

**Yukon Environmental & Socioeconomic Assessment Act  
 Decision Document**

This document meets the Yukon government's and federal government's requirements as Decision Bodies as set out in the *Yukon Environmental & Socioeconomic Assessment Act*

**Decision Document Issued By**

<b>YG Decision Body:</b>	Territorial Minister, as authorized under section 7: Deputy Minister, Executive Council Office
<b>Federal Decision Body(ies):</b>	Fisheries and Oceans Canada, Infrastructure Canada and Transport Canada
<b>First Nation Decision Body(ies):</b>	N/A

**Project**

<b>Project Name :</b> Mayo 'B' Hydro Enhancement Project	<b>YESAA File Number:</b> 2009-0040
<b>Proponent Name:</b>	Yukon Energy Corporation Limited
<b>Project Description:</b> The Mayo 'B' Project is an enhancement to the existing Wareham hydro facility, near Mayo, Yukon. The project will increase hydroelectric generating capacity from approximately 5MW to approximately 15MW. The project is located within the traditional territory of the First Nation of Na-cho Nyak Dun.	

**Other Decision Bodies**

<b>Other Decision Body Consultation:</b>	Consultation occurred between Yukon and federal Decision Bodies.
<b>Consolidated Decision Document:</b>	<input type="checkbox"/> N/A <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes (Yukon government, Fisheries and Oceans Canada, Infrastructure Canada and Transport Canada)

**Non-Self Governing First Nations**

<b>Non-self governing First Nation Consultation:</b>	N/A
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**Decision**

Pursuant to YESAA s. 76, the Yukon government has considered the assessment of this project and:	
x	<p>Yukon government, Fisheries and Oceans Canada, Infrastructure Canada and Transport Canada accept the following recommendation as per s. 76(1)a, terms and conditions inserted below:</p> <p>(Note: Fisheries and Oceans Canada is responsible for conditions 1 through 13 and 22 through 34, Transport Canada is responsible for condition 71)</p> <p><b>FISH AND FISH HABITAT</b></p> <p><i>To eliminate, reduce or control significant adverse effects on fish and fish habitat associated with changes to the water flow management regime, the following mitigative measures are required:</i></p> <ol style="list-style-type: none"> <li>1. The proponent shall maintain a minimum flow rate of 6 cms through zone 2 during the chinook salmon rearing season, May 1 to September 30, and minimum flow rates of 5 cms during the remainder of the year.</li> <li>2. The proponent shall maintain a minimum flow rate of 11 cms through zone 1 during for the chinook salmon rearing season, May 1 to September 30.</li> <li>3. In collaboration with stakeholders, the proponent shall develop fish habitat enhancement and compensation measures including the rearing channel, to the satisfaction of DFO.</li> <li>4. In collaboration with stakeholders and regulators, the proponent shall develop and implement the recommended effects monitoring and adaptive management plans.</li> </ol> <p><i>To eliminate, reduce or control significant adverse effects from sedimentation on fish and fish habitat, the following mitigative measures are required:</i></p> <ol style="list-style-type: none"> <li>5. Sediment control measures shall be installed around the construction site adjacent to the Mayo River.</li> <li>6. Construction activities that are proposed to take place in the wet shall not occur from late July to late August, during the period of key chinook spawning activity, and shall adhere to DFO timing windows and/or specific advice in order to avoid sensitive fish life cycles.</li> <li>7. Install and maintain effective sediment and erosion control measures on disturbed areas before and during work to prevent the entry of sediments into any watercourse. Sediment and erosion control measures shall continue to remain in place and be maintained, post construction until all disturbed areas in the work area have been stabilized and or re-vegetated. Where water is discharged back in the river, water quality shall meet or exceed the Canadian Water Quality Guidelines for the Protection of Aquatic Life. Such sediment control measures may include but not be limited to filtration bags, silt curtains and fences and sediment retention ponds that are located an acceptable distance from the edge of surrounding waterways.</li> </ol>

