compensation for the environmental and social impacts we bear. Cost allocation: The charges for this reduced consumption can be covered by either, or both: a) Residents of Whitehorse who directly benefit from the increased power generation. b) Yukon Energy Corporation, given its government subsidies.”³⁸
- “I don't disagree with adding generators to help supply the Yukon with energy, but in the meantime with all the pollution and noise Faro is directly impacted. Maybe we should get a rebate or compensation of some sort on our electrical bills.”³⁹
- “Faro shouldn't be expected to shoulder the negative impacts without appropriate consideration for effective noise mitigations or compensation for the additional noise pollution.”⁴⁰

4.1.2 Air Quality

Comments express concerns regarding the negative effects on air quality resulting from the increase in thermal generation.

- “I have never experienced the level of noise and air pollution in the community since the generators have arrived...Many residents suffer with chronic lung issues, like COPD and asthma, and have issues living in the city where air pollution is prevalent.”⁴¹
- “We can count the plumes of exhaust rising up in the air from each generator with out own eyes.”⁴²

³⁶ YOR 2024-0145-0021

³⁷ YOR 2024-0145-0038

³⁸ YOR 2024-0145-0034

³⁹ YOR 2024-0145-0039

⁴⁰ YOR 2024-0145-0045

⁴¹ YOR 2024-0145-0049

⁴² YOR 2024-0145-0023

Watson Lake Designated Office Evaluation Report

Faro Generating Station Capacity Expansion – 2024-0145

- "...the amount of cancer-causing carcinogens from the exhaust of these huge generating units is unbelievable".⁴³
- "The area known as lower bench use to get amazing views of northern lights, the past couple winters, since the generators, many of the residents have noticed a lot of smoggy hanging exhaust that is blocks a lot of our beautiful night skies."⁴⁴
- "YEC suggests that the magnitude of emissions is lower because the generators are run only these percentages of the year. However, the YM units are only run in the winter and usage of the FD units is also concentrated in the winter, so while the yearly average emissions may be acceptable, the reality is that the emissions are concentrated in the winter months, and cleaner air in the summer does not make up for excessive pollution in the winter."⁴⁵

4.1.3 Lighting

A comment raised concerns about the lighting at the project site.

- "YE has also increased lights tremendously in their plant, Faro is in a major bird migratory, maybe lighting and bird migration should be something YE educates on. The area known as lower bench use to get amazing views of northern lights, the past couple winters, since the generators, many of the residents have noticed a lot of smoggy hanging exhaust that is blocks a lot of our beautiful night skies, which is dishearting Faro has some of the best colors in our northern lights across the territory (pinks & purples), we now have noisy generators and , smoggy light pollution, out our windows."⁴⁶

4.1.4 Public Trust

Due to the project site's long history of energy generation and the fact that this Project is one of several amendments in recent years, multiple comments pertain to public trust in the Proponent. Specifically, concerns were raised regarding the failure to implement past commitments on mitigations, uncertainties surrounding the term 'temporary rental units', communications about renewable planning, and distrust in what constitutes an emergency or emergency planning.

- "I have attending meetings hosted by Yukon Energy where I was assured a wall was going to be in place well before more generators were added to help with sound reduction. Since then, more generators have arrived, but still no sign of a wall."⁴⁷
- "When the temporary rental units were installed, it was with the idea that they were a bridge until renewables could be brought on line. Further, the push for electric heat was because the renewables would be on line within the service lifetime of an oil or propane furnace. Now, the renewables are delayed out to beyond such a service life and we'll collectively pay a huge

⁴³ YOR 2024-0145-0032

⁴⁴ YOR 2024-0145-0036

⁴⁵ YOR 2024-0145-0061

⁴⁶ YOR 2024-0145-0036

⁴⁷ YOR 2024-0145-0042

Watson Lake Designated Office Evaluation Report

Faro Generating Station Capacity Expansion – 2024-0145

premium for renting thermal generating capacity rather than building it in an appropriate location.”⁴⁸

- “When the temporary rental units were installed, it was with the idea that they were a bridge until renewables could be brought on line. Further, the push for electric heat was because the renewables would be on line within the service lifetime of an oil or propane furnace. Now, the renewables are delayed out to beyond such a service life and we'll collectively pay a huge premium for renting thermal generating capacity rather than building it in an appropriate location. Another reason that's been given for this approach is that its easier to get YESAB's approval for "Temporary" rental units on their existing property than to establish somewhere else on the grid a totally new thermal station.”⁴⁹
- “And diesel capacity is growing: 8.15 MW = Capacity 2014-2021 15.5 MW = Capacity 2021 to present - presented in 2021 as "temporary" 20.4 MW = Proposed capacity - No longer temporary, now expected until 2044.”⁵⁰
- “What I am feeling some frustration towards is that because this is an "emergency plan" there seems to be no limits and or boundaries (or even compensation of some sort for the town of Faro) which leads me to question how organized is this "emergency plan". Is there any way you can express our small town's concerns to the government? That for example, the noise levels exceeding the guideline limits followed are not being respected, due to this project falling under an "emergency plan".⁵¹
- “In visits to town, YEC’s plans have shifted repeatedly—from temporary to long-term—eroding public trust. The only consistency is that occasional promises made to the community (like noise reduction) haven’t happened...[c]ommunity complaints should be taken as evidence, not inconvenience. It is disappointing that YEC continues to dismiss our lived experience.”⁵²

4.1.5 Traffic

One of the comments received related to concerns around a potential increase in traffic due to fuel delivery.

“There are MANY times when we and others drive to Whitehorse, have had too close of incounters with fuel rucks taking up TOO MUCH and in UNSAFE areas of the highway clearly over the mid lines, YG has made no efforts to brush out the campbell highway, and now residents are facing fuel trucks head on, on our "highway".⁵³

⁴⁸ YOR 2024-0145-0022

⁴⁹ YOR 2024-0145-0022

⁵⁰ YOR 2024-0145-0021

⁵¹ YOR 2024-0145-0040

⁵² YOR 2024-0145-0062

⁵³ YOR 2024-0145-0036

Watson Lake Designated Office Evaluation Report

Faro Generating Station Capacity Expansion – 2024-0145

4.1.6 Kaska Lands, Rights and Title

In their comment submission, RRDC speak to unceded Kaska Lands, noting they have never relinquished or surrendered Kaska title and rights to their lands and resources noting that the governments have not acknowledged this. Reasons for opposing this Project are noted in the comment submission and speak to the area and the Town of Faro being situated on unceded lands for which RRDC has not been compensated, and that this violation of rights and title have resulted in loss of harvest areas. The Designated Office acknowledges and recognizes these concerns. YESAB, however, does not engage in analysis about the existence or strength of claim of established or asserted rights and does not possess the remedial powers to, if necessary, accommodate affected Indigenous claims or rights. YESAB also does not make determinations as to whether projects will likely result in an impact to First Nations Aboriginal or treaty rights, but YESAB does consider potential impacts of a project on the exercise of First Nation rights.

4.2 Concerns and Interests Considered but not Assessed Further

The Designated Office considered the following information, but determined there are no known pathways of effects. This section explains how the Designated Office considered relevant information, project design, and relevant legislation that eliminate pathways of adverse effects.

4.2.1 Traffic

One comment received expressed concern that increased traffic along the Robert Campbell Highway would make conditions more unsafe. When asked whether fuel delivery would increase as a result of the Project, the Proponent responded that, “[d]espite the Project’s proposed capacity increase, operations at the station are not expected to change. The Project is not expected to result in any material increase in fuel deliveries”.⁵⁴ As fuel delivery is not expected to increase as a result of the Project, the Designated Office has determined there is no pathway of effects as a result of the proposed activities. Use of highways and roads must adhere to the rules of the road (*Motor Vehicles Act*). The Designated Office encourages any situations resulting in unsafe use of the highway to be reported to the appropriate authorities/regulators.

4.2.2 Lighting

One commentator expressed concerns about how lighting might affect wildlife. However, since increased lighting wasn’t proposed as an activity for this Project, and lighting is necessary at the Faro Generating Station for safety reasons, the Designated Office has concluded there is no pathway of effects to assess as a result of the proposed project.

⁵⁴ YOR 2024-0145-0057

Watson Lake Designated Office Evaluation Report Faro Generating Station Capacity Expansion – 2024-0145

4.3 Determination of Significance

In order to mitigate a potential adverse effect, the Designated Office must first find that the effect is significant. In addressing what may constitute a “significant” adverse effect, the Designated Office considered the following effects characterization criteria:

Magnitude: The extent of a change from baseline conditions as a result of a proposed project.

Likelihood: The probability that an adverse effect will occur.

Geographic Extent: The spatial area(s) in which an effect is predicted to be detectable.

Duration: The length of time an effect is predicted to last.

Frequency: How often an effect is predicted to occur.

Timing: When an effect is predicted to occur.

Reversibility: The degree to which a valued environmental or socio-economic component can be returned to baseline conditions or other established reference point after proposed activities have ceased.

Context: The particular environmental and/or socio-economic context within which the project occurs. Context is related to the importance of valued environmental and socio-economic components, their resiliency to potential effects and the extent to which those valued components may successfully adapt to change.

Not all the factors are relevant to all effects; a specific effect’s characterization and corresponding significance determination may rely on a subset of these criteria.

4.3.1 Consideration of Cumulative Effects

With regards to cumulative effects, subsection 42(1)(d) of YESAA instructs Designated Offices to consider:

42(1)(d) the significance of any adverse cumulative environmental or socio-economic effects that have occurred or might occur in connection with the project or existing project in combination with the effects of other projects for which proposals have been submitted under subsection 50(1) or any activities that have been carried out, are being carried out or are likely to be carried out in or outside Yukon;

(d)(1) any studies or research undertaken under subsection 112(1) that are relevant to the project or existing project;

(d)(2) the need for effects monitoring.

The consideration of cumulative effects is a key contextual factor in determining the significance of potential project effects. To clarify, YESAB does not assess cumulative effects; the *Yukon Environmental and Socio-economic Act* (YESAA) requires YESAB to consider cumulative effects in terms of context of a project; YESAB does not have the direction, extensive information, or ability to conduct cumulative effects assessments. Further, YESAB is to assess the project activities proposed and the likelihood of significant

Watson Lake Designated Office Evaluation Report

Faro Generating Station Capacity Expansion – 2024-0145

adverse effects to a value based on those proposed activities. Like most environmental/impact assessment regimes, the assessment looks at the significant adverse effects of the singular project and not the whole area and all projects within it. Although YESAB can consider cumulative effects in terms of context, this is not a cumulative effects assessment and YESAB can only consider the information available to it and even then, this is often limited and made more challenging without a regional land use plan or regional cumulative effects assessment. Cumulative effects assessments are a fundamentally different assessment than what YESAB is intended to carry out. It is unknown to the Designated Office which agencies would be responsible for these assessments; however, it is expected that this rests with the Government of Yukon (or be government supported/led). The Designated Office would like to note that s.112 of YESAA provides for the federal government, the territorial government, and/or First Nations to request a study or research to be conducted as set out by that section.

4.4 Valued Environmental and Socio-economic Components Evaluated

The Designated Office has identified the following VESECs as having the potential to be adversely affected by the Project. Project effects to the following VESECs are discussed further in Part B of this report:

- **Air Quality** (Section 5.0)
- **Community Wellness** (Section 6.0)
- **Wildlife** (Section 7.0)
- **Soils and Vegetation** (Section 8.0)

Watson Lake Designated Office Evaluation Report
Faro Generating Station Capacity Expansion – 2024-0145

PART B. ASSESSMENT AND REASONS FOR RECOMMENDATION

Part B of this evaluation report presents the effects assessment of the Project on VESECs identified in Section 4.4. For the first two VESECs identified (Sections 5.0 and 6.0), the report presents an overview, followed by a discussion on relevant contextual factors, an effects characterization analysis, and a determination of significance. Where adverse project effects are determined to be significant, terms and conditions are recommended. For the final two VESECs identified (Section 7.0 and 8.0), the Designated Office considered the potential adverse effects to be sufficiently limited that the report presents the determination and reasoning within shorter sections.

5.0 AIR QUALITY

5.1 Overview

When diesel fuel is burned at the Faro Generating Station, it can negatively impact air quality outside the project area due to the emission of diesel exhaust. This exhaust contains toxic substances, which can damage the natural environment in various ways. For instance, it can alter the chemical composition of soils, contribute to the acidification of lakes and other waterways, cause acid rain, and exacerbate climate change.

Based on the information gathered during the assessment, the generators are used to handle peak demands, provide electricity during unplanned outages, and support planned system maintenance. Since unplanned outages can happen at any time of year, under any weather conditions, and for varying lengths of time, they're not easily predictable.

The Watson Lake Designated Office has determined that the Project is likely to result in significant adverse effects to air quality. The following sections provide the rationale for this determination.

5.2 Spatial and Temporal Scope

The spatial scope for consideration of potential effects to air quality is a 5 km radius modelling domain centred on the project location. The temporal scope considered is 20 years, which corresponds to the duration of the Project.

5.3 Contextual Considerations

Contextual considerations provide the environmental and/or socio-economic setting within which the Project will occur. It includes the reference conditions and past, present, and likely future activities that may occur in the spatial scope of the assessment and any other relevant considerations.

5.3.1 Reference Conditions

The Property is located on property owned by the Proponent. The Property is located on Campbell Street within the Town of Faro. Within a 5 km radius, identified in the spatial scope, there are multiple residences, a public school, a health station and other public facilities.

The *Air Emission Regulations* under the *Environment Act* address air quality and human health related to air contaminants. The Canadian Ambient Air Quality Standards (CAAQS) guide seeks to improve air

Watson Lake Designated Office Evaluation Report Faro Generating Station Capacity Expansion – 2024-0145

quality across Canada to protect health and the environment.⁵⁵ Established by the federal government under the *Canadian Environmental Protection Act*, 1999, these guidelines represent ambient air quality objectives, not pollution limits; proactive measures should keep emissions below these levels.

The Yukon has set the Yukon Ambient Air Quality Standards (YAAQS), which, along with CAAQS, cover NO₂, sulphur dioxide (SO₂), ground-level ozone, and Total Suspended Particles, including PM₁₀ and PM_{2.5}. While YAAQS exist, there are no standards for airborne metals in the Yukon or federally, unlike other provinces like Ontario and Alberta, which have criteria that influence the assessment of potential adverse effects.

Since 2011, the Government of Yukon has run an outdoor air quality monitoring station in Whitehorse as part of the National Air Pollution Surveillance (NAPS) network, the only one in the Yukon. The Government of Yukon also installed Purple Air sensors in Faro to monitor PM_{2.5}, a small particulate matter from combustion processes, which can harm health, causing asthma, chronic bronchitis, and heart attacks. The Government of Yukon has operated an outdoor air quality monitoring station in the City of Whitehorse as part of the National Air Pollution Surveillance (NAPS) network since 2011. There are no other NAPS stations located in the Yukon. The Whitehorse station monitors ground-level ozone, nitrogen dioxide and particulate matter.⁵⁶

Additionally, Yukon Energy installed a continuous ambient air quality monitoring station at the Yukon University, Faro Campus, to collect data on the actual air quality levels in Faro and compare them with the model results. Actual NO₂ monitoring data collected between August 2023 and April 2024 have measured very low levels of NO₂ (25% of the 2025 1-hour NO₂ YAAQS, and 7% of the 2025 annual NO₂ YAAQS).

5.3.2 Consideration of Past, Present, and Likely Activities

The Project is an amendment to a previous air emissions permit (No. 60-010-01). In 2014, YESAB assessed an air emission permit renewal for the Proponent (YOR 2014-0119) with no changes to their production capacity at the site. More recently, in 2021, YESAB assessed an amendment to the Air Emissions Permit, which increased operational generation from 10.6 MW to 15.5 MW (YOR 2021-0115).

The Faro Generating Station was permitted for 10.5 MW of thermal generation capacity in 2011 and 15.5 MW in 2021. It will now seek to increase its permitted capacity to 20.4 MW, representing a 94 % increase in capacity at the project site over 14 years. The most recent assessments by YESAB for the Faro Generating Station (2011-0246, 2014-0119 and 2021-0115) identified air quality as a valued component that may be adversely affected by the Project. In both assessments, the Designated Office determined that the projects would not result in significant adverse effects to air quality.

In addition to the Faro Generating Station, YESAB has received a proposal submission for the Mitchell Road Industrial Master Plan (YOR 2025-0024). This project is also proposed within the Town of Faro, and if approved, would allocate several industrial lots. Therefore, that project may also contribute to local air pollution within the town of Faro.

⁵⁵ Government of Canada 2024

⁵⁶ Government of Yukon 2025a

Watson Lake Designated Office Evaluation Report

Faro Generating Station Capacity Expansion – 2024-0145

5.3.3 Relevant Legislation

The Designated Office considered the following legislative requirements. This list is not exhaustive; rather, the Designated Office reviewed this specific legislation because of its direct relevance to air quality.

- The Yukon Ambient Air Quality Standards (YAAQS).
 - The YAAQS values address acceptable emissions from proposed and existing projects. These standards address ground-level ozone, nitrogen dioxide, particulate matter and sulphur dioxide. Adjusted values for standards were updated January 1, 2025.
- *Canadian Environmental Protection Act (1999)*
 - *Sulphur in Diesel Fuel Regulation*
 - Reporting requirements of the National Pollutant Release Inventory
- *Environment Act (Yukon)*
 - *Air Emissions Regulations*
 - Section 3 regulates a 40 % maximum opacity of visible emissions from a source not regulated by the terms and conditions of a permit under the regulations.
 - Section 4 prohibits the use of fuel that has a sulphur content in excess of 1.1% except as authorized by a permit under the regulations.
 - Section 6 prohibits the release of any air contaminant to such extent or degree as (a) may cause or be likely to cause irreparable damage to the natural environment; or (b) in the opinion of a health officer, cause actual or imminent harm to public health or safety.
- *Occupational Health Regulations*, which stipulate exposure limits for air contaminants, usually based on an 8-hour permissible exposure limit.

5.4 Effect Characterization

5.4.1 Project Effect: Decreased Ambient Air Quality, and Affects to Human Health

5.4.1.1 Pathway of Effects

The Project will see the operation of ten diesel generators to produce up to 20 MW of electricity for the Yukon Grid. The combustion of diesel generates exhaust, a complex mixture of combustion products.⁵⁷ Diesel exhaust contains toxic substances, known as Criteria Air Contaminants (CACs). These CACs

⁵⁷ United States Environmental Protection Agency 2025

Watson Lake Designated Office Evaluation Report
 Faro Generating Station Capacity Expansion – 2024-0145

release harmful pollutants into the air, with the potential to adversely affect human health. Potential sources of these CACs are listed in Table 5.

Table 5: Possible CACs Formed Through Diesel Combustion and Potential Health Effects
 Information Taken from Health Impacts of Air Pollution in Canada⁵⁸

CAC	Source	Health Effects
Total Suspended Particles (TSP)	Refers to airborne solid and liquid microscopic particles (excepting water), suspended in the air momentarily or indefinitely; both natural and anthropogenic sources can generate TSP (e.g., industrial emissions, forest fires).	Respiratory tract effects, asthma, bronchitis, and heart attacks.
Fine Particulate Matter (PM _{2.5})	Originates primarily from combustion in transportation and industrial processes and burning.	Increased frequency of asthma attacks, chronic bronchitis, and heart attacks.
Coarse Particulate Matter (PM ₁₀)	Predominantly results from unpaved-road dust, construction activities, mining, and quarrying.	Upper respiratory tract effects, such as cough, phlegm, rhinitis, and asthma.
Sulphur Dioxide (SO ₂)	Emitted when industrial processes burn or use fossil fuels or raw materials containing sulphur.	Reduced lung function, respiratory problems, and airway inflammation.
Nitrogen Dioxide (NO ₂) Nitrogen Oxide (NO _x)	Formed primarily through the burning of fossil fuels.	Reduced lung function, respiratory problems, airway inflammation, allergic reactions, asthma, and increased susceptibility to respiratory infection.
Carbon Monoxide (CO)	Majority of sources to outdoor air are vehicles, such as trucks or other machinery that burn fossil fuels.	Reduced oxygen, chest pains, dizziness, and confusion.