8. Development and construction of the tailrace shall occur in the dry, with a plug of land maintained between the excavation area and the river. There shall be no direct disturbance of the river or riverbank during the majority of the construction of the powerhouse.
9. Where rock armouring and fill is required (i.e. tailrace construction) only clean coarse material free of fines that has not been obtained from below the ordinary high water mark of any watercourse and is sized to withstand high flow levels, shall be used.
10. Turbidity monitoring shall be implemented, as appropriate, and pursuant to regulatory requirements.
11. The proponent shall ensure all areas disturbed during construction and operation are re-contoured, and re-vegetated to minimize long-term erosion and sedimentation and to expedite rehabilitation; re-vegetation will use local native seed when available, local plants and willow cuttings from native species appropriate for the area. In addition the local native seed shall be collected away from areas where non-native seed species are present.
12. Excess excavated materials and debris shall be stored in a manner that prevents it from entering any watercourse.
13. The proponent shall stop work during periods of high precipitation where that work is likely to disturb soil and lead to sediment deposition into the river or other nearby waterbodies

*To eliminate, reduce or control significant adverse effects to fish and fish habitat with respect to the release of deleterious substances into water, the following mitigative measures are required:*

14. During the construction phase, appropriate spill-proof equipment and secondary containment, shall be in place to store the estimated 10 000 gallons of petroleum required for this phase.
15. Appropriate secondary containment, leak detection, and recovery systems shall be implemented for the storage of approximately 500 to 1 000 gallons of petroleum estimated to be on site at any one time during the operations phase.
16. A spill response plan, with appropriate equipment, shall be kept in the engineering office, at the existing powerhouse, as well as with the Mayo emergency response personnel, during all phases of the project.
17. The new proposed powerhouse shall have secondary containment, leak detection and recovery systems incorporated into its design and operation.
18. Implementation and adherence to standard work practices that include specific measures to be taken with respect to the storage and handling of hazardous materials, as identified in the proponent's Environmental Management System Manual, Section C.4.7.
19. Concrete pours will be protected from rainfall with an impermeable cover for a minimum of 24 hours and according to concrete standard best practice, in order to prevent high pH runoff. Open bags of concrete mix will be stored in a protected dry area.

20. Concrete wastewater and wash waters will be contained and treated to a neutral pH level before they are discharged.

21. Construction activities that involve the use of concrete will adhere to national environmental management standards for ready-mixed concrete as identified in Environmental Management Practices for Ready Mixed Concrete Operations in Canada (Canadian Ready Mixed Concrete Association, 2004).

22. Use measures to prevent any deleterious substances from entering any watercourse. This shall include ensuring that all machinery used on-site are clean and in good working condition and that machinery is washed, refuelled and serviced away from any watercourse.

*The Executive Committee recommends that effects monitoring plans be developed and implemented to address the following considerations.*

23. Baseline surveys and monitoring should be conducted on quantity and/or quality during the relevant season for the following

- Open water during winter season
- Presence/absence and location of anchor ice and frazil ice
- Water temperature
- Depth, area, and dissolved oxygen (DO) levels in deep pools as overwintering habitat
- Redd distribution
- Egg survival
- Identification and monitoring of potential sites and spawning activity
- Open water conditions at low flow rates with respect to the ability of fish to move and migrate within and into/out of the river

24. Monitoring of spawning and incubation habitat should include the following:

- Extent of open water
- Temperature
- Extent of anchor ice
- Red distribution relative to dewatering and anchor ice
- Egg survival

25. Monitoring of the effects on movement/migration habitat should include:

- Extent of open water during winter
- Fish stranding surveys should be conducted on a regular basis, particularly during

low flow times of the year, throughout all zones of the river. An appropriate plan should take into consideration various flow fluctuations, and be conducted seasonal, daily and hourly

26. A monitoring plan to evaluate the effectiveness of the recommended rearing channel in zone 2 and assist in the recommended adaptive management plan for the channel
27. A monitoring plan to evaluate the effectiveness of current ramping protocols
28. A monitoring plan for TGP that will consider sampling points in Wareham Lake, downstream of the spillway, the existing powerhouse and the proposed powerhouse.

*The Executive Committee recommends that adaptive management plans be developed and implemented based upon the results of the effects monitoring programs, for the following conditions.:*

29. Low water flows over redd locations and potential spawning habitat during winter time that could lead to the freezing or desiccation of redds.
30. Low water flows that could affect the availability of overwintering habitat
31. Conditions that could lead to the increased development of ice conditions in the lower Mayo River
32. Low flow conditions, at 5 cms, in zones 1 and 2, that could adversely affect the movement and migration of fish within and into/out of the river
33. Low water flows that could lead to the stranding of fish in all zones of the river
34. Increasing levels of TGP downstream of the proposed powerhouse

#### **WILDLIFE**

*To eliminate, reduce or control significant adverse effects on wildlife and wildlife habitat, the following mitigative measures are required*

*To manage wildlife attractants*

35. The proponent shall keep all garbage, including kitchen waste and strained solids from grey water, in a container that prevents access by bears and other wildlife, until properly disposed of, in accordance with the Solid Waste Regulations.
36. Kitchen waste shall be burned regularly by forced air and fuel-fired incineration to reduce odours that might attract wildlife.
37. All grey water is to be disposed of in an appropriate manner so that it does not attract wildlife.
38. The proponent shall equip the camp with bear deterrent devices and maintain such devices in good working order throughout the duration of camp occupancy.

39. The proponent shall place a simple electric fence around the kitchen, wastewater area, solid waste area, and privy pits at the camp location as a precautionary measure to deter bears.

*To eliminate, reduce or control significant adverse effects on migratory birds the following mitigative measure is required:*

40. To the extent practicable, the proponent shall avoid clearing vegetation during the main migratory bird-breeding season of May 1 to July 31. If clearing does occur during the breeding period of any migratory bird species, pre-clearing surveys shall be conducted for nesting birds. If active nests are located, including nesting cavities, a 10 m vegetation buffer zone shall be maintained around nests and minimal activity shall occur in the immediate area until nesting is complete and chicks have fledged.

#### **ENVIRONMENTAL QUALITY**

*To eliminate, reduce or control significant adverse effects to environmental quality the following mitigative measures are required:*

##### *Vegetation*

41. The proponent shall avoid localized areas that may provide habitat for rare plants to the extent practicable;
42. If avoidance of areas that may provide habitat for rare plants is not possible, the proponent shall undertake site investigations prior to construction.
43. If rare plants are found and are not avoidable the proponent shall categorize and record their presence and apply local site specific mitigative measures such as transplanting the rare plants to an area with similar habitat that is outside the affected project footprint

##### *Deleterious substances*

*Mitigations for the containment of deleterious substances have been identified in Section 6.6 with respect to fish and fish habitat. These mitigative measures are also required to eliminate, reduce or control the release of deleterious substances into the environment.*

44. The proponent shall manage all special and hazardous waste in accordance with their EMS and the Environment Act (Yukon) – Special Waste Regulations.
45. The proponent shall landfill bulky construction wastes, including concrete and steel, on-site in accordance with the Solid Waste Regulations.

##### *Waste bedrock*

46. The proponent shall implement a comprehensive staged program to identify, monitor and adapt to any potential ARD issues identified from excavated bedrock. This includes

ongoing testing during excavation of bedrock and during construction.

47. If bedrock is found to be potentially acid generating the proponent shall:

- find ways to dispose of the potentially-acid generating rock below the groundwater level, where there is no oxygen to initiate the ARD process.
- blend it with an appropriate amount of net neutralizing material and dispose of it using standard ARD management practices.
- where excavated bedrock is not amenable to such neutralization, the potentially-acid generating bedrock shall be dealt with by standard ARD best management practices, including relocation into a designated waste rock area on-site, ensuring that surface water is diverted from the bedrock and bedrock is covered with a soil cover and liner to keep out water.