The Yukon Ambient Air Quality Standards (YAAQS) are the maximum concentrations of pollutants acceptable in ambient air throughout the Yukon (see Table 6 below). They are to be used to determine the acceptability of emissions from proposed and existing developments.

Table 6: Yukon Ambient Air Quality Standards⁵⁹

Pollutant	Averaging Time	Current Standard (effective January 1, 2025)
Ground Level Ozone (O ₃)	8 hour	119 ug/m ³
Nitrogen Dioxide (NO ₂)	1 hour	79 ug/m ³
	Annual	23 ug/m ³
Particulate Matter Coarse (PM ₁₀)	24 hour	50 ug/m ³
Particulate Matter Fine (PM _{2.5})	24 hour	27 ug/m ³
	Annual	8.8 ug/m ³
Sulphur Dioxide (SO ₂)	1 hour	170 ug/m ³
	Annual	11 ug/m ³
Total Suspended Particulate (TSP)	24 hour	120 ug/m ³
	Annual	60 ug/m ³

⁵⁸ Health Canada 2021

⁵⁹ <https://yukon.ca/en/yukon-ambient-air-quality-standards>

Watson Lake Designated Office Evaluation Report

Faro Generating Station Capacity Expansion – 2024-0145

5.4.1.2 Concerns Raised

Several concerns related to air quality were raised during the Seeking Views and Information, which include:

- “I have never experienced the level of noise and air pollution in the community since the generators have arrived...Many residents suffer with chronic lung issues, like COPD and asthma, and have issues living in the city where air pollution is prevalent.”⁶⁰
- “We can count the plumes of exhaust rising up in the air from each generator with out own eyes.”⁶¹
- “...the amount of cancer-causing carcinogens from the exhaust of these huge generating units is unbelievable”.⁶²
- “The area known as lower bench use to get amazing views of northern lights, the past couple winters, since the generators, many of the residents have noticed a lot of smoggy hanging exhaust that is blocks a lot of our beautiful night skies”.⁶³
- “YEC suggests that the magnitude of emissions is lower because the generators are run only these percentages of the year. However, the YM units are only run in the winter and usage of the FD units is also concentrated in the winter, so while the yearly average emissions may be acceptable, the reality is that the emissions are concentrated in the winter months, and cleaner air in the summer does not make up for excessive pollution in the winter.”⁶⁴

5.4.1.3 Modelling Methodology

The Proponent has provided an Air Dispersion Modelling Assessment focused on the Project, with a 5 km modelling domain, to assess potential air quality impacts from the combined ten generators (20.4 MW electrical generating capacity). Since the Yukon lacks air dispersion modelling guidelines, the project proposal's assessment followed recommendations from the British Columbia Air Quality Dispersion Modelling Guideline (BC AQDMG). The dispersion modelling used CALPUFF, a suite of air dispersion models, with three years (2016-2018) of meteorological data, as per the BC AQDMG. This model considers dominant wind directions, speed, temperature, elevation, and other geographical variables to predict how contaminants from the proposed diesel generation increase will disperse and concentrate at several nearby receptors, including a nearby residence, a child care facility, a school and a health care facility (see Figure 5 below).

⁶⁰ YOR 2024-0145-0049

⁶¹ YOR 2024-0145-0023

⁶² YOR 2024-0145-0032

⁶³ YOR 2024-0145-0036

⁶⁴ YOR 2024-0145-0061

Watson Lake Designated Office Evaluation Report
 Faro Generating Station Capacity Expansion – 2024-0145

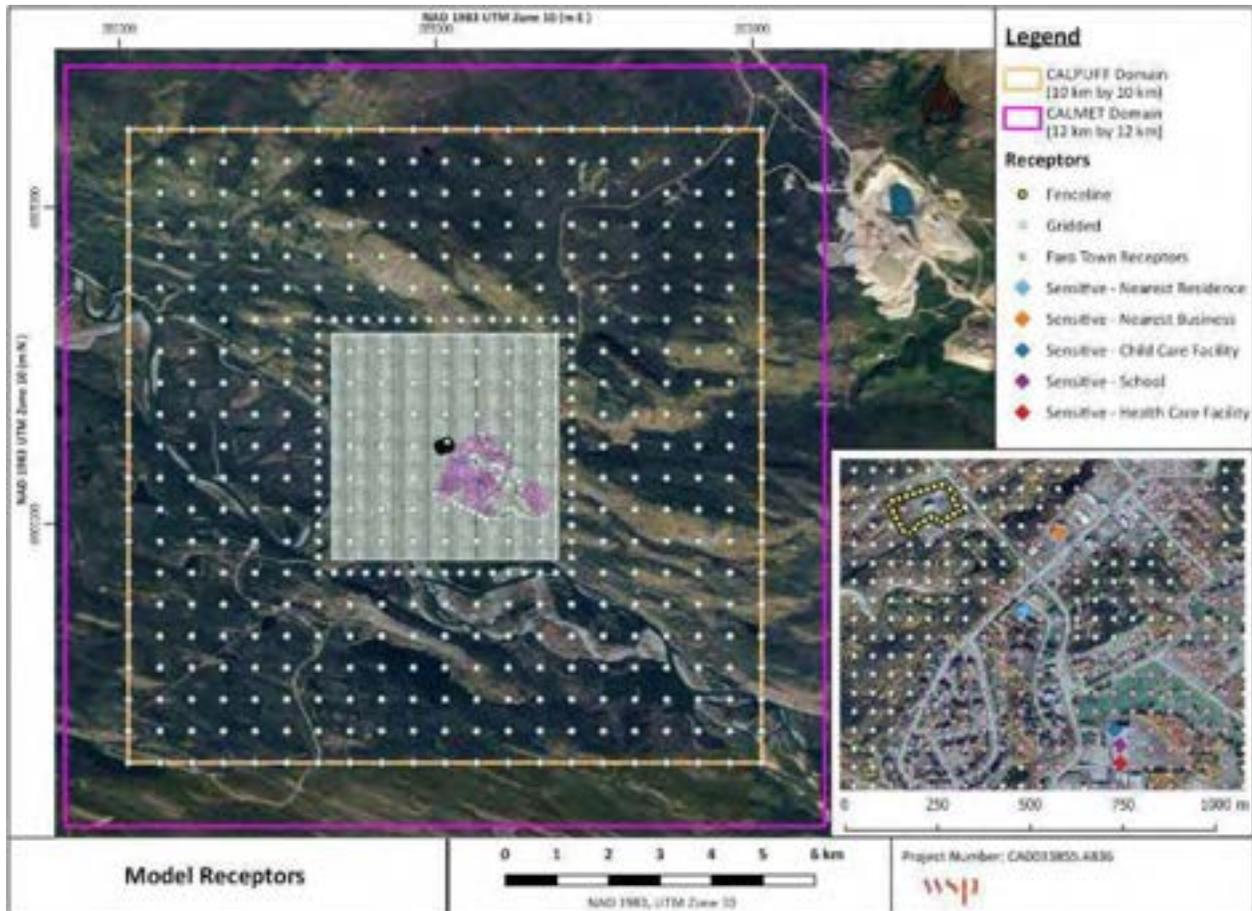


Figure 5: CALPUFF modelling domain with sensitive receptors indicated (provided by Proponent⁶⁵)

One modelling scenario was considered, which included the proposed expansion (21 MW⁶⁶). The scenario was evaluated assuming maximum emissions from the station generators, based on maximum operating conditions and nameplate capacities. The modelling also conservatively assumed that all generators were emitting simultaneously and continuously at nameplate capacity throughout the year.

To calculate NO₂ dispersion and concentration, the Total Conversion Method (TCM) was used, which assumes 100% of NO_x are NO₂. This method is used as an initial screening, and if exceedances are predicted, a refined model can be used to more precisely predict exceedances. As the TCM model showed exceedances, the Proponent then estimated NO₂ using the Ozone Limiting Method, which incorporates the conversion of NO to NO₂ through a reaction with ozone (O₃).

⁶⁵ YOR 2024-0145-0003

⁶⁶ *The Designated Office clarified with the Proponent, in Information Request 2, that only a 20.4 MW increase was proposed, despite 20.1 MW being listed in the Air Dispersion report (YOR 2024-0145-0013).

Watson Lake Designated Office Evaluation Report

Faro Generating Station Capacity Expansion – 2024-0145

5.4.1.4 Modelling Results

Modelling results are presented in Table 7 below, and exceedances are further highlighted in contour plots in Figure 6. The results from the modelled scenarios indicate that:

- TSP, PM_{2.5}, CO, SO₂: The maximum predicted concentrations were well below (< 55%) the YAAQS.
- NO₂ 1-hour: The maximum predicted concentrations of NO₂ for 1-hour averaging periods, at sensitive receptors, show exceedances of the YAAQS from 195% to 238% (see Table 7 and Figure 6).
- NO₂ Annual: The maximum predicted concentrations of NO₂ for annual averaging periods, at sensitive receptors, show exceedances at the nearest residence receptor (101%) and the nearest business receptor (106%) and high concentrations at other locations (> 78%) (see Table 7 and Figure 6).
- PM₁₀ 24-hour: The maximum predicted concentration of PM₁₀ shows exceedances between 103% and 105% (see Table 7 and Figure 6).

Watson Lake Designated Office Evaluation Report
 Faro Generating Station Capacity Expansion – 2024-0145

Table 7: Summary of Maximum Cumulative Modelling Results at the MPOI (Maximum Point of Impingement) from the Expanded Capacity Scenario
 (provided by Proponent)⁶⁷

AIR CONTAMINANT	AVERAGING PERIOD	AMBIENT AIR QUALITY STANDARD (µg/m³)	JURISDICTION	MAXIMUM CUMULATIVE MODEL PREDICTED CONCENTRATION AT THE SENSITIVE RECEPTORS											
				Expanded Capacity Scenario											
				Most Impacted Faro Town Receptor		Nearest Residence		Nearest Business		Nearest Childcare Facility		Nearest School		Nearest Health Care Facility	
				Value (µg/m³)	% of Criteria	Value (µg/m³)	% of Criteria	Value (µg/m³)	% of Criteria	Value (µg/m³)	% of Criteria	Value (µg/m³)	% of Criteria	Value (µg/m³)	% of Criteria
Nitrogen Dioxide (NO ₂) – TCM	1-hour	79	Yukon	2326.1	2944%	1184.1	1499%	1264.1	1600%	798.2	1010%	776.3	983%	792.2	1003%
	Annual	23	Yukon	91.2	396%	63.8	278%	65.0	283%	37.7	164%	35.2	153%	33.0	144%
Nitrogen Dioxide (NO ₂) – OLM	1-hour	79	Yukon	281.9	357%	187.8	238%	189.2	239%	155.3	197%	153.2	194%	154.3	195%
	Annual	23	Yukon	27.8	121%	23.2	101%	24.4	106%	19.0	83%	18.5	80%	17.9	78%
Total Suspended Particulate (TSP)*	24-hour	120	Yukon	16.2	14%	8.2	7%	7.0	6%	6.8	6%	6.2	5%	5.6	5%
	Annual	60	Yukon	1.3	2%	0.8	1%	1.0	2%	0.5	1%	0.5	1%	0.4	1%
Coarse Particulate Matter (PM ₁₀)	24-hour	50	Yukon	56.1	112%	52.7	105%	52.2	104%	52.0	104%	51.9	104%	51.7	103%
Fine Particulate Matter (PM _{2.5})	24-hour	27	Yukon	12.7	47%	11.8	44%	11.8	44%	11.1	41%	11.1	41%	11.0	41%
	Annual	8.8	Yukon	4.8	55%	4.6	53%	4.7	53%	4.5	51%	4.5	51%	4.4	51%
Sulphur Dioxide (SO ₂)	1-hour	170	Yukon	7.3	4%	5.1	3%	5.2	3%	3.9	2%	3.9	2%	3.9	2%
	Annual	11	Yukon	1.0	9%	1.0	9%	1.0	9%	0.9	8%	0.9	8%	0.9	8%
Carbon Monoxide (CO)	1-hour	14300	BC	751.0	5%	554.6	4%	555.4	4%	482.9	3%	488.8	3%	505.3	4%
	8-hour	5500	BC	450.1	8%	423.7	8%	419.1	8%	412.8	8%	412.0	7%	411.4	7%

*Note: There is no hourly TSP monitoring data available for the Project location, so no baseline TSP value was included in the calculation of cumulative TSP predictions.

⁶⁷ YOR 2024-0145-0003

Watson Lake Designated Office Evaluation Report
 Faro Generating Station Capacity Expansion – 2024-0145

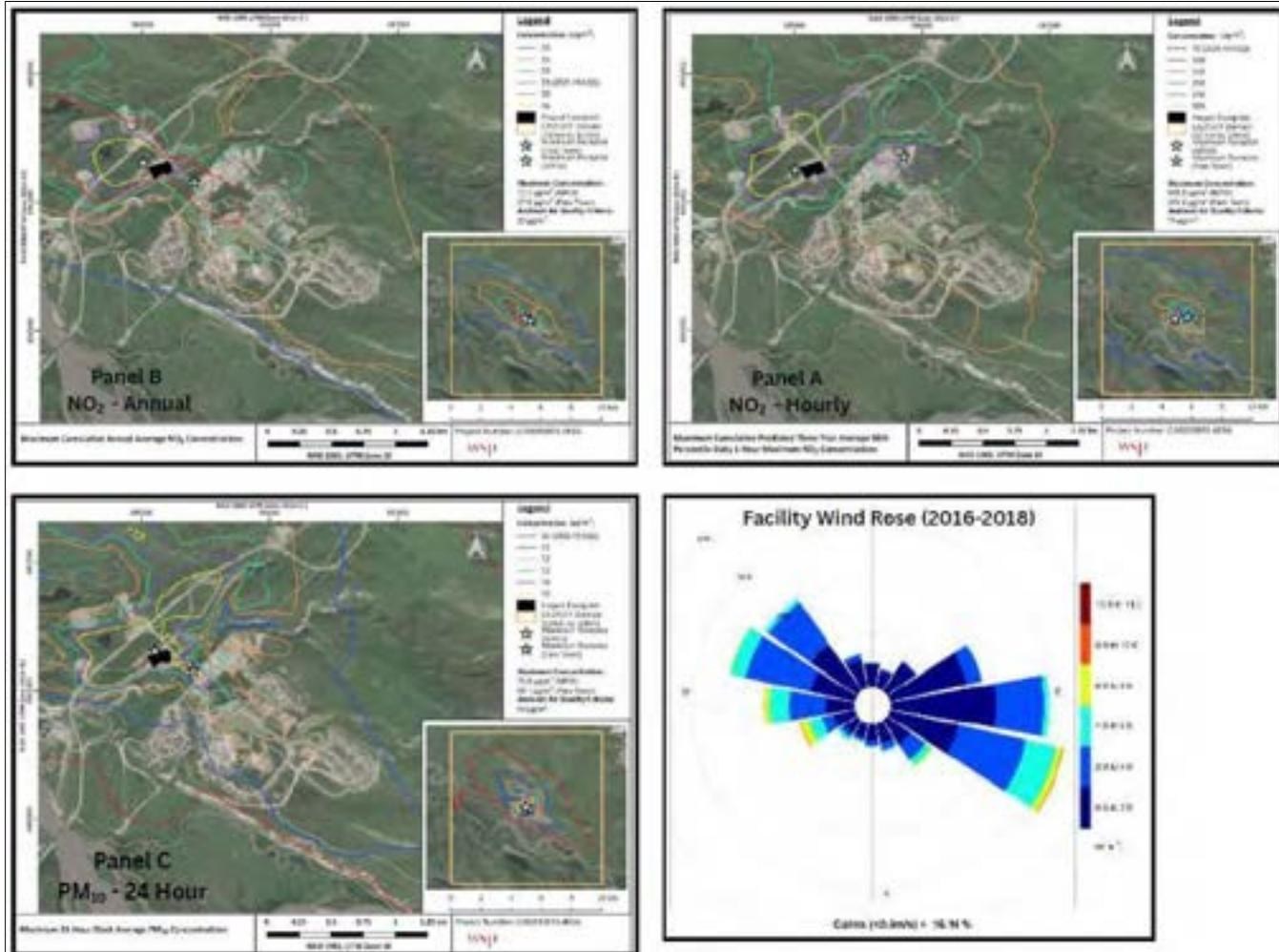


Figure 6: Contour plots showing exceedances for NO₂ annual and hourly averaging times (Panel A and B), as well as PM₁₀ (Panel C). The wind rose used for modelling is also presented (Figure created from the figures provided by the Proponent⁶⁸)

⁶⁸ YOR 2024-0145-0003

Watson Lake Designated Office Evaluation Report Faro Generating Station Capacity Expansion – 2024-0145

5.4.1.5 Proponent Commitments

To address adverse effects from the Project, the Proponent has proposed several commitments to reduce the likelihood of adverse effects to air quality. The following are the measures considered by the Designated Office in the significance determination:

- Yukon Energy will run the generator units at the Site in order of highest possible efficiency in the circumstances, except for maintenance or test purposes which will be for short durations;⁶⁹
- Educate residents in the Yukon about reducing electricity consumption in day-to-day electricity use;⁷⁰ and
- The new permanent generator units, FD8 and FD9, are outfitted with best available technology to reduce emissions and comply with the best available Tier 4 emission standards.⁷¹

5.4.1.6 Effects Characterization Criteria

The Proponent's model has shown concerning and unacceptable concentrations of NO₂ (for annual and hourly averaging times) as well as for PM₁₀ at sensitive receptors within the Town of Faro. The Proponent argues that the exceedances in their air dispersion model indicate that the 24-hour PM₁₀ exceedances "are primarily driven by the high baseline values, which account for the 99 % of the YAAQS."⁷² The Designated Office understands the rationale that PM₁₀ produced by the Project represents only a small fraction of the ambient PM₁₀ observed. However, YESAB and the Designated Office regard cumulative effects as context when making significant determinations, particularly when project activities, such as those proposed, lead baseline values to cross critical thresholds, such as the YAAQS.

The Proponent noted that for NO₂ exceedances:

The air dispersion modeling is highly conservative and assumes that all generators are operating at maximum capacity every hour of the 3-year modelling period (2016-2018), which is not reflective of typical operating conditions at the Faro Generating Station.⁷³

They argue that actual monitoring data collected from the school showed lower levels of NO₂, which at the time still had seven generators (15.5 MW) operational:

The monitored concentrations are well below predicted NO₂ concentrations from the previous modelling assessment, suggestive of the conservative nature of the previous modelling assessment using similar, but generally less conservative NO₂ modelling methodologies...[a]ctual NO₂ monitoring data collected within Faro between August 2023 and April 2024 has measured very low levels of NO₂ (25% of the 2025 1-hour NO₂ YAAQS and 7% of the 2025 annual NO₂ YAAQS).⁷⁴

⁶⁹ YOR 2024-0145-0003

⁷⁰ YOR 2024-0145-0003

⁷¹ YOR 2024-0145-0003

⁷² YOR 2024-0145-0003

⁷³ YOR 2024-0145-0003

⁷⁴ YOR 2024-0145-0003

Watson Lake Designated Office Evaluation Report
 Faro Generating Station Capacity Expansion – 2024-0145

The Proponent provided total generator runtime by month from 2021 to March 2025, see Table 8 below. From the data provided, it is clear that generators at the site run primarily in the winter, which is further illustrated by Figure 7, which shows total generator run-time is typically high in December, January and February, followed by moderate runtimes in the shoulder seasons (March, April, September, October and November) and low run times in the summer months (May -August). The Designated Office notes that the Proponents' model employs conservative parameters to predict CAC concentrations and that it is unlikely for all generators to run continuously through the year, based on trends from previous years, reducing the likelihood of long-term exceedances of NO₂ (annual); however, based on the run-time trend data provided, short term exceedances of both PM₁₀ and NO₂ remain highly likely in winter months (December – March).

Table 8: Total Generator Run Time by Month for 2021-2025 (table created from information provided by the Proponent⁷⁵)

Month	2021	2022	2023	2024	2025
January	94	791	30	918	923
February	277	257	236	1036	1341
March	15	66	163	135	198
April	130	1	14	12	N/A
May	0	1	1	0	N/A
June	0	2	12	2	N/A
July	1	2	1	13	N/A
August	3	2	96	1	N/A
September	20	221	2	274	N/A
October	42	19	5	370	N/A
November	13	14	1	240	N/A
December	454	1293	22	742	N/A
Total	1049	2669	583	3743	2462

⁷⁵ YOR 2024-0145-0057

Watson Lake Designated Office Evaluation Report
 Faro Generating Station Capacity Expansion – 2024-0145

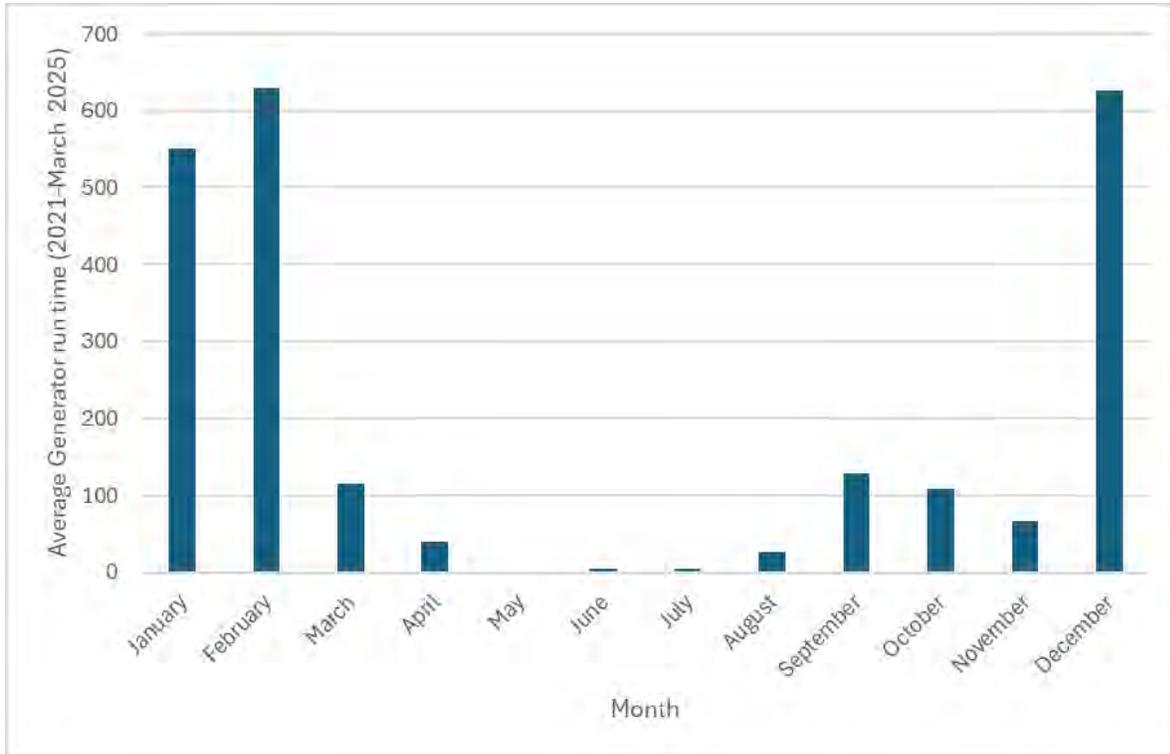


Figure 7: Average run time, from 2021 – March 2025, of the Faro Generating Station generator by month
 (Figure created using information provided by the Proponent⁷⁶)

When comparing generator run-times between the months of August 2023 and April 2024 (when NO₂ monitoring occurred), the combined run time of all generators was 2227 hours, which is considerably less than the total runtimes of 3743 hours in 2024 and lower than the 2462 hours generator run time in 2025, despite only three months of data for that year. Therefore, comparing predicted air dispersion results to the actual results of NO₂ does not adequately reflect the expected generator runtimes. Furthermore, when comparing the annual trend of generator runtimes since 2021, there has been an upward trend (with the exception of 2023) (see Figure 8 below). The Designated Office expects this trend to continue as the site's capacity is expanded.

⁷⁶ YOR 2024-0145-0057

Watson Lake Designated Office Evaluation Report
 Faro Generating Station Capacity Expansion – 2024-0145

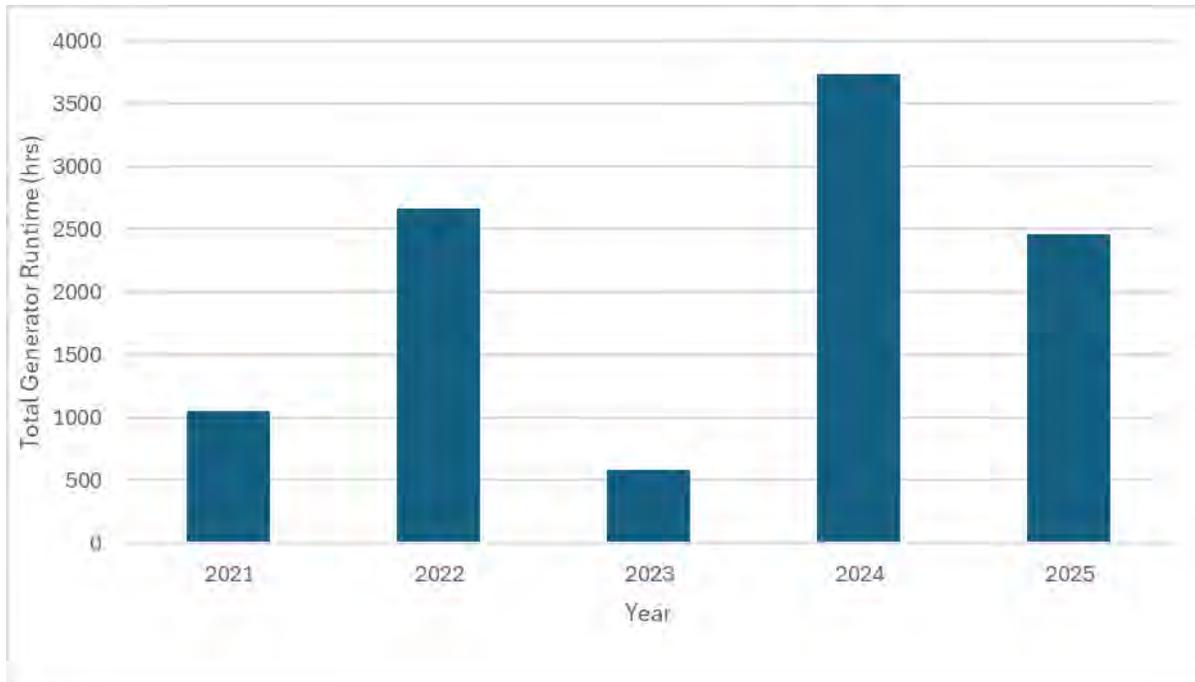


Figure 8: Total generator runtime at the Faro Generating Station (2021 -March 2025)

The Designated Office expects adverse effects on air quality because the Project is highly likely to continue/occur for extended periods. The impact on air quality is expected to have a large geographic extent, with exceedances predicted over most of the Town of Faro. These exceedances may especially affect individuals who spend time outdoors after work in the winter or who enjoy outdoor activities during the cooler months (September to April), when exceedances are most likely to occur due to the operation of generators at the site.

Section 6 of *Air Emissions Regulations* prohibits the release of any air contaminant to such extent or degree as (a) may cause or be likely to cause irreparable damage to the natural environment; or (b) in the opinion of a health officer, cause actual or imminent harm to public health or safety.

Exposure to NO₂ and PM₁₀ can cause upper respiratory tract infection, coughing, asthma, airway inflammation and reduced lung function. It is essential to note that even brief exposure to NO₂ can have adverse and long-term effects on humans, including airway inflammation and reduced lung function.⁷⁷ As the effects of reduced air quality are severe, the Designated Office considers the magnitude of the effects on the health of residents to be high. Furthermore, the Designated Office considers the duration of the effects, 20 years, to also be long.

The Designated Office has determined that the Project is likely to result in significant adverse effects on air quality, such that further mitigation measures are recommended. The Proponent should continue to collect NO₂ levels at the Yukon University campus. Moreover, the Proponent should collaborate with the Regulator to develop an air quality monitoring plan that ensures air emissions comply with applicable

⁷⁷ Canadian Council of Ministers of the Environment n.d.

Watson Lake Designated Office Evaluation Report

Faro Generating Station Capacity Expansion – 2024-0145

standards. If the monitoring results indicate an exceedance, the Proponent should implement corrective measures to ensure that the standards are met. The monitoring and analysis results should be made available to the Government of Yukon, Department of Environment. These mitigation measures are deemed sufficient to reduce effects on air quality from the project activities.

5.5 Significance Determination

The Watson Lake Designated Office has determined that the Project is likely to have significant adverse environmental effects on air quality. These effects can be eliminated, reduced, or controlled by the application of the following terms and conditions:

1. The Proponent's air emission permit application shall be subject to a technical review by the regulator; this review is to occur on a regular basis as determined by the regulator. Results of the technical review may require the Proponent to submit an air emissions management plan for review and approval. The management plan shall outline appropriate monitoring, mitigation and management actions to reduce, control and mitigate air emissions from the Faro Generation Station.

6.0 COMMUNITY WELLNESS

6.1 Overview

The Project involves activities that can lead to adverse effects from noise disturbance for the duration of the Project (20 years). The Project is in close proximity to residences, businesses and other facilities, with the nearest residence approximately 350 m to the southeast of the Project, the nearest business 360 m to the southeast, the nearest childcare facility 785 m to the southeast, and the nearest school 825 m to the southeast. The Designated Office has considered two effects on community wellness: the effect of noise disturbance and the effect of degraded public trust between the community and the Proponent, both which result in effects to community wellness.

The Designated Office received concerns from residents of Faro regarding the potential noise generated by the Project and its impact on community wellness. Residents raised concerns about the project's history, noting that the effects of noise had not been previously mitigated, and expressed concerns that the noise disturbance would negatively impact community wellness.

The Designated Office has determined that the Project is likely to result in significant adverse effects to community wellness. The following sections provide the rationale for this determination.

6.2 Spatial and Temporal Scope

Project activities that can impact community wellness include the operation of seven generators currently permitted (FD7 and YM20-YM25), as well as the three proposed (already installed) generators (YM26, FD8, and FD9), which would increase the site capacity from 15.5 MW to 20.4 MW. Noise generated from the generators has the potential to travel outside the immediate project area. Noise generated from generators and their impact on people will depend on a variety of factors, such as the intensity of use, temperature, humidity and other meteorological factors. Therefore, the spatial scope for consideration is

Watson Lake Designated Office Evaluation Report
 Faro Generating Station Capacity Expansion – 2024-0145

the boundary of civic addresses with the Town of Faro (see Figure 9). The temporal scope for consideration is the entire duration of the Project, 20 years.

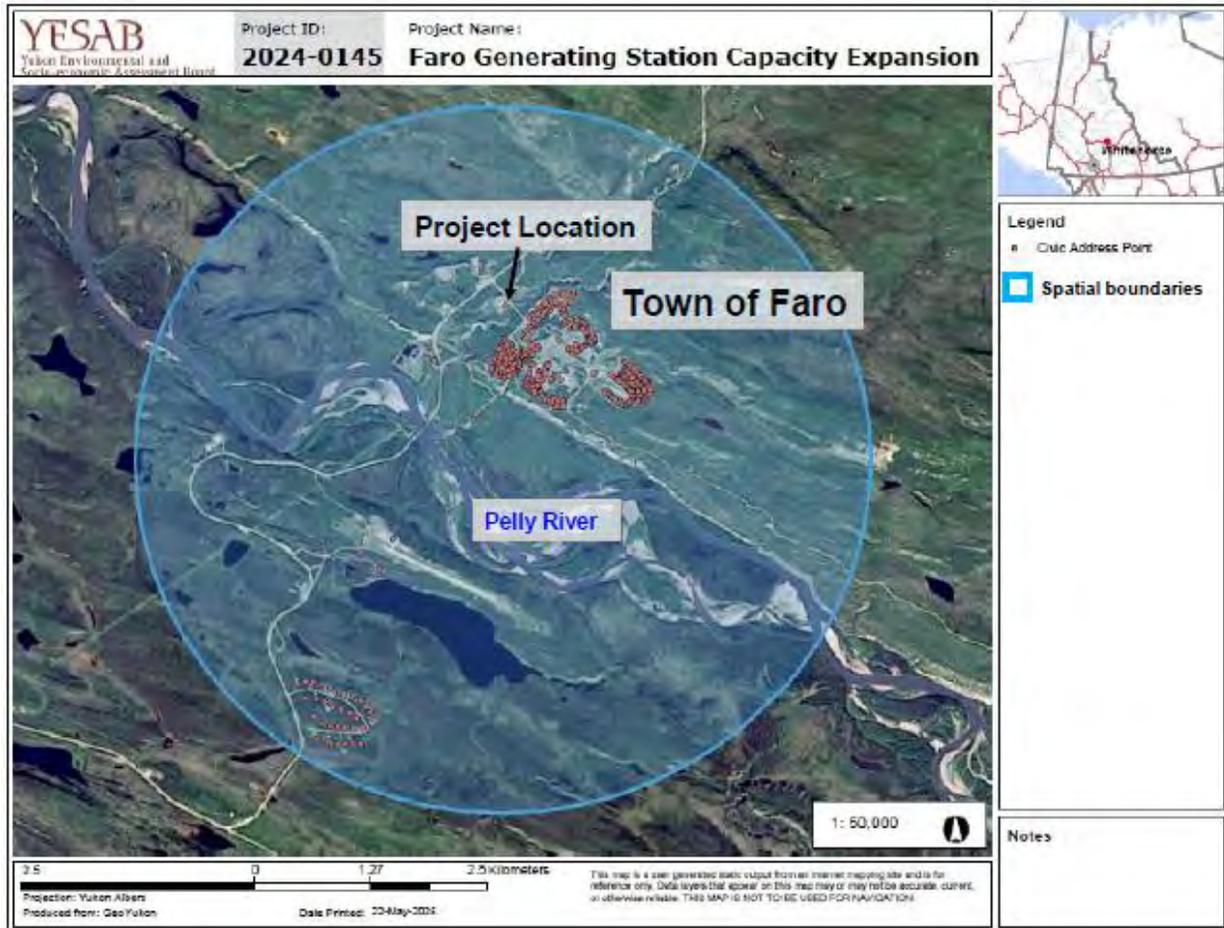


Figure 9: The spatial boundary for community wellness includes most of the civic addresses within the municipal limits of the Town of Faro

6.3 Contextual Considerations

Contextual considerations provide the environmental and/or socio-economic setting within which the Project will occur. It includes the reference conditions and past, present, and likely future activities that may occur in the spatial scope of the assessment and any other relevant considerations.

6.3.1 Reference Conditions

Permitted to operate 10.5 MW of thermal generation capacity in 2011 and 15.5 MW in 2021, the Faro Generating Station is now proposing a 20.4 MW capacity. The Project is situated near 492 civic addresses within a 2 km radius of the facility, which includes residential properties, a public school, a nursing station and businesses.

In 2021, four members of the public commented on the previous Faro Generating Station project (YOR 2021-0115), raising concerns about noise disturbance from the generators. The Designated Office found

Watson Lake Designated Office Evaluation Report

Faro Generating Station Capacity Expansion – 2024-0145

that noise would have significant adverse effects, but these could be mitigated through mitigation measures. One way to mitigate these effects was to implement a complaint management system that establishes a channel for community members to raise concerns and for the Proponent to respond with a process to resolve concerns. However, through comments and information provided to the Designated Office during this assessment, it does not appear that the complaint management system has worked in the way it was intended.

Following feedback from the previous assessment in 2021-0115 regarding noise concerns raised by residents, the Proponent established a noise monitoring program. Initially, one monitor was installed on the roof of Yukon University (monitoring location 1; Figure 10). Based on community feedback, the noise monitoring locations were adjusted to better reflect residents' experiences. On December 6, 2023, the monitor at the campus was moved to the backyard of 145 Dawson Drive (monitoring location 2; Figure 10). A second monitor was then also installed in the backyard of 506 Ladue Drive (monitoring location 3; Figure 10).

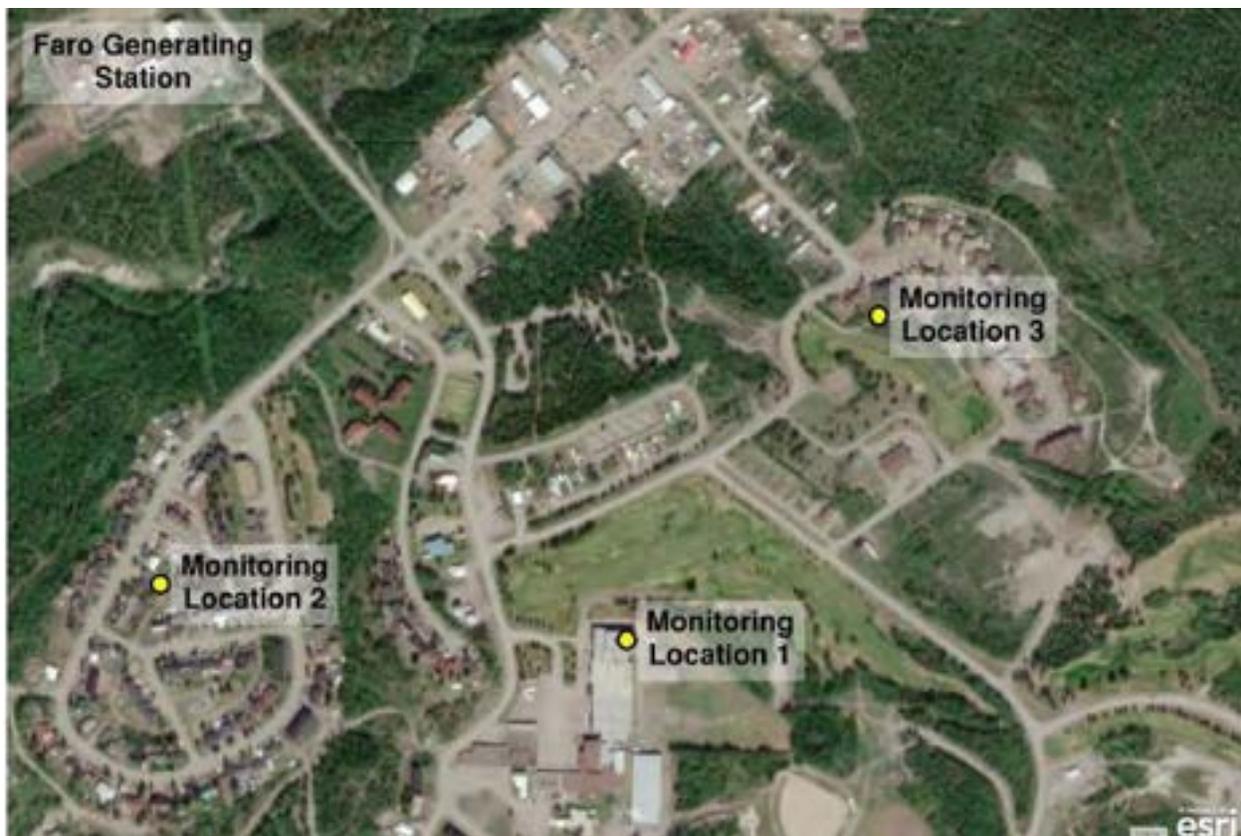


Figure 10: Map of three noise level monitor locations (provided by Proponent⁷⁸)

Results were compiled from monitoring locations 2 and 3, covering the period from December 11, 2023, to May 31, 2024. The LAeq, L10, and L90 levels were plotted. The equivalent sound level, LAeq, represents the average sound level over a specified period. L10 indicates the sound level that is

⁷⁸ YOR 2024-0145-0058

Watson Lake Designated Office Evaluation Report
 Faro Generating Station Capacity Expansion – 2024-0145

exceeded for 10% of the measurement time (non-steady state), while L90 indicates the sound level that is exceeded for 90% of the time (steady state) (see Figure 11 and Figure 12).

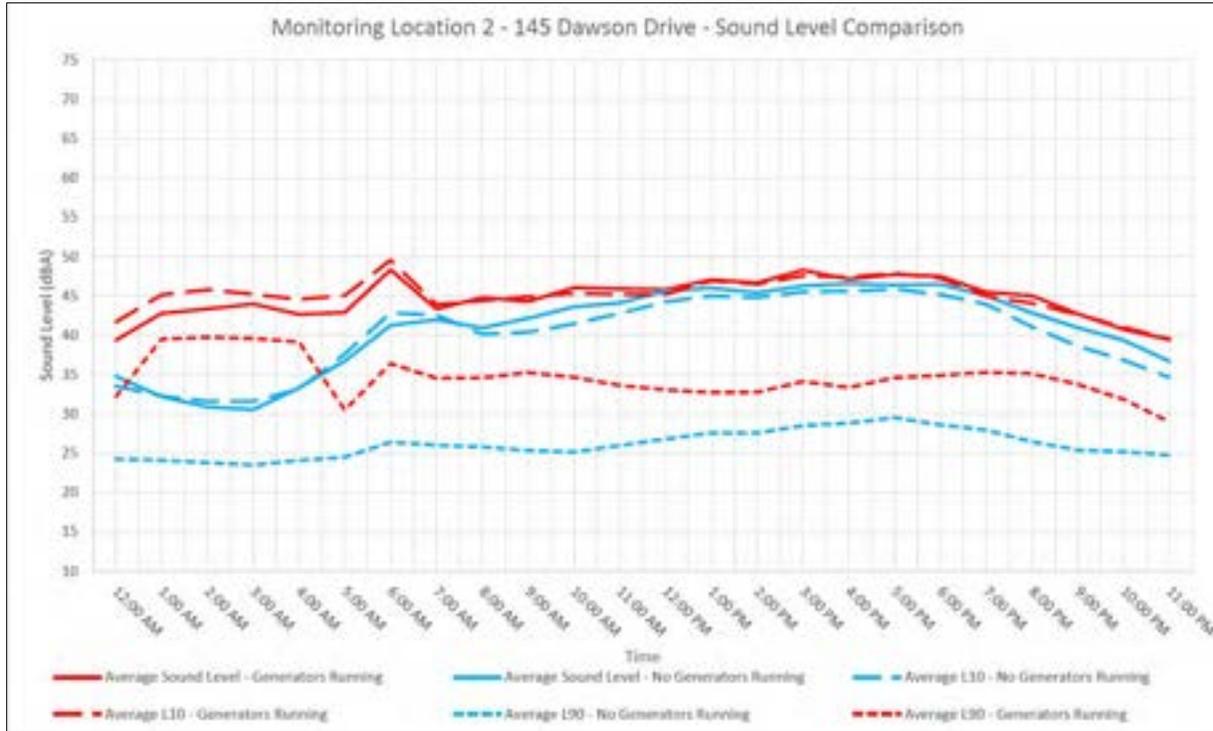


Figure 11: Comparison of sound levels at monitoring location 2 (generators running versus generators not running) based on averages from December 11, 2023, to May 31, 2024 (provided by the Proponent⁷⁹)

⁷⁹ YOR 2024-0145-0058

Watson Lake Designated Office Evaluation Report
 Faro Generating Station Capacity Expansion – 2024-0145



Figure 12: Comparison of sound levels at monitoring location 3 (generators running versus generators not running) based on averages from December 11, 2023, to May 31, 2024 (provided by the Proponent⁸⁰)

6.3.2 Consideration of Past, Present, and Likely Activities

Most of the Yukon’s primary power grid is owned by the Proponent. ATCO Electric Yukon operates power generation facilities in several Yukon communities, both connected and not connected to this grid. However, Beaver Creek, Burwash Landing, Destruction Bay, Old Crow, and Watson Lake are not part of the Yukon power grid.

⁸⁰ YOR 2024-0145-0058

Watson Lake Designated Office Evaluation Report
 Faro Generating Station Capacity Expansion – 2024-0145



Figure 13: The Yukon grid⁸¹

The Faro Generating Station is linked to the Yukon grid, enabling energy from Faro to meet the demands of all connected communities, not just Faro. From 2016 to 2021, the Yukon experienced the highest growth rate in Canada at 12.1%⁸², resulting in increased energy demand. The population grew from 30 372 in 2006 to 45 597 in 2023⁸³, a 50% increase. By 2045, it's projected to reach between 55 150 and 80 340 (high projection).⁸⁴ During this time, Faro's population increased from 348 to 440, a 30% rise.⁸⁵

Winter is when the Yukon typically sees its highest demand for electricity, as many people rely on it for heat. On December 19, 2022, the territory reached a peak energy usage of 117 MW, resulting in a 4-hour

⁸¹ Yukon Energy Corporation 2019
⁸² Government of Yukon 2022
⁸³ Government of Yukon 2024b
⁸⁴ Government of Yukon 2024a
⁸⁵ Government of Canada 2024

Watson Lake Designated Office Evaluation Report

Faro Generating Station Capacity Expansion – 2024-0145

outage during extremely cold weather.⁸⁶ Outages like this can be a risk to those who depend on electricity for heating. YEC expects a 36% increase in peak demand by 2030, partly due to population growth.⁸⁷

6.3.3 Relevant Legislation

The Designated Office considered the following legislative requirements. This list is not exhaustive; rather, the Designated Office reviewed this specific legislation because of its direct relevance to noise and public trust.

- *Environment Act*, Part 9 - Release of Contaminants
- *Environment Act*, Part 2 – Public Trust
- British Columbia Noise Control Best Practices Guideline
- Guidance for Evaluating Human Health Impacts in Environmental Assessments: Noise

6.4 Effect Characterization

6.4.1 Project Effect: Noise Disturbance

6.4.1.1 Pathway of Effects

The Project involves expanding the Faro Generating Station capacity from 15.5 MW to 20.4 MW by adding two new generators, FD8 and FD9, and one existing generator, YM26, to bring the total to ten. The new generators will be used mainly during the winter months for a period of 20 years. The site previously had eight generators, but one of them, FD1, has been decommissioned. As a result of the Project, noise levels may increase in the vicinity of private residences.

Noise can have a severe impact on community well-being, replacing pleasant background sounds with persistent, unwanted noise and altering the community's atmosphere and mood. Furthermore, it can disrupt sleep patterns and harm public health, potentially leading to chronic health issues affecting nearby residents. While project-related noise effects, such as annoyance and sleep disruption, may fade after activities cease, others, including anxiety, stress, and physiological changes, may be more long-lasting.

The Proponent has used the *British Columbia Noise Control Best Practice Guideline* by the BC Energy Regulator⁸⁸ and Health Canada's *Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise* (Health Canada Guidance).⁸⁹ Both guidelines assess noise from the perspective of a receptor, with the BC Guideline defining noise receptors as permanent or seasonally occupied homes. The Designated Office notes that the BC guidelines are based on summer conditions, assuming a vegetated state, which may not reflect winter conditions in the Yukon, especially at the project site, where diesel generators may be used more often or for longer durations.

⁸⁶ Dana Hatherly 2022

⁸⁷ Yukon Energy Corporation n.d.

⁸⁸ British Columbia Noise Control Best Practices Guideline 2024

⁸⁹ Government of Canada 2017

Watson Lake Designated Office Evaluation Report Faro Generating Station Capacity Expansion – 2024-0145

It is important to note that under *the Environment Act*, the definition of contaminant includes “sound”, which by extension also means noise. Part 6, section 84 states:

Unless otherwise specified in the regulations, an application for a permit under this Part must be filed in the form determined by the Minister and must disclose the following information

(g) the amount of any waste or contaminant that will be released into the natural environment as a result of the development or activity, the methods by which the waste or contaminant will be released, the steps taken to reduce the amount of the waste or contaminant, and the methods to be used to dispose of the waste or contaminant;⁹⁰

Part 9, section 113 of this Act states:

Every person who releases a contaminant in an amount, concentration, or level in excess of that prescribed by regulation or allowed under a permit shall, as soon as possible under the circumstances, report the release to an environmental protection officer or to a person designated by regulation.⁹¹

From this, the Designated Office understands that, although no specific noise thresholds or criteria exist, the regulator has the authority, through the permitting process, to prescribe and enforce allowable concentrations of a contaminant (i.e. noise).

6.4.1.2 Concerns Raised

As mentioned in Section 4.1, the Designated Office received comments regarding noise disturbance from the project location as a result of the currently permitted generators. The concerns raised include, but are not limited to, worries that noise disturbances may affect quality of life, property values and health.

- “However, the impacts on our town, are significant and alarming. As residents living in close proximity to the power plant, we are deeply concerned about the alarming noise levels and their significant impact on our well-being. The current diesel facility already causes considerable disturbance. The noise pollution generated by the existing diesel generators has already had a profound effect on the well-being of our residents, disrupting daily life and diminishing our quality of living”⁹²
- “Is a wall around the facility the best option? What other ideas does YEC have? This noise has changed the character of the town and also affects property values. Before we had the sound of nature and the occasional vehicle. Now, surrounded by natural beauty, it sounds like living by an airport.”⁹³
- “I honestly can’t imagine what the noise levels are like in locations closer to the generators. There are numerous studies that speak to the negative effects of noise pollution on human health. Impacts include stress, annoyance, and sleep disturbance, as well as physiological effects including changes in muscle tension response, respiratory reflexes, and changes in heartbeat

⁹⁰ Government of Yukon, *Environment Act* 2002

⁹¹ Government of Yukon, *Environment Act* 2002

⁹² YOR 2024-0145-0034

⁹³ YOR 2024-0145-0021

Watson Lake Designated Office Evaluation Report

Faro Generating Station Capacity Expansion – 2024-0145

pattern (Elmenhorst et al., 2019; Health Canada Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise, 2017; Kim et al., 2012; Münzel et al., 2014).”⁹⁴

6.4.1.3 Noise Modelling Methodology

Along with the noise monitoring results, the Proponent also provided a predictive noise model using the CadnaA sound propagation program. This model forecasts sound levels based on the new generators at the project site. The software calculates sound levels using various factors, including temperature, humidity, surface reflection, foliage, and actual sound measurements taken on-site from the permitted generators. For this model, sound levels were calculated at a temperature of 0°C, a relative humidity of 70%, using local terrain conditions, a foliage height of 11 m and using the site layout shown in Figure 14.

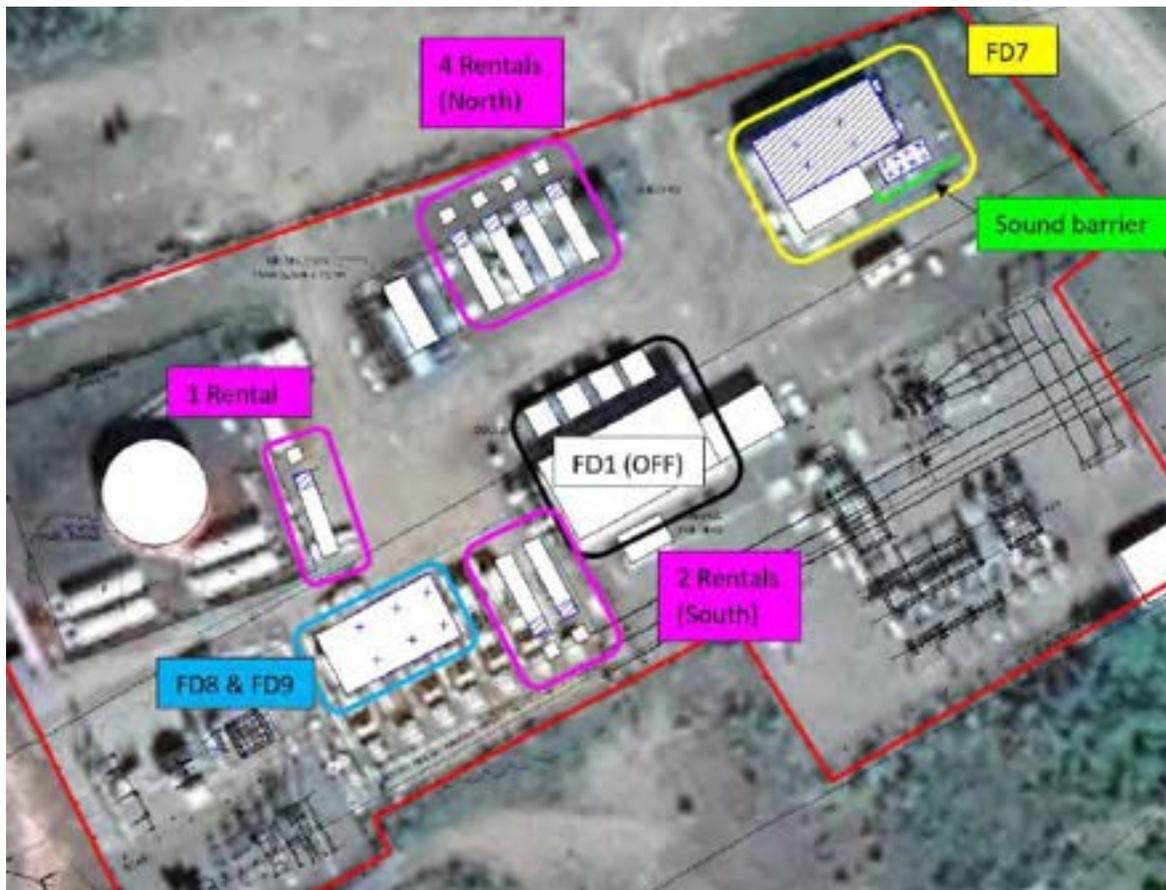


Figure 14: Site layout (provided by the Proponent⁹⁵)

The predicted sound levels were calculated for seven receptor locations within the Town of Faro, as shown below in Figure 15.

⁹⁴ YOR 2024-0145-0045

⁹⁵ YOR 2024-0145-0003

Watson Lake Designated Office Evaluation Report Faro Generating Station Capacity Expansion – 2024-0145



Figure 15: Receptor locations, used in noise model (provided by the Proponent⁹⁶)

The Proponent further clarified that:

The modelled sound levels represent the sound contribution from the generating station only and the noise modelling results are not specific to either daytime or nighttime. Actual sound levels experienced at these locations will also include other ambient noise sources such as traffic and community activities. In this way, daytime sound levels are expected to be higher due to increased ambient sound levels during the day versus at night.⁹⁷

6.4.1.4 Noise Modelling Results

Modelling results for each receptor are shown in Table 9. Eight scenarios have been modelled, including various combinations of generators at the site, with and without a possible sound barrier.

⁹⁶ YOR 2024-0145-0008

⁹⁷ YOR 2024-0145-0008

Watson Lake Designated Office Evaluation Report
 Faro Generating Station Capacity Expansion – 2024-0145

Table 9: Noise Modelling Results (provided by the Proponent⁹⁸)

Operational Scenario	Sound Pressure Level (dBA)					
	R2 130 Dawson Dr.	R3 RCMP Office	R4 146 Kitza Ave.	R5 356 Campbell St.	R6 504 Douglas Dr.	R7 502 Ladue Dr.
0a) 7 YMs (old locations) + FD7 (no sound barrier)	50.3	55.5	51.4	44.9	42.0	43.7
1a) 7 YMs + FD7 (no sound barrier)	48.4	53.9	50.2	43.5	42.1	43.7
1b) 7 YMs + FD7 (with sound barrier)	47.9	53.3	49.6	42.3	41.9	43.6
2a) 5 YMs (4 North, 1 South) + FD7 (with sound barrier) + FD8, FD9	46.0	51.5	47.5	40.3	41.0	42.5
2b) 4 YMs (North) + FD7 (with sound barrier) + FD8, FD9	44.3	49.4	46.0	38.4	39.8	41.5
2c) 6 YMs (4 North, 2 South) + FD8, FD9	46.6	51.5	47.8	41.0	40.8	42.3
Full Operation a): 7 YMs + FD7 (no sound barrier) + FD8, FD9	48.4	53.7	50.0	43.4	42.2	43.8
Full Operation b): 7 YMs + FD7 (with sound barrier) + FD8, FD9	47.9	53.0	49.3	42.2	42.0	43.6

Important to note is that the Proponent has stated:

For example, Scenario 1b) predicts higher sound levels at receptors R3, R4, and R5 than in Scenario Full Operation b) because the physical presence of FD8 and FD9 provides some acoustic shielding from some of the YMs (rental units). In summary, noise generated from all ten generators does not necessarily increase sound levels at all receptors.⁹⁹

As the Proponent has committed to a sound barrier around FD7, the Designated Office understands that Full Operation b) is to be the actual scenario to consider for the worst-case scenarios (when all generators are running). Scenario Full Operation b) is considered in Section 6.4.1.6.

6.4.1.5 Proponent Commitments

To address issues with noise disturbance created as a result of the Project, the Proponent include several mitigations within their Proposal, which include:

- The new generator units (FD8 and FD9) proposed for this Project are outfitted with permanent sound attenuation mufflers to reduce noise and significant disturbance to receptors close to the Site.

⁹⁸ YOR 2024-0145-0008

⁹⁹ YOR 2024-0145-0008

Watson Lake Designated Office Evaluation Report

Faro Generating Station Capacity Expansion – 2024-0145

- A sound attenuation wall was designed for the permanent generator unit, FD7, to act as a noise barrier and reduce the level of noise generated by the unit.
- The generator units are installed with enclosures that act as a mitigation measure to reduce the level of noise generated. Yukon Energy will maintain the enclosures and ensure this measure is in good working order.
- Yukon Energy has a complaint management plan in place.
- Generators will be operated and maintained regularly in accordance with manufacturer's specifications.

6.4.1.6 Effects Characterization Criteria

Comments

This Project received 25 comments from the public from 18 different individuals, most of whom either identified as a resident or were presumed to be residents based on how they commented. Considering the population of Faro (as of the last census) is 440 people¹⁰⁰, 18 unique commenters represent roughly 4 % of the population participating in the assessment. The Designated Office consider this level of participation to be substantial, representing a large enough sample size to draw broader conclusions about the population's experiences. Embedded in almost every comment was concern around noise disturbance from the project site. The Designated Office is also aware that the Proponent, through monitoring and modelling, has stated that:

Yukon Energy acknowledges that sound levels near the facility when the generators are operating can be a nuisance to nearby residents...[however] while such effects may be adverse to some, they are not of a sufficient magnitude or frequency to be significant when compared to thresholds contained in commonly accepted standards/guidelines.¹⁰¹

The Designated Office believes that the comments from residents of Faro and the monitoring and modelling analysis from the Proponent differ. As a result, the Designated Office has sought to understand the reasons behind this conflict by examining the BC Noise Guidelines, the noise monitoring survey data, and the Proponent's predictive noise model in greater detail.

British Columbia Energy Regulator Noise Guidelines

The Proponent has referred at various points within their Proposal to the *BC Noise Control Best Practice Guidelines*.¹⁰² Using a formula from these guidelines, the Proponent calculated a permissible sound level (PSL) of 53 dBA during the daytime and 43 dBA at nighttime (22:00–07:00). The BC Guidelines define PSL as:

¹⁰⁰ Government of Canada 2024

¹⁰¹ YOR 2024-0145-0057

¹⁰² British Columbia Energy Regulator 2024

Watson Lake Designated Office Evaluation Report

Faro Generating Station Capacity Expansion – 2024-0145

The maximum sound level that a facility should not exceed at a point 15 m from the nearest or most impacted dwelling unit. The PSL is the sum of the BSL, daytime adjustment, Class A adjustment, and Class B adjustment.¹⁰³

According to the BC Guidelines, PSL is the maximum sound level a facility should not exceed at a distance of 15 m from the nearest residence. However, since neither monitoring location is the closest residence (about 350 m away), their PSL is compared to locations approximately 500 m away (see Figure 16). The Proponent's monitoring locations are 180 m further than the closest dwelling, and therefore, don't align with the methodology outlined in the BC Guidelines. As a result, the Designated Office is unsure about the reliability of their results in characterizing the effects of noise disturbance on the residents of Faro.

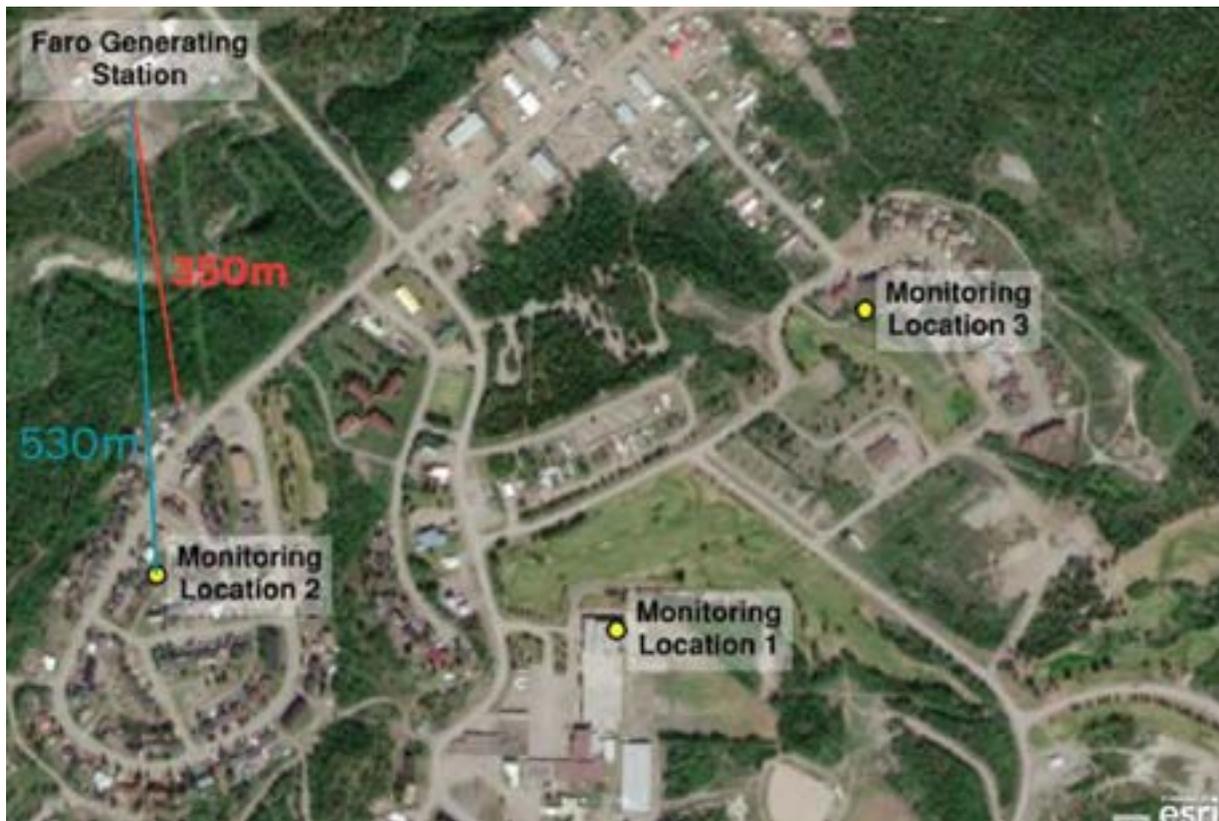


Figure 16: Monitoring locations: the distance to the nearest residence is measured in red, and the distance to monitoring location 2 is measured in blue

Noise Monitoring Survey

The Proponent has provided survey noise monitoring data at locations within the Town of Faro from December 2023 to May 2024. In their analysis, they represented the measured sound through an average sound level, as well as L10 and L90, which are defined below:

¹⁰³ British Columbia Energy Regulator 2024

Watson Lake Designated Office Evaluation Report
 Faro Generating Station Capacity Expansion – 2024-0145

Sound level L10 (dBA) represents the sound level that is exceeded for 10% of the measurement time and the sound level L90 (dBA) represents the sound level that is exceeded for 90% of the measurement time. The statistical sound level values L10 and L90 are usually used to describe the characteristic non-steady and steady sound in the environment, respectively. The operation of a generator is considered as a steady source of sound. Therefore, in general, the L90 sound level contains the contribution of sound levels from the generators and steady component of environment noise at Faro.¹⁰⁴

Health Canada provides a rule of thumb: "...if two sound levels are added, the final value will be at most (i.e. no more than) 3dB greater than the highest of the two values".¹⁰⁵ The Proponent has noted a relatively minor difference in average sound levels—notice that that difference is almost exclusively ≤ 3 dBA during daytime hours (see Table 10:).

Table 10: Difference in Average Sound (dBA) Measured With and Without Generators Running at Monitoring Location 2 (Table created from information provided by Proponent¹⁰⁶)

Time of Day	No Generator Running - Average dBA	Generator Running - Average dBA	Difference
12:00 AM	35	39	4
1:00 AM	32	43	11
2:00 AM	31	43	12
3:00 AM	31	44	13
4:00 AM	33	43	10
5:00 AM	37	43	6
6:00 AM	41	48	7
7:00 AM	42	43	1
8:00 AM	41	45	4
9:00 AM	42	44	2
10:00 AM	44	46	2
11:00 AM	44	46	2
12:00 PM	46	46	0
1:00 PM	46	47	1
2:00 PM	45	47	2
3:00 PM	46	48	2
4:00 PM	47	47	0
5:00 PM	46	48	2
6:00 PM	46	48	2
7:00 PM	45	45	0
8:00 PM	43	45	2
9:00 PM	41	43	2
10:00 PM	39	41	2
11:00 PM	37	39	2

¹⁰⁴ YOR 2024-0145-0058

¹⁰⁵ Government of Canada 2023

¹⁰⁶ YOR 2024-0145-0058

Watson Lake Designated Office Evaluation Report
Faro Generating Station Capacity Expansion – 2024-0145

This is what you would expect from the generators running in addition to other sources of sounds in the community. Residents appear to be reacting to what is captured by L90 rather than an average. Areas such as monitoring location 2 are substantially noisier during otherwise quiet periods with the generators running. For instance, during the time period of 6 am to 11 am when generators are running, the difference in dBA is 9-10 dBA, not ≤ 3 dBA (Table 1 Table 11). According to the sound monitoring report¹⁰⁷, the L90 indicates the steady-state, background sound level. This helps to make sense of the residents' reported experience, despite the relatively minor difference in dBA averages. The addition of background noise from generators does not substantially add to the loudness of what would otherwise be loud moments in the day. Rather, it fills in what would otherwise be quieter moments with the sound of generators running.

¹⁰⁷ YOR 2024-0145-0058

Watson Lake Designated Office Evaluation Report
 Faro Generating Station Capacity Expansion – 2024-0145

Table 11: Difference in Sound Level Between the Generators When not Running and When Running (Using L90) Areas in Red Indicate Where dBA Increases Are Greater than 5 dBA for Prolonged Operational Times (i.e. when at least one generator was running > 20 %) (Table created using information provided by Proponent¹⁰⁸)

Time	Monitoring Location 2				Monitoring Location 3				Operational use of generators %
	No Generators Running (dBA)	Generator(s) Running (dBA)	% increase	dBA increase	No Generator Running (dBA)	Generator(s) Running (dBA)	% increase	dBA increase	
12:00 AM	24	32	33	8	21	28	33	7	3
1:00 AM	24	40	67	16	21	32	52	11	2
2:00 AM	24	40	67	16	21	32	52	11	2
3:00 AM	24	40	67	16	21	32	52	11	2
4:00 AM	24	39	63	15	21	32	52	11	2
5:00 AM	24	30	25	6	21	25	19	4	6
6:00 AM	26	36	38	10	22	24	9	2	20
7:00 AM	26	35	35	9	22	27	23	5	27
8:00 AM	26	35	35	9	23	29	26	6	31
9:00 AM	25	35	40	10	24	29	21	5	32
10:00 AM	25	35	40	10	24	29	21	5	32
11:00 AM	26	34	31	8	26	29	12	3	35
12:00 PM	27	33	22	6	26	28	8	2	34
1:00 PM	28	33	18	5	26	27	4	1	34
2:00 PM	28	33	18	5	27	27	0	0	33
3:00 PM	29	34	17	5	27	28	4	1	28
4:00 PM	29	33	14	4	26	27	4	1	30
5:00 PM	30	35	17	5	26	28	8	2	31
6:00 PM	29	35	21	6	25	28	12	3	29
7:00 PM	28	35	25	7	24	27	13	3	27
8:00 PM	26	35	35	9	23	27	17	4	23
9:00 PM	25	34	36	9	22	27	23	5	21
10:00 PM	25	32	28	7	22	25	14	3	17
11:00 PM	25	29	16	4	21	23	10	2	9

¹⁰⁸ YOR 2024-0145-0058

Watson Lake Designated Office Evaluation Report
 Faro Generating Station Capacity Expansion – 2024-0145

Using the data provided to the Designated Office in response to Information Request (IR) 4¹⁰⁹ which outlines the monthly operating hours of generators at the Faro Generating Station from 2021 to 2025, we can see that during the monitoring period (December 2023 to May 2024), some months had substantially lower generator run times than others. Notably, December, March, April, and May had much lower generator run times than February and January 2024 (see Table 12). Looking at the average from December to May may not accurately reflect the prolonged noise disturbance experienced by residents in January and February, which were months of high operational activity. Averages may overlook the possibility that the noise disturbance in January and February was substantially more intense, further explaining residents' experiences with noise disturbance.

Table 12: Total Generator Run Time by Month for 2021-2025 (Noise survey months highlighted in yellow, recent months of operation in orange) (Table created from information provided by the Proponent¹¹⁰)

Month	2021	2022	2023	2024	2025
January	94	791	30	918	923
February	277	257	236	1036	1341
March	15	66	163	135	198
April	130	1	14	12	N/A
May	0	1	1	0	N/A
June	0	2	12	2	N/A
July	1	2	1	13	N/A
August	3	2	96	1	N/A
September	20	221	2	274	N/A
October	42	19	5	370	N/A
November	13	14	1	240	N/A
December	454	1293	22	742	N/A
Total	1049	2669	583	3743	2462

Notably, the Proponent points out that the generators at the site are mainly used in winter, when electricity demand is closely linked to heat generation and hydroelectric power is reduced. The Designated Office also notes a significant rise in operational hours in Faro from December 2024 to March 2025 (see Table 12), despite the unusually warm winter in the Yukon in 2025.¹¹¹ This increase may be partly due to equipment malfunctioning that occurred around the same time as the Aishikik Hydro Facility, which reduced its capacity by 15 MW¹¹² combined with the territory's general population growth and resulting demand. Nevertheless, except for 2023, there has been a steady increase in the operational hours of use at the Faro Generating Station, with most usage occurring between December and March. The proposal to increase capacity, combined with continued population growth, leads the Designated Office to conclude that a trend of increased generator run time is likely.

Noise Model

Based on the Proponent's predictive noise model, the results indicate that when all generators are operating in scenarios "Full Operation A" and "Full Operation B", they predict lower sound levels than when two fewer generators are running in scenarios "1A" and "1B" (see Table 9, Section 6.4.1.4). This is

¹⁰⁹ YOR 2024-0145-0057

¹¹⁰ YOR 2024-0145-0057

¹¹¹ Government of Yukon 2025b

¹¹² Jackie Hong 2024

Watson Lake Designated Office Evaluation Report
 Faro Generating Station Capacity Expansion – 2024-0145

explained by the fact that the new proposed generators (FD8 and FD9) may have a shielding effect, reducing noise propagation from the older generators.

The Designated Office remains uncertain about how a modelling scenario with more generations operational in the same configuration as a scenario where fewer generators are running would produce results indicating a reduction in sound. The Designated Office understands that new generators (FD8 and FD9) are quieter than older rental units; however, they are also not completely silent, as seen in Table 13.

Table 13: Facility Sound Power Levels¹¹³

Equipment	Octave Band Sound Level, dB									dBA
	31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	
YM Rental Unit (each)	115	116	118	115	113	112	110	107	108	117
FD7	113	117	117	116	116	114	111	108	103	119
FD8 & FD9 (each)	116	117	112	101	96	95	91	92	107	107

The Designated Office understands that models can be valuable tools if used correctly. However, even the best models utilize assumptions that will propagate errors. For example, when asked why the Proponent uses 0 °C in their modelling, in response to Information Request 1, they responded:

Though the values for temperature and relative humidity used in the modelling exercise are not representative of a typical winter day in Faro, Yukon, the consultant chose these values as they result in a reasonable worst-case prediction of sound propagation for wintertime conditions. For example, modeling noise propagation at ambient air temperature colder than 0 °C or a relative humidity lower than 70% would most likely result in lower sound levels at the receptors. In this way, the meteorology parameters used in sound modelling are considered conservative.¹¹⁴

As conditions are not representative of the worst-case scenario, modelling error has been introduced. Furthermore, the Designated Office is unsure if 0°C is a conservative estimate, as although sound may travel faster in warmer temperatures, colder temperatures can result in temperature inversion and propagate sound waves much further ¹¹⁵ potentially leading to noise disturbance effects over larger areas.

Despite uncertainty in the model for accurate predictions, the Designated Office understands that when all generators are running, the model predicts noise levels of 42.2 to 53 dBA (without the addition of any other ambient sounds) at receptors around town. It is important to note that these predicted levels may still have adverse effects on residents.

Final Determination

The Designated Office has attempted to make sense of the conflicting experiences of residents and the Proponent’s analysis and interpretation of their noise monitoring and noise modelling. Ultimately, monitoring and modelling are both valuable tools in characterizing effects; however, the Designated

¹¹³ YOR 2024-0145-0001
¹¹⁴ YOR 2024-0145-0008
¹¹⁵ Hannah 2006

Watson Lake Designated Office Evaluation Report

Faro Generating Station Capacity Expansion – 2024-0145

Office considers them equally, in tandem with people's lived experiences, which is also valuable data in characterizing on-the-ground effects.

The Designated Office considers the British Columbia Energy Regulator Guidelines referenced by the Proponent valuable in project planning, especially when the Yukon has no set standards or criteria. However, the Designated Office notes that these guidelines must also be considered in the context in which they are being applied. These guidelines were developed as best practices for facilities associated with the oil and gas industry. Faro is not a community associated with oil and gas, and therefore, has a different context. The Designated Office received several comments from the public stating that many people in Faro have chosen to live there because of its remote location and the associated peace and quiet, which they feel the continued increase in diesel generators at the Faro Generating Station has compromised.

Faro WAS a community that is blessed with peace and quite and warm enough during winter to go out and enjoy the peace and QUIET, now we have to listen to generators that can be heard for more than 5 km away. EVEN during summer, we lost the quite in our peaceful, beautiful place of paradise¹¹⁶

These guidelines also include a robust complaint response in “Section 4.2 Complaint Response Procedure”.¹¹⁷ This includes conducting investigations into specific noise complaints. In response to a question asked about their complaint management system in Information Request 1, the Proponent has stated that “Yukon Energy has heard Faro residents’ concerns about noise and emissions at the diesel plant.”¹¹⁸ However, to the knowledge of the Designated Office, the Proponent has not followed the guidelines’ recommendations, which include robust individual noise assessments when a complaint is received. The Proponent has previously stated that they feel effects from the Project, which may be a “nuisance” to residents, “are not of a sufficient magnitude or frequency to be significant when compared to thresholds contained in commonly accepted standards/guidelines.”¹¹⁹ The Designated Office does not feel it is fair for the Proponent to use thresholds from these British Columbia Energy Regulator Guidelines to negate the experience of residents as a “nuisance”, without also following the same guidelines with respect to complaint management.

The Designated Office understands that the Proponent has hosted a community presentation on the Project and has put a complaint system in place since the last assessment. The Designated Office also noted that the Proponent has admittedly stated the ineffectiveness of the complaint management system: “Yukon Energy recognizes that asking people not to visit the generating station may have detracted from the efficacy of the complaint management system and will look at ways to improve the system.”¹²⁰ The Designated Office supports the plan to improve this system and recognizes the effort to consult with the community through a public meeting; however, these efforts, necessary as they are, do not adhere to the stricter guidelines outlined in British Columbia Energy Regulator best practice guidelines.

¹¹⁶ YOR 2024-0145-0036

¹¹⁷ British Columbia Energy Regulator 2024

¹¹⁸ YOR 2024-0145-0008

¹¹⁹ YOR 2024-0145-0057

¹²⁰ YOR 2024-0145-0057

Watson Lake Designated Office Evaluation Report Faro Generating Station Capacity Expansion – 2024-0145

Many of the comments from residents expressed people's frustration that the small town of Faro, with a population of 440 people¹²¹, has been tasked with dealing with adverse effects of noise pollution because of the population expansion occurring within Whitehorse (28 201 people).¹²²

No one can tell how often they will be running. It depends on things like extended low temperatures and Whitehorse needing more power, or else some ageing infrastructure failing.¹²³

As it stands, this expansion is intended solely to supply power to the Whitehorse grid and offers no direct benefits to the community of Faro.¹²⁴

If Whitehorse/Yukon government wants to continue pushing electric heating and electric vehicles without adequate infrastructure to make that responsibility feasible, then the diesel generators must be in Whitehorse.¹²⁵

Many people in Faro find the noise of the generators affects their quality of life. As I tried to explain to YEC during their last presentation, we are a small community of 450 residents and the amount of energy those generators produce is far more than our town will ever need. This means that they are supporting Whitehorse 400 km away. The noise is incessant and we have no control over reducing the amount of electricity needed to support the grid due to our small population size.¹²⁶

When asked about location selection for the Project and why Faro was chosen, the Proponent noted:

...[a]round 75% of the electricity used on the Yukon grid comes from the Whitehorse area. As such, Yukon Energy is planning to add new thermal sites along with electrical infrastructure near Whitehorse... Faro was selected as a location for the rental diesel generators for the following reasons: The existing Faro Generating Station had enough room to accommodate the rentals, new substation, and fuel tanks [and] [s]tudies showed that by having all seven of the rentals located in Faro, they could more efficiently meet peak demands for electricity across the entire Yukon grid.¹²⁷

Based on this response, the Designated Office understands that the project site was both a convenient and strategic location; however, it appears that the impacts on community wellness have not been factored into the location selection. The Designated Office recognizes that the Proponent has a mandate to deliver energy efficiently and effectively across the entire Yukon Grid. However, the Designated Office also believes that smaller communities like Faro should not bear a disproportionate burden of dealing with adverse effects, especially since most of the energy is drawn from the City of Whitehorse.

It is important not to place complete emphasis on quantitative data analysis (i.e. modelling and statistical analysis) as these analyses carry uncertainty, assumptions and can be erroneous and misleading. When considering noise disturbance, it's essential to consider not only quantitative data (dBA averages, L10, L90 and modelling results) but also qualitative data, which comes from the experience of people. For example, if a generator runs consistently without interruption, community sound levels might be below allowable criteria (as established by the Proponent). However, this criterion may not account for the fact

¹²¹ Government of Canada 2024a

¹²² Government of Canada 2024b

¹²³ YOR 2024-0145-0063

¹²⁴ YOR 2024-0145-0034

¹²⁵ YOR 2024-0145-0048

¹²⁶ YOR 2024-0145-0064

¹²⁷ YOR 2024-0145-0057

Watson Lake Designated Office Evaluation Report

Faro Generating Station Capacity Expansion – 2024-0145

that pleasant ambient sounds, such as, wind, ravens croaking, trees creaking, children laughing and footsteps crunching in the snow, may be replaced by the persistent hum of generators. A comment illustrates this issue nicely:

Further, YE is saying that the difference in "average" sound level between no generators running and all generators running is insignificant, without acknowledging that people don't complain about "average" but about the maximum, so going on and on about average levels is pointless. It's the maximum sound, and the tonal quality of that sound that is important. What they should, in part, be measuring isn't the sound in a backyard, but the sound in a building, i.e. what is the difference in sound level in a bedroom at 6 a.m. with the windows closed between no generators and all generators, and what is the difference in quality. ¹²⁸

Through this assessment, the Designated Office has received 25 comments from the public, most of which cite complaints around noise disturbance from the Faro Generating Station. The Designated Office is of the view that these complaints represent more than just a nuisance to community members. The disturbance from the Faro Generation Station has adversely affected the community atmosphere.

After considering the comments, along with the Proponent's noise monitoring and analysis, as well as their predictive modelling data, the Designated Office has reached a determination. With the addition of more generation capacity, the effects of noise disturbance are highly likely. As the Yukon continues to grow, so will the demand for power, and the Designated Office expects that the operational hours of generators at the Faro Generation Station will either remain high or increase. The duration of these effects, 20 years, is considered substantially long, given that it may represent more than 20 % of someone's entire life. The geographic scope of the effects is also large, with residents reporting impacts throughout the Town of Faro. The effects of noise disturbance are mostly reversible, except for any health issues experienced by the public. The timing of the effects is particularly intense during winter months, from December to March. These effects are predicted to be highly frequent during the winter and less frequent during the shoulder seasons and summer. The Designated Office has determined that the magnitude of the effects, representing the overall change in baseline, is small. This determination is based on the fact that the increase in noise produced by the new generators and the expansion of 4.9 MW is expected to only slightly intensify the effects of noise disturbance. However, based on numerous and detailed community comments, noise disturbance from previous projects has already exceeded a tolerable level for residents within the community of Faro, resulting in a baseline that is high, as mitigation to reduce noise previously were not effective. Adding additional capacity will only worsen the already significant effects of noise disturbance. The Designated Office has determined that the noise produced by the generators at the Faro Generating Station is having and will continue to have a significant adverse effect on the community wellness of Faro residents.

One of the Proponent's commitments is to put a sound barrier in front of FD7. The Proponent has also indicated that a "sound attenuation wall was designed for the permanent generator unit, FD7, to act as a noise barrier and reduce the level of noise generated by the unit."¹²⁹ The Proponent has stated,

Yukon Energy hired SLR Consulting to model the impact a sound wall around the FD7 radiators would have on sound levels. The results found that there would be a 0.2 to 1.2 decibel reduction in sound levels across monitoring locations (see Table IR1.09d). This change would be imperceptible to town residents. A change of around three decibels is generally considered "just perceptible" to the average human ear. Furthermore,

¹²⁸ YOR 2024-0145-0059

¹²⁹ YOR 2024-0145-0003

Watson Lake Designated Office Evaluation Report

Faro Generating Station Capacity Expansion – 2024-0145

the community already experiences a large range of sound levels during generator operation which may be attributable to a host of factors, including generator operational status, weather conditions, and community activity. A 1 dBA difference is insignificant in comparison with the large range of measured community sound levels.¹³⁰

The statement above by the Proponent suggests that the sound wall does not effectively reduce noise to a level perceived by residents. Therefore, in order to reduce the significant adverse effects of noise that these generators have on the residents of Faro, another method of reducing noise needs to be implemented and the efficacy of the noise reduction methods proven to reduce the significant adverse effects that are already occurring and will continue to occur as a result of the Project. To minimize significant adverse effects, this must occur prior to approving the requested increase in operational capacity.

Additionally, a Complaint Management System was recommended and incorporated as a result of the previous assessment (YESAB 2021-0115). However, the system that was put in place by the Proponent was proven to be unsuccessful. The Designated Office believes a Complaint Management System needs to be in place; however, it will need to be reviewed, revamped, and monitored to ensure that it is effective.

6.4.2 Project Effect: Degraded Public Trust

6.4.2.1 Pathway of Effects

Several comments about the Project have centred on public trust in the Proponent, especially in its ability to follow through on past mitigations. Public Trust is defined within the *Environment Act* as “the collective interest of the people of the Yukon in the quality of the natural environment and the protection of the natural environment for the benefit of present and future generations”.¹³¹ Part 2 of the Act states that “[t]he Government of the Yukon is the trustee of the public trust” and “[t]he Government of the Yukon shall, subject to this Act or a schedule 1 enactment, conserve the natural environment in accordance with the public trust.”

As a publicly owned electrical utility, the Proponent is operated by the Government of Yukon's Crown Corporation, Yukon Development Corporation. Crown Corporations help governments fulfill their public responsibilities, and since YEC is a corporation owned by the public, the expectation for accountability and transparency to the public is more than it would be for a private enterprise. If the Proponent doesn't communicate effectively or fails to meet past commitments, public trust can suffer. This, in turn, can negatively impact community well-being, as residents may feel hopeless, anxious, or angry if they lack a trusting relationship with their electrical utility provider.

6.4.2.2 Concerns Raised

Several concerns were raised that specifically relate to trust in the Proponent's ability to mitigate and implement past commitments, including (but not limited to):

¹³⁰ YOR 2024-0145-0057

¹³¹ Government of Yukon, *Environment Act* 2002

Watson Lake Designated Office Evaluation Report

Faro Generating Station Capacity Expansion – 2024-0145

- “I have attending meetings hosted by Yukon Energy where I was assured a wall was going to be in place well before more generators were added to help with sound reduction. Since then, more generators have arrived, but still no sign of a wall.”¹³²
- “What I am feeling some frustration towards is that because this is an "emergency plan" there seems to be no limits and or boundaries (or even compensation of some sort for the town of Faro) which leads me to question how organized is this "emergency plan". Is there any way you can express our small town's concerns to the government? That for example, the noise levels exceeding the guideline limits followed are not being respected, due to this project falling under an "emergency plan".¹³³
- “In visits to town, YEC’s plans have shifted repeatedly—from temporary to long-term—eroding public trust. The only consistency is that occasional promises made to the community (like noise reduction) haven’t happened...[c]ommunity complaints should be taken as evidence, not inconvenience. It is disappointing that YEC continues to dismiss our lived experience.”¹³⁴

6.4.2.3 Proponent Commitments

Public Trust was not initially considered an effect within the Proposal. After seeking views and information, the Designated Office asked the Proponent in Information Request 4¹³⁵ to provide any actions currently taken or planned to take to address concerns surrounding public trust. The Proponent responded with several commitments:

To enhance public trust regarding the Faro Generating Station, Yukon Energy has met with the community and/or town council at least once per year since 2023 to provide updates and answer questions. Most recently, Yukon Energy held a community meeting specific to sound monitoring on April 2, 2025. Yukon Energy also provides updates via its website, social media channels, and community mailers.¹³⁶

Another mechanism that increases transparency for Yukon Energy Corporation is the independent Yukon Utilities Board, which “establishes just and reasonable rates for the provision of electricity by Yukon Energy Corporation”.¹³⁷ The role of the board is to review rates and manage complaints associated with rates; the Utilities Board does not manage the daily operations of the utilities themselves.

6.4.2.4 Effects Characterization Criteria

Previous Assessment Outcomes

The Faro Generating Station was previously assessed in 2021 to increase the generation capacity from 10.6 MW to 15.5 MW. During that assessment, air quality and community wellness were assessed based

¹³² YOR 2024-0145-0042

¹³³ YOR 2024-0145-0040

¹³⁴ YOR 2024-0145-0062

¹³⁵ YOR 2024-0145-0052

¹³⁶ YOR 2024-0145-0057

¹³⁷ Yukon Utilities Board 2025

Watson Lake Designated Office Evaluation Report Faro Generating Station Capacity Expansion – 2024-0145

on feedback from community members. The Designated Office recommended three mitigations, two of which related to the community wellness VESEC:

- The Proponent shall install a Complaint Management System and install signage at the Faro Generating Station with contact details for concerns/complaints. The Complaint Management System shall include processes for community engagement, noise monitoring, mitigation measures, and dispute resolution. If ongoing noise complaints are received, the Proponent shall use the established process to work with the community to resolve noise-related concerns resulting from the expansion of the Faro Generating Station. The Proponent shall share outcomes from the Management System with the regulator as a component of their annual report. (Term as written after it was varied by the Decision Body¹³⁸)
- The Proponent shall ensure noise control measures for each rental generator (i.e. silencers/mufflers, acoustic linings or acoustic enclosures) are installed and in good working condition at all times.

Complaint Management System

The Designated Office received comments indicating that the Complaint Management System was ineffective, and when asked to respond to these claims, the Proponent stated:

Yukon Energy had previously requested Faro residents not enter the Faro Generating Station for safety reasons; however, people are still welcome to observe the plant from behind the fence line, where the complaint sign is located. Yukon Energy recognizes asking people not to visit the generating station may have detracted from the efficacy of the complaint management system and will look at ways to improve the system.¹³⁹

When the Designated Office reviewed the current Project, one of the questions asked in Information Request 1¹⁴⁰ was whether the Proponent had received any formal complaints through the complaint management system that was recommended in the previous assessment. The Proponent responded that:

Yukon Energy has not received any formal complaints through the complaint management system; however, residents have expressed concerns via social media and town Council. In summary, some residents want to know what Yukon Energy plans to do about the noise from the generators and if we are still monitoring sound levels...[results from monitoring] will also help to determine what, if any, noise reduction could be achieved through the addition of a sound wall around the radiators of FD7 or if investments in other sound mitigation measures would be more effective.¹⁴¹

One commentator later spoke about this town hall meeting, which was hosted on April 2, 2025.

YEC presented a slide that stated correctly that the proposed FD7 sound wall or barrier would have minimal impact. While this was clear from the numbers, it is good to have it stated explicitly. It is less clear why YEC has not proposed anything with more than minimal impact.¹⁴²

¹³⁸ YOR 2021-0115-0022

¹³⁹ YOR 2024-0145-0057

¹⁴⁰ YOR 2024-0145-0006

¹⁴¹ YOR 2024-0145-0008

¹⁴² YOR 2024-0145-0061

Watson Lake Designated Office Evaluation Report Faro Generating Station Capacity Expansion – 2024-0145

This aligns with a response about YEC evaluating current mitigations in response to Information Request 4, where the Proponent replied that:

Yukon Energy hired SLR Consulting to model the impact a sound wall around the FD7 radiators would have on sound levels. The results found that there would be a 0.2 to 1.2 decibel reduction in sound levels across.. [t]his change would be imperceivable to town residents. A change of around three decibels is generally considered “just perceptible” to the average human ear.¹⁴³

Based on the comment from the Faro resident and the Proponent’s response to Information Request 4, the Designated Office understands that the Proponent received concerns about noise and made best efforts to communicate the effectiveness of a sound barrier to the public. However, the Designated Office also notes that the commentator mentioned no other mitigations or commitments were proposed as alternatives to the ineffective sound barrier. One comment from that meeting indicates that the person felt their concerns around noise weren’t being taken seriously by the Proponent:

In YEC’s presentation on April 2 we were told the following, much of which was irrelevant or contrary to what we have actually experienced: - The generators don’t run much. - Sound bounces differently depending on wind, snow, ice, trees. - Wind through leaves makes noise too. - It’s not really that loud with generators running. - Sometimes it is louder without generators. - Generators ran 24/7 until 1975. - It not as loud on upper bench and middle bench as it is on lower bench. - YEC says that the sound barrier that YEC has suggested for FD7 would have minimal impact. - When only the two new generators are running, it will be quieter than when two old generators were running. - This won’t be significant if more than two generators are running. - There are 10 generators installed. - If it is colder than -20, which happens often, more generators will be running. - More generators may be running other times also, regardless of temperature. - Hopefully diesel generation capacity will be added in Whitehorse sometime between 2028 and 2035. - Faro generators may or may not be run less frequently after that, depending on need. Community complaints should be taken as evidence, not inconvenience. It is disappointing that YEC continues to dismiss our lived experience.¹⁴⁴

Following comments from the public and the Proponent, the Designated Office recognizes that YESAB’s previous recommendation to mitigate against noise disturbance is not being implemented effectively and therefore, is not adequately mitigating the current effects of noise. One reason for this is that contact information for filing complaints is currently challenging to find. Also, based on feedback from community members, it seems the Proponent hasn’t “use[d] the established process to work with the community to resolve noise-related concerns resulting from the [prior] expansion of the Faro Generating Station.”¹⁴⁵ The Designated Office believes that residents are losing trust in the Proponent, partly because they feel the complaint management system isn’t working correctly and isn’t reducing noise disturbances and that they don’t feel they are being heard or that their concerns are taken seriously.

Temporary Generators

In the Project Description within the current Proposal, the Proponent states, “The Site’s operational capacity will be provided by three permanent diesel generator units (existing FD7 and new FD8 and FD9 units) and seven temporary units (YM20 to YM26)”.¹⁴⁶ The Designated Office asked about the definition of

¹⁴³ YOR 2024-0145-0057

¹⁴⁴ YOR 2024-0145-0062

¹⁴⁵ YOR 2021-0115-0022

¹⁴⁶ YOR 2024-0145-0003

Watson Lake Designated Office Evaluation Report Faro Generating Station Capacity Expansion – 2024-0145

"temporary generators" in Information Request 4. Based on the Proponent's response, the Designated Office understands that temporary generators are rented generators that will be used for up to 15 years (or longer) until renewable options become available to replace their capacity.

The Proponent recently released its 2050 Road Map in April 2025¹⁴⁷ to address growing capacity needs and plan for future renewable projects. Although this Road Map is promising, the Proponent also stated that its previous plan, the 10-year renewable plan, was not completed as intended:

When the generators in Faro were first installed, they were meant to be a short-term solution to meet winter peaks until projects in Yukon Energy's 10-year Renewable Electricity Plan were completed. However, projects within the plan, such as the Atlin Hydro Expansion Project, Moon Lake Pumped Storage Project, and Southern Lakes and Mayo Enhanced Storage Projects, did not advance due to lack of funding and/or social license.¹⁴⁸

Several comments received suggest that their trust in the Proponent decreases as their commitments and strategic plans change.

YEC's presentations and conclusions: In visits to town, YEC's plans have shifted repeatedly—from temporary to long-term—eroding public trust. The only consistency is that occasional promises made to the community (like noise reduction) haven't happened.¹⁴⁹

When the temporary rental units were installed, it was with the idea that they were a bridge until renewables could be brought online. Further, the push for electric heat was because the renewables would be on line within the service lifetime of an oil or propane furnace. Now, the renewables are delayed out to beyond such a service life and we'll collectively pay a huge premium for renting thermal generating capacity rather than building it in an appropriate location.¹⁵⁰

And diesel capacity is growing: 8.15 MW = Capacity 2014-2021 15.5 MW = Capacity 2021 to present - presented in 2021 as "temporary" 20.4 MW = Proposed capacity - No longer temporary, now expected until 2044.¹⁵¹

Comments from the residents of Faro indicate they were told the situation and use of temporary diesel generators were going to be retired, as indicated within the ten-year renewable plan (published in 2020); the Proponent communicated that temporary diesel generators would bridge the gap in capacity until roughly 2028 (see Figure 17).

Temporary rental diesel units are assumed to be available to bridge any outstanding gap between the forecast dependable capacity generation and peak capacity demand over the planning period. [2020-2030].¹⁵²

¹⁴⁷ Yukon Energy Corporation 2025

¹⁴⁸ YOR 2024-0145-0057

¹⁴⁹ YOR 2024-0145-0062

¹⁵⁰ YOR 2024-0145-0022

¹⁵¹ YOR 2024-0145-0021

¹⁵² Yukon Energy Corporation 2019

Watson Lake Designated Office Evaluation Report
 Faro Generating Station Capacity Expansion – 2024-0145

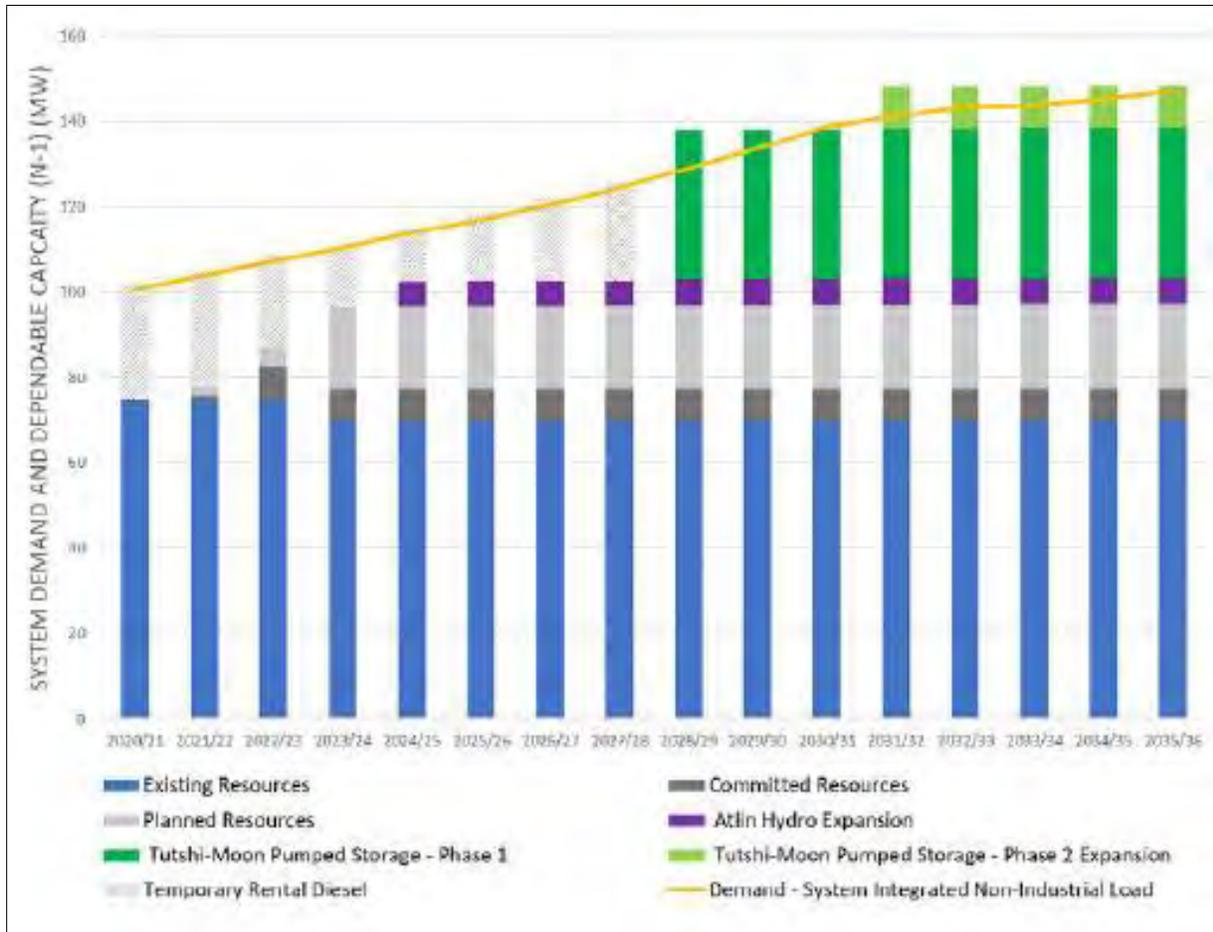


Figure 17: Base Case Portfolio, Capacity (Figure taken from 10 -Year Renewable Electricity Plan)¹⁵³

Within this document, the Proponent cites regulatory uncertainties as a key risk in achieving the plan: “[i]f these projects are delayed or canceled, it will result in increased reliance on thermal generation for energy, and ongoing rental of temporary diesel engines for capacity.”¹⁵⁴

The Proponent has indicated that this plan was not realized, and now their 2050 road map forecasts renewables not being built until 2035-2050.¹⁵⁵ Rather than generators being retired, the Proponent has instead proposed a 30 % capacity increase only three years after the previous assessment. The Designated Office understands these plans are not guaranteed and that the Proponent has experienced issues with both funding and social license for renewable projects. The Designated Office also understands that the Proponent communicated uncertainties and risks about the plan being realized. However, the Designated Office can also see that, from the perspective of Faro residents, it may appear as if the Proponent lacks the ability to adhere to its plans, thereby degrading their trust.

¹⁵³ Yukon Energy Corporation 2019

¹⁵⁴ Yukon Energy Corporation 2019

¹⁵⁵ Yukon Energy Corporation 2025

Watson Lake Designated Office Evaluation Report

Faro Generating Station Capacity Expansion – 2024-0145

Final Determination

Trust in the Proponent plays a crucial role in community wellness. Based on comments from residents, the Designated Office has determined that further degradation of trust in the Proponent is likely due to the Project. Effects from past iterations of the Faro Generating Station have not been adequately addressed, and the community has become unsure if the Proponent will meet future commitments. Further expansion of the Faro Generation Station will only exacerbate this mistrust. The impact has a large geographic footprint, potentially affecting most residents in Faro.

The Designated Office notes that the high level of participation from the community in this assessment, along with community members attending the Proponent's community presentation, indicates that public trust has not wholly been lost. The public is still making its best efforts to voice concerns in hopes of resolving the dispute. The magnitude of effects from the Project is considered large because once trust is lost and the community disengages from the process, it will take an increasingly long time to reverse, representing a significant shift in baseline. The Designated Office has thoroughly reviewed the comments submitted regarding public trust in the Proponent, as well as the commitments from the Proponent to enhance their public trust. While the Designated Office appreciates the Proponent's willingness to engage with the community through annual meetings, as comments indicate, additional efforts are required to ensure that community members feel their voices are being heard and acted upon. The Designated Office has determined that the effects of degraded public trust on community wellness are significantly adverse, warranting additional mitigations.

6.5 Significance Determination

The Watson Lake Designated Office has determined that the Project is likely to have significant adverse socio-economic effects on community wellness. These effects can be eliminated, reduced, or controlled by the application of the following terms and conditions:

2. The Proponent shall design and install an effective noise barrier or other equivalent noise control(s) associated with the generators on site (e.g. sheds to house generators) to reduce the current noise contamination/pollution prior to receiving authorization to increase the operational capacity of the Faro Generating Station. The efficacy of the method of noise reduction must be proven, by working with the Regulator and the Town of Faro, *prior* to granting the amendment requested.
3. The Proponent shall maintain a Complaint Management System and install large signage in a safe, easily accessible location at the Faro Generating Station with contact details to submit formal concerns/complaints, including the contact information for the Regulator. The Complaint Management System shall include a process for community engagement, noise monitoring and mitigation measures, and dispute resolution. If ongoing noise complaints are received by the Proponent and/or Regulator, the Proponent shall use the established process to work with the community to resolve noise related concerns resulting from the Faro Generating Station. The Proponent shall share the outcomes from the Complaint Management System with the Regulator as a component of their annual report.
4. In addition to the Complaint Management System, the Proponent shall host a public/town hall meeting annually, inviting the Regulator to attend, to discuss concerns and possible solutions to

Watson Lake Designated Office Evaluation Report

Faro Generating Station Capacity Expansion – 2024-0145

be implemented. Attendees will have the opportunity to formally submit complaints at these meetings to the Complaint Management System.

5. The Proponent shall ensure appropriate noise control measures for each rental generator (i.e. silencers/mufflers, acoustic linings or acoustic enclosures) are installed and in good working condition at all times.

Rationale for Mitigation #1:

Noise from the site is already causing significant adverse effects. The Complaint Management System recommended in the previous assessment (YESAB 2021-0115) was expected to reduce significant adverse effects from noise on the residents of Faro. However, this mitigation was not effective. Therefore, the significant adverse effects from the 2021 assessment for an amendment to increase operational capacity at that time, continues to result in significant adverse effects as a result of noise. As such, it is imperative that significant adverse effects from previous, current, and proposed operations of the generators at the Faro Generating Station be addressed *prior* to allowing another operational capacity amendment. In addition, ensuring effective noise reduction measures are in place prior to increasing the operational capacity may be a step towards restoring public trust.

Rationale for Mitigation #2:

A Complaint Management System was recommended and incorporated as a result of the previous assessment (YESAB 2021-0115). However, the system that was put in place by the Proponent was proven unsuccessful. The Designated Office believes a Complaint Management System needs to be in place; however, it will need to be reviewed, revamped, and monitored to ensure that it is effective. In addition, including the contact information for the Regulator will provide an additional avenue for complaints to be registered given the lack of public trust in the Proponent by residents of Faro.

Rationale for Mitigation #3:

An annual meeting would serve as an opportunity to build public trust and collaborate on potential solutions in the event there are any concerns. It would also serve a check-in to see if the Complaint Management System is being used, and if so, how effective it is. The meeting would allow all parties to be able to provide discussion/concerns/reasons for actions, etc. By requesting the attendance of the Regulator, this may provide additional reassurance that concerns are being heard. Given that the operational capacity at the Faro Generating Station is being increased through amendments to supply power to the rest of the grid as opposed to utilizing a location elsewhere, public trust and understanding should be key to the facility's operation.

7.0 WILDLIFE

Concerns were raised regarding potential impacts to wildlife from several members of the public. It was noted that project activities could result in adverse effects on Fanin Sheep and Sandhill Crane due to light and noise pollution.

In consideration of the project activities, recommendations within this report to reduce noise and the existing relevant legislations, the Designated Office has determined that the proposed activities are

Watson Lake Designated Office Evaluation Report Faro Generating Station Capacity Expansion – 2024-0145

unlikely to result in significant adverse effects to wildlife. The rationale for this determination is presented in the two sub-sections below.

The Project includes the operation and expansion of capacity at the Faro Generating Station. These generators are expected to increase noise disturbance; however, increased lighting is not a project activity and, therefore, will not be addressed.

Avian Wildlife – Sandhill Cranes

The project location may provide a migratory path, nesting area, or other habitat features for birds currently protected under the *Migratory Birds Convention Act (MBCA)* and the *Yukon Wildlife Act*, particularly given the Tintina Trench, which runs through Faro.¹⁵⁶ The Tintina Trench is an important migrations corridor for many bird species. Ultimately, it is the Proponent's responsibility to ensure activities are managed in compliance with relevant legislation, including, but not limited to, the MBCA, the *Species at Risk Act*, and the *Yukon Wildlife Act*. Such compliance reduces the likelihood and magnitude of adverse effects to migratory birds. When the Designated Office asked the Proponent about effects of the Project to wildlife they stated:

The Project footprint provides limited wildlife habitat because it is currently a developed industrial site. Available habitat within a 500 m radius of the Project footprint is heavily fragmented and disturbed by existing roads (e.g., Mitchell Road, Campbell Street), subdivisions, and utility cutlines, and ambient noise sources associated with those disturbances. The closest Wildlife Key Area (WKA) to the Project is located over 1,000 m north of the Project for thinhorn sheep...Noise during operations may result in habitat avoidance or changes in movement patterns by wildlife such as moose or birds as a result of the facility's regular activities such as intermittent fuel delivery, human activity, or noise when the diesel generators are operating. Based on the wildlife habitat in the area, and the degree of existing disturbance at the site, the generators are expected to operate infrequently and intermittently, primarily during winter months...Noise originating from the generators is expected to have a low, localized, and infrequent effect on wildlife and the effects are considered negligible.¹⁵⁷

The Designated Office agrees with the Proponent's characterization of effects on wildlife. In regard to sandhill cranes, the Designated Office understands that the peak times of generator use are primarily during the winter months (December – March), making it less likely to disturb the sandhill crane migration, which occurs in late April and early May and then again in the fall.

Fannin Sheep

The Proponent noted that the wildlife key area (WKA) for the Fannin sheep is 1 000 m away, however, the WKA is actually 1 800 m away from the Project. The Designated Office notes that sensitive time periods for thinhorn sheep, such as the Fannin sheep, are the rut and lambing periods, which occur between November and December and May and early June, respectively. As the Project effects from noise disturbance are most likely between December and March, there is little overlap between the key stages of the Fannin sheep. Additionally, YG's Department of Environment, which commented¹⁵⁸ on the Project, did not raise any concerns for wildlife.

¹⁵⁶ <https://whatsupyukon.com/yukon/science-and-technology/the-tintina-trench/>

¹⁵⁷ YOR 2024-0145-0057

¹⁵⁸ YOR 2024-0145-0027

Watson Lake Designated Office Evaluation Report

Faro Generating Station Capacity Expansion – 2024-0145

The Designated Office has determined that the timing of effects reduces the likelihood of adverse effects. Additionally, adherence to the recommended mitigations aimed at reducing noise disturbance in the community wellness VESEC further decreases the likelihood of adverse effects on wildlife. The Designated Office concludes that the project will not result in adverse effects on wildlife.

8.0 SOILS AND VEGETATION

No comments were received during the seeking views and information period regarding soils and vegetation.

Contamination

The Project involves the use and storage of 610 000 litres of fuel; a spill or leak may result in environmental contamination. The Project, including fuel storage and use, is proposed to occur for the next 20 years. A spill, leak, or accident may occur anytime during this period. However, depending on the magnitude and severity of a spill/leak, effects to sensitive environmental components, such as sensitive plants or aquatic resources in the project area, may persist for longer.

Accidental release of deleterious substances from leaks can result in the contamination of the surrounding environment, which has the potential to affect the soil and productivity of terrestrial habitats, pollute water resources, harm/kill vegetation, and create fire hazards. Contamination may injure or kill fish, birds, and small mammals in the area and may, if not immediately and adequately cleaned up, persist in the environment for significant periods of time.

The reversibility and extent of environmental contamination is directly related to the nature of the contaminant, degree of contamination, and the timeliness of the response. Environmental conditions and location of the event can also contribute to the reversibility and extent of contamination given the ability of substances to travel via surface runoff and percolation, which can affect the surrounding area and groundwater.

The prompt use of spill kits will ensure that a spill is contained, and the extent of environmental contamination is limited. The Proponent has indicated that spill kits are readily available on-site and there is a Spill Contingency Plan in place. In addition, there is legislation pertaining to fuel that includes several measures to deal with issues related to contamination, such as the duty to mitigate if a spill occurs. Relevant legislation including the *Spills Regulation*, *Special Waste Regulation*, and the *Waters Act*, preclude the Proponent from deliberately releasing deleterious substances, including fuels, into the surrounding environment. Any spills exceeding a threshold for that substance shall be reported to the responsible authority. Importantly, the *Environment Act* also stipulates that if a spill occurs, the person responsible for the spill must take all reasonable measures to remedy the effects of the spill; remove the substance to mitigate any danger to humans and the natural environment; and rehabilitate the natural environment to an equivalent condition that existed before the spill.

While the fuel use and storage come with the inherent potential of accidental release, the Designated Office has determined that compliance with legislation and implementation of the Spill Contingency Plan if required, reduces the likelihood of a significant adverse effect as a result of fuel use and storage, and that the potential pathway of effects is reduced, such that they are not significant.

Watson Lake Designated Office Evaluation Report
Faro Generating Station Capacity Expansion – 2024-0145

9.0 CONCLUSION OF THE ASSESSMENT

Under s. 56(1)(b) of the *Yukon Environmental and Socio-economic Assessment Act*, the Watson Lake Designated Office recommends to the Decision Body that the Project be allowed to proceed, subject to specified terms and conditions. The Designated Office determined that the Project is likely to have significant adverse environmental and socio-economic effects in or outside Yukon that can be mitigated by those terms and conditions.

The terms and conditions of the recommendations are as follows:

1. The Proponent's air emission permit application shall be subject to a technical review by the regulator; this review is to occur on a regular basis as determined by the regulator. Results of the technical review may require the Proponent to submit an air emissions management plan for review and approval. The management plan shall outline appropriate monitoring, mitigation and management actions to reduce, control and mitigate air emissions from the Faro Generation Station.
2. The Proponent shall design and install an effective noise barrier or other equivalent noise control(s) associated with the generators on site (e.g. sheds to house generators) to reduce the current noise contamination/pollution prior to receiving authorization to increase the operational capacity of the Faro Generating Station. The efficacy of the method of noise reduction must be proven, by working with the Regulator and the Town of Faro, *prior* to granting the amendment requested.
3. The Proponent shall maintain a Complaint Management System and install large signage in a safe, easily accessible location at the Faro Generating Station with contact details to submit formal concerns/complaints, including the contact information for the Regulator. The Complaint Management System shall include a process for community engagement, noise monitoring and mitigation measures, and dispute resolution. If ongoing noise complaints are received by the Proponent and/or Regulator, the Proponent shall use the established process to work with the community to resolve noise related concerns resulting from the Faro Generating Station. The Proponent shall share the outcomes from the Complaint Management System with the Regulator as a component of their annual report.
4. In addition to the Complaint Management System, the Proponent shall host a public/town hall meeting annually, inviting the Regulator to attend, to discuss concerns and possible solutions to be implemented. Attendees will have the opportunity to formally submit complaints at these meetings to the Complaint Management System.
5. The Proponent shall ensure appropriate noise control measures for each rental generator (i.e. silencers/mufflers, acoustic linings or acoustic enclosures) are installed and in good working condition at all times.

Watson Lake Designated Office Evaluation Report
Faro Generating Station Capacity Expansion – 2024-0145

9.1 Authorization of Recommendation / Referral

The undersigned is authorized pursuant to s. 23(2) of YESAA to make this Recommendation:

Kathie Thibaudeau
Assessment District Manager
June 20, 2025

Watson Lake Designated Office Evaluation Report
Faro Generating Station Capacity Expansion – 2024-0145

Appendix A REFERENCES

All references to documents on the YESAB Online Registry (YOR) can be found by searching for the Project and document number on the YOR at <https://www.yesabregistry.ca>

British Columbia Energy Regulator. 2024. *British Columbia Noise Control Best Practices Guidelines*.

Available online: <https://www.bc-er.ca/files/operations-documentation/Oil-and-Gas-Operations-Manual/Supporting-Documents/BC-Noise-Control-Best-Practices-Guideline.pdf>

Canadian Council of Ministers of the Environment. N.D. *Canada's Air*. Available online:

<https://ccme.ca/en/air-quality-report>

Dana Hatherly. 2022. *Yukon set electricity demand record just hours before Whitehorse power outage affecting thousands*. Yukon News. Available online: <https://www.yukon-news.com/local-news/yukon-set-electricity-demand-record-just-hours-before-whitehorse-power-outage-affecting-thousands-7003980>

Government of Canada. 2023. *Guidance for Evaluating Human Health Impacts in Environmental Assessment: NOISE*. Ottawa, ON. Available online:

https://publications.gc.ca/collections/collection_2024/sc-hc/H129-54-3-2023-eng.pdf

Government of Canada. 2024. *Air Quality Canadian Environmental Sustainability Indicators*. Environment and Climate Change Canada. Available online:

<https://www.canada.ca/content/dam/eccc/documents/pdf/cesindicators/air-quality/2023/air-quality-en.pdf>

Government of Canada. 2024a. *Census Profile, 2021 Census of Population, Faro*. Statistics Canada.

Available online: <https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/page.cfm?Lang=E&SearchText=Faro&DGUIDlist=2021A00056001004&GENDERlist=1,2,3&STATISTIClist=1&HEADERlist=0>

Government of Canada. 2024b. *Census Profile, 2021 Census of Population, Whitehorse*. Statistics

Canada, Available online: <https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/page.cfm?Lang=E&GENDERlist=1&STATISTIClist=1&HEADERlist=0&DGUIDlist=2021A00056001009&SearchText=whitehorse>

Government of Yukon. 2002. *Environment Act*. RSY 2002, C.76

Government of Yukon. 2022. *Yukon Bureau of Statistics, Population and Dwellings Census 2021*.

Available online: <https://yukon.ca/sites/default/files/ybs/fin-population-and-dwellings-census-2021.pdf>

Government of Canada. 2023 (modified). *Health Impacts of Air Pollution in Canada: Estimates of morbidity and premature mortality outcomes – 2021 Report*. Available online:

<https://www.canada.ca/en/health-canada/services/publications/healthy-living/health-impacts-air-pollution-2021.html>

Government of Yukon. 2024a. *Population Projections 2024-2025*. Yukon Bureau of Statistics. Available

Online: <https://yukon.ca/sites/default/files/ybs/fin-population-projections-2024-2045.pdf>

Watson Lake Designated Office Evaluation Report
Faro Generating Station Capacity Expansion – 2024-0145

Government of Yukon. 2024b. *Yukon Bureau of Statistics, Population Report Third Quarter, 2023*. Available online: <https://yukon.ca/sites/default/files/ybs/fin-population-report-q3-2023.pdf>

Government of Yukon. 2025a. *Air Quality in the Yukon*. Available online: <https://yukon.ca/en/waste-and-recycling/pollution/air-quality-yukon#nav-small-air-sensor-project>

Government of Yukon. 2025b. *YUKON SNOW SURVEY BULLETIN & WATER SUPPLY FORECAST*. Department of Environment. Available online: <https://yukon.ca/sites/default/files/2025-04/env-snow-bulletin-april-2025.pdf>

Hannah Lindsay. 2006. *Wind and Temperature Effects on Sound Propagation*. Acoustical Society of New Zealand, Massey University, Available online: [https://www.acoustics.org.nz/sites/www.acoustics.org.nz/files/journal/pdfs/Hannah,_L_NZA2007\(a\).pdf](https://www.acoustics.org.nz/sites/www.acoustics.org.nz/files/journal/pdfs/Hannah,_L_NZA2007(a).pdf)

Health Canada. 2021. *Health Impacts of Air Pollution in Canada, Estimates of Premature Deaths and Nonfatal Outcomes, 2021*. Available online: <https://www.canada.ca/content/dam/hc-sc/documents/services/publications/healthy-living/2021-health-effects-indoor-air-pollution/hia-report-eng.pdf>

Jackie Hong. 2024. *Equipment failure puts one of Yukon Energy's hydro units offline for winter*. CBC News. Available online: <https://www.cbc.ca/news/canada/north/aishihik-generating-station-equipment-failure-1.7401572>

United States Environmental Protection Agency. 2025. *Impacts of Diesel Emissions*. Available online: <https://www.epa.gov/dera/learn-about-impacts-diesel-exhaust-and-diesel-emissions-reduction-act-dera>

Yukon Energy Corporation. n.d. *2023-2024 General Rate Application*. Available online: <https://yukonenergy.ca/customer-service/rates/2023-24-general-rate-application>

Yukon Energy Corporation. 2019. *2020 Ten Year Renewable Electricity Plan*. Available online: <https://yukonenergy.ca/about-us/business-documents/2020-ten-year-renewable-electricity-plan/>

Yukon Energy Corporation. 2025. *Building a Resilient and Renewable Energy - Yukon Energy's Road Map to 2050*. Available online: https://yukonenergy.ca/media/site_documents/Electricity_Planning/Yukon-Energy-Road-Map-to-2050.pdf

Yukon Utilities Board, 2025. *Mandate of the Board*. Available online: <https://yukonutilitiesboard.yk.ca/about/mandate-of-the-board/>



Permit No: 60-010-05

AIR EMISSIONS PERMIT

Issued pursuant to the *Environment Act* and the *Air Emissions Regulation*

Permittee: Yukon Energy Corporation

Mailing Address: Box 5920, Whitehorse, YT, Y1A 6S7

Site Location: 193 Wareham Dam Road
Lot 91, Group 1004, Quad105M/12

GPS: 63.653104, -135.905856

Authorized Representative: Travis Ritchie
Phone: (867) 393-5350
Email: travis.ritchie@yec.yk.ca

Effective Date: Date of Director's Signature
Expiry Date: December 31, 2034

Scope of Authorization: In accordance with your application, you are authorized to operate electricity generating facilities at the above site location (the "site"), **to a maximum capacity of 9.0 megawatts** as set out in the terms and conditions of this permit.

Dated this 24th day of July, 2025

A handwritten signature in black ink that reads "Bryna Cable".

Bryna Cable
Director, Environmental Protection and Assessment Branch
Department of Environment, Government of Yukon

PART 1: DEFINITIONS

1. In this permit,

“Act” means the *Environment Act*, R.S.Y. 2002, c. 76, as updated from time to time;

“approved plan” means a plan that is submitted by the permittee and approved by an environmental protection analyst under this permit and includes any terms and conditions specified by the environmental protection analyst in the approval;

“associated personnel” means all employees, contractors, subcontractors and volunteers involved in the activities conducted in relation to this permit;

“Branch” means the following sections within the Environmental Protection and Assessment Branch, Department of Environment, Government of Yukon: Standards & Approvals; the Environmental Compliance & Inspections Section; and/or the Directorate;

“emission factor” means the mass emission of a pollutant per unit of energy produced in either grams per kilowatt-hour (g/kWh) or kilograms per megawatt-hour (kg/MWh);

“emission rate” means the average rate in grams per second (g/s) or kilograms/hour (kg/h) at which a pollutant is emitted from a source, determined either:

- i) as estimated based on emission factors derived from published literature regarding sources of similar type and age (estimated emission rates); or
- ii) as derived from measured data obtained from manual stack testing carried out by the permittee (measured emission rates);

“environmental protection analyst” means an employee of the Branch so designated by the Minister of Environment under the Act;

“environmental protection officer” means an employee of the Government of Yukon so designated by the Minister of Environment under the Act;

“EPA” means the United States Environmental Protection Agency;

“Regulations” means the *Air Emissions Regulation*, O.I.C. 1998/207;

“site” means the site location described on page 1;

“source” means a fuel-fired electricity generator which has a maximum nameplate capacity equal to or more than 1.0 megavolt-ampere; and

“total annual emissions” means the emissions derived by multiplying emission factors or measured emission rates for each source by the previous three-year average total energy

production for that source.

2. Any term not defined in this permit that is defined in the Act or the Regulations has the same meaning as in the Act or the Regulations.

PART 2: GENERAL

1. The permittee is authorized to conduct:
 - a) Operation of electricity generating facilities to a maximum capacity of 9.0 megawatts at the site, in accordance with the terms and conditions of this permit.
2. Nothing in this permit limits the applicability of any other law or bylaw.
3. The permittee shall ensure that all activities authorized by this permit occur on property that the permittee has the right or authority to enter upon and use for that purpose.
4. The permittee shall ensure that all associated personnel:
 - a) have access to a copy of this permit;
 - b) are knowledgeable of the terms and conditions of this permit; and
 - c) receive the appropriate training for the purposes of carrying out the requirements of this permit.
5. The permittee shall provide notice in writing to an environmental protection analyst prior to any significant change of circumstances at the site, including without limitation:
 - a) discontinuation of any regulated activity at the site;
 - b) change of ownership of the site or any of the sources; and
 - c) change to the mailing address, phone number or email of the permittee.
6. The permittee shall obtain approval from an environmental protection analyst prior to:
 - a) any addition, modification, removal or replacement of any equipment or components related to the release, abatement, control or treatment of air emissions;or
 - b) any change in location of the source(s).
7. Where conflicts exist between this permit, the permit application or any plan pertaining to any activity regulated under the Act, this permit shall prevail.
8. If an environmental protection officer determines that the permittee is in any way not in compliance with this permit or approved plans, the permittee shall repair the damage or take other actions as required to bring the site into compliance.
9. For clarity, all obligations of the permittee under this permit survive the expiry date.

PART 3: OPERATION AND MAINTENANCE

1. The permittee is authorized to operate generators at the site up to a maximum capacity of 9.0 megawatts.
2. All generators in operation must adhere to a minimum of EPA Tier 2 standards.
3. In accordance with the manufacturer's recommendations and best management practices, the permittee shall inspect, maintain and operate the sources, any stand-alone air pollution control equipment, and testing and monitoring equipment as necessary to provide optimum control of air contaminant emissions during all operating periods.
4. Except for maintenance or test purposes, the permittee shall run the sources at each site in order of highest possible efficiency under the circumstances.
5. The permittee shall ensure that the fuel used by the source(s) conforms to the most recent Canadian federal *Sulphur in Diesel Fuel Regulations* for off-road applications.

PART 4: RELEASE OF CONTAMINANTS

1. The visible emissions from any source shall not exceed an opacity of 20% as measured by a qualified person.
2. In the event that the opacity of emissions from any source exceeds the criterion established in Part 4.1 of this permit, the permittee shall take measures to reduce the opacity of the emissions below that criterion as directed by an environmental protection officer.
3. If applicable, the permittee shall ensure that particulates collected using emission control equipment are contained so that there is no release of contaminants to the atmosphere or into an open body of water.
4. If ambient air quality monitoring data within the area of influence of the permittee's facility indicates that one or more of Yukon's Ambient Air Quality Standards is being exceeded, and the environmental protection officer is satisfied that the permittee's facility is the cause or a significant contributor to the prevailing ambient air quality condition, the permittee shall undertake such mitigation measures as may be specified by the environmental protection officer to improve the ambient air quality condition.

PART 5: MONITORING EMISSIONS

1. The permittee shall submit to an environmental protection analyst for approval, by October 31, 2025, an air emissions management plan for the site.
2. The permittee shall carry out any commitments in the air emissions management plan on a schedule that is approved by an environmental protection analyst.

PART 6: COMPLAINT MANAGEMENT SYSTEM

1. The permittee shall submit to an environmental protection analyst a complaint management plan for approval, within 30 days of permit issuance, which identifies:
 - a) location of signage with contact details for concerns/complaints
 - b) process for community engagement;
 - c) noise monitoring, mitigation, and control measures;
 - d) dispute resolution process;
 - e) management plan will be subject to changes following branch review; and
 - f) reporting as described in Part 6.2 of this permit.
2. The complaint management system shall include the following process for reporting sound complaints:
 - a) permittee shall notify an environmental protection officer (867) 667-5683 or envprot@yukon.ca within one week upon receipt of any complaints regarding sound.
 - b) The permittee shall provide the following information with each notification:
 - first and last name of complainant (if provided);
 - contact phone number and/or email;
 - nature of complaint;
 - time and date of complaint;
 - ambient meteorological conditions during the period of the complaint;
 - list of generators and the duration that the generators were active in the 48hrs prior to the complaint; and
 - record of any adjustment to station to address the complaint.

PART 7: REPORTING

1. On or before March 31 of each year to which this permit pertains, the permittee shall submit to an environmental protection analyst, a summary report for the previous calendar year which includes:
 - a) the total monthly and annual operating hours for all sources at the site;
 - b) the estimated total annual emissions of SO₂, PM_{2.5}, CO, NO₂, and N₂O from each source at each of the sites, including the calculation used to determine those results;
 - c) all complaints received under Part 6.2 of this permit; and
 - d) results of any noise monitoring.

2. The permittee must contact either an environmental protection officer or the 24-hour Yukon Spill Report Centre (867- 667-7244) as soon as possible under the circumstances in the event of an unauthorized release or emission and report the type of contaminant, the amount released, the date and reason for the release.

PART 8: RECORDS

1. The permittee shall keep the following records:
 - a) a copy of each report and approved plan developed under this permit, and any amendments to and approvals (if applicable) of each report and plan;
 - b) summaries of all inspections carried out under this permit (including the name of the person conducting the inspection, the date of each inspection, any observations recorded during the inspection, actions taken as a result of those observations, and the date each action was taken);
 - c) notes concerning any spills, leaks or unauthorized emissions occurring at the site, including substance involved, estimated quantity, date of observation of the spill or leak, spill reports made and clean-up procedures implemented;
 - d) any and all deficiencies remedied in accordance with Part 2.8 of this permit, and how and when they were remedied; and
 - e) notes concerning any instance where the most efficient source was not used in accordance with Part 3.4 of this permit and the reason for use of the less efficient source.
2. The permittee shall keep all records required under this permit in a format acceptable to an environmental protection officer for a minimum of three years and make them available for inspection by an environmental protection officer upon request.



Permit No: 60-010-01

AIR EMISSIONS PERMIT

Issued Pursuant to the *Environment Act* and
the *Air Emissions Regulations*

Permittee: Yukon Energy Corporation

Mailing Address: Box 5920, Whitehorse, YT Y1A6S7

Site Location: 413 Campbell Street, Faro, YT Y0B 1K0
GPS: 62.233462, -133.361147

Authorized Representative: Travis Ritchie
Phone: (867) 393-5350
Email: travis.ritchie@yec.yk.ca

Effective Date: Date of director's signature
Expiry Date: December 31, 2035

This permit replaces permit #60-010-01 issued on May 11, 2022.

Scope of Authorization: In accordance with your application, you are authorized to operate electricity generating equipment at the above site location (the "site"), **to a maximum capacity of 20.4 megawatts** as set out in the terms and conditions of this permit.

Dated this 19th day of January, 2026

A handwritten signature in black ink that reads "Bryna Cable".

Bryna Cable
Director, Environmental Protection and Assessment Branch
Department of Environment, Government of Yukon

PART 1: DEFINITIONS

1. In this permit,

“Act” means the *Environment Act*, R.S.Y. 2002, c. 76, as updated from time to time;

“approved plan” means a plan that is submitted by the permittee and approved by an environmental protection analyst under this permit and includes any terms and conditions specified by the environmental protection analyst in the approval;

“associated personnel” means all employees, contractors and volunteers involved in the permitted activities;

“BCER” means the British Columbia Energy Regulator, Noise Control Best Practices Guideline;

“Branch” means the following sections within the Environmental Protection and Assessment Branch, Department of Environment, Government of Yukon: Standards & Approvals; the Environmental Compliance & Inspections Section; and/or the Directorate;

“emission factor” means the mass emission of a pollutant per unit of energy produced in either grams per kilowatt-hour (g/kWh) or kilograms per megawatt-hour (kg/MWh);

“emission rate” means the average rate in grams per second (g/s) or kilograms/hour (kg/h) at which a pollutant is emitted from a source, determined either:

- i) as estimated based on emission factors derived from published literature regarding sources of similar type and age (estimated emission rates); or
- ii) as derived from measured data obtained from manual stack testing carried out by the permittee (measured emission rates);

“environmental protection analyst” means an employee of the Branch so designated by the Minister of Environment under the Act;

“environmental protection officer” means an employee of the Government of Yukon so designated by the Minister of Environment under the Act;

“nameplate capacity” means the maximum amount of energy that can be produced, as indicated on the generator’s nameplate;

“NO₂” means nitrogen dioxide;

“Regulations” means the *Air Emissions Regulations*, O.I.C. 1998/207;

“source” means a fuel-fired electricity generator which has a maximum nameplate capacity equal to or more than 1.0 megawatts; and

“total annual emissions” means the emissions derived by multiplying emission factors or measured emission rates for each source by the previous three-year average total energy production for that source.

2. Any term not defined in this permit that is defined in the Act or the Regulations has the same meaning as in the Act or the Regulations.

PART 2: GENERAL

1. The permittee is authorized to conduct:
 - a. operation of electricity generating facilities to a maximum capacity of 20.4 megawatts at the site, in accordance with the terms and conditions of this permit.
2. No condition of this permit limits the applicability of any other law or bylaw.
3. The permittee shall ensure that all activities authorized by this permit occur on property that the permittee has the right to enter upon and use for that purpose.
4. The permittee shall ensure that all associated personnel:
 - a. have access to a copy of this permit;
 - b. are knowledgeable of the terms and conditions of this permit; and
 - c. receive the appropriate training for the purposes of carrying out the requirements of this permit.
5. The permittee shall provide notice in writing to an environmental protection analyst prior to any significant change of circumstances at the site, including without limitation:
 - a. discontinuation of any regulated activity at the site;
 - b. change of ownership of the site or any of the sources; and,
 - c. change to the mailing address or phone number of the permittee.
6. The permittee shall obtain approval from an environmental protection analyst prior to:
 - a. any addition, modification, removal or replacement of any equipment or components related to the release, abatement, control or treatment of air emissions; or,

- b. any movement of the source(s) offsite.
7. Where conflicts exist between this permit, the permit application or any plans, this permit shall prevail.
8. If an inspection reveals that the site or source(s) is in any way not in compliance with this permit, the permittee shall repair the damage or take other actions as required to bring the site or source(s) into compliance.
9. For clarity, all obligations of the permittee under this permit survive the expiry date to the extent that each is not superseded by one or more conditions in a subsequent permit.

PART 3: OPERATION AND MAINTENANCE

1. In accordance with the manufacturer's recommendations and best management practices, the permittee shall inspect, maintain and operate the sources, any stand-alone air pollution control equipment, and testing and monitoring equipment as necessary to provide optimum control of air contaminant emissions during all operating periods.
2. Except for maintenance or test purposes, the permittee shall run the sources at each site in order of highest possible efficiency under the circumstances.
3. The permittee shall ensure that the fuel used by the source(s) conforms to the most recent Canadian federal *Sulphur in Diesel Fuel Regulations* for off-road applications.

PART 4: EMISSIONS MANAGEMENT

1. The permittee shall submit to an environmental protection analyst for approval, by January 31 2026, an updated Faro Generating Station - Air Quality Monitoring Plan for nitrogen dioxide. The plan shall be updated to include:
 - a. Monthly data reporting for October through April of NO₂ hourly averages and meteorological data for the month, and
 - b. One report for May through September of NO₂ hourly averages and meteorological data.
2. Upon request of an environmental protection analyst, the permittee shall provide a review of air dispersion modelling assessment assumptions to determine the validity of the modelling. Should an environmental protection analyst determine an updated air

dispersion modelling assessment is required, the permittee shall submit a report on a schedule as approved by an environmental protection analyst.

PART 5: NOISE MANAGEMENT

1. The permittee shall submit to an environmental protection analyst, by June 30 2026, an updated noise modelling report which includes:
 - a. Modelling for the expected operating scenario;
 - b. Modelling for the worst-case operating scenario, with a full station capacity of 20.4MW;
 - c. Noise contour mapping for the community of Faro, and
 - d. An assessment of adjustments in accordance with the BCER.
2. Based on the updated noise modelling report, the permittee shall create a noise management plan that outlines mitigations to reduce noise to meet permissible sound levels, determined in accordance with the BCER. The plan shall outline a schedule for implementation of mitigations and shall be approved by an environmental protection analyst.
3. Following the implementation of the noise management plan, the permittee shall conduct a comprehensive sound level survey to verify compliance with the permissible sound levels. The comprehensive sound level survey shall be completed on a schedule approved by an environmental protection analyst.

PART 6: COMPLAINT MANAGEMENT SYSTEM

1. The permittee shall submit to an environmental protection analyst for approval, by January 31 2026, an updated complaint management plan. The plan shall be updated to include the requirement of an annual public meeting in Faro, under the process for community engagement.

PART 7: REPORTING

1. The permittee shall submit to an environmental protection analyst a report which identifies:
 - a. the total annual operating hours for all sources at the site;
 - b. the estimated total annual emissions of sulphur dioxide, fine particulate matter, carbon monoxide, nitrogen dioxide, and nitrous oxide from each source at the site, including the calculation used to determine those results, and
 - c. outcomes from the complaint management system,

by March 31st of each year of this permit for the previous calendar year.

PART 8: UNAUTHORIZED EMISSIONS

1. The permittee shall report to either an environmental protection officer or the 24-hour Yukon Spill Report Centre (867-667-7244) as soon as possible under the circumstances in the event of an unauthorized release or emission, such as fugitive emissions or emissions resulting from burning fuel other than that allowed for under this permit.

PART 9: RECORDS

1. The permittee shall keep all records required under this permit in a format acceptable to an environmental protection officer for a minimum of three years and make them available for inspection by an environmental protection officer upon request.
2. The permittee shall keep the following records:
 - a. a copy of each report and approved plans developed under this permit, and any amendments to and approvals (if applicable) of each report and plan;
 - b. summaries of all inspections carried out under this permit (including the name of the person conducting the inspection, the date of each inspection, any observations recorded during the inspection, actions taken as a result of those observations, and the date each action was taken);
 - c. notes concerning any spills, leaks or unauthorized emissions occurring at the site, including substance involved, estimated quantity, date of observation of the spill or leak, spill reports made and clean-up procedures implemented;
 - d. any and all deficiencies remedied in accordance with Part 2.7, and how and when they were remedied; and,
 - e. notes concerning any instance where the most efficient source was not used in accordance with Part 3.3 and the reason for use of the less efficient source.