#### **EFFECTS OF THE ENVIRONMENT ON THE PROJECT**

*In order to reduce, eliminate or control significant adverse effects to the stability and integrity of the tunnel-penstock infrastructure, the following mitigative measures are required:*

48. The final engineering design of the tunnel-penstock system shall be based on local soil and soil stability characteristics, and consideration shall be given to permafrost conditions.
49. If permafrost zones are encountered during construction of the tunnel-penstock system, the proponent shall employ appropriate insulation construction techniques to protect frozen zones.

#### **LAND AND RESOURCE USE**

*To eliminate, reduce or control significant adverse effects of the project on land and resource users around the project area, the following mitigative measures are required::*

50. The proponent shall undertake and implement natural forest buffers and any other measures that will minimize and mitigate visual disturbance on recreational and other users of the Five Mile Lake area
51. During periods of high activity and/or dry conditions, the proponent shall apply dust suppressants, such as water or calcium chloride, to dust prone areas (e.g. roadways, unconsolidated working surfaces).
52. To the extent practicable, the proponent shall avoid the existing trail network at the southwest end of Five Mile Lake. If avoidance is not possible, the proponent shall consider re-routing the trail around project infrastructure.
53. The proponent shall institute a public notification protocol to apprise the local public of project activities and timing, including blasting. Notification procedures may involve community meetings, radio announcements, flyers, etc.

54. The proponent shall implement awareness-training that will include an overview on the different uses of the surrounding area, including areas such as Five Mile Lake and the lower Mayo River.

*To eliminate, reduce or control significant adverse effects related to wasted fuel wood:*

55. The proponent shall conduct a timber assessment of project areas requiring substantive land clearing, such as the right of way for the new access road, distribution and transmission lines and the water diversion (penstock) system. The proponent shall consult with the Village of Mayo and NND to investigate opportunities for the community to utilize the salvageable timber.

### **HERITAGE RESOURCES**

*To eliminate, reduce or control significant adverse effects of the project on heritage resources, the following mitigative measures are required:*

56. Additional heritage resources inventories and assessments shall be conducted for the final routing alignments of the penstock system, transmission line, and access road, and the final location of the powerhouse.
57. Known heritage resource sites shall be avoided. If avoidance is not possible, the proponent shall consult with YG – Heritage Resources and NND – Heritage Department prior to disturbing or removing any heritage resource(s).
58. If site KjTx-10 cannot be avoided, a plan for site excavation and systematic data recovery shall be developed and carried out by a qualified professional archaeologist. The proponent shall engage NND-Heritage Department in the development of the plan. The plan must be approved by YG-Heritage Resources prior to implementation.
59. Site KjTx-11 shall be avoided by 30 m. If the site cannot be avoided, a plan for site excavation and systematic data recovery shall be developed and carried out by a qualified professional archaeologist. The proponent shall engage NND-Heritage Department in the development of the plan. The plan must be approved by YG-Heritage Resources prior to implementation.
60. The proponent shall not carry out works or establish project infrastructure any closer to the Huffman Farmstead than the boundaries of the existing disturbance. Project employees shall be instructed not to disturb the site.
61. All known heritage/historic resources must be appropriately marked in the field before commencing any project activities that may disturb them. Markings may be removed as stipulated by the appropriate authority.
62. As part of standard employee site training, the proponent shall instruct employees on techniques for the identification and protection of heritage resources. Employees shall be apprised of the nature and location of known heritage resources on-site. The proponent

should consider engaging NND–Heritage Department to support the identification of known resources in the project area to be protected.

63. The proponent shall immediately mark and protect from further disturbance any sites containing heritage/historic resources discovered in the course of carrying out project activities. As soon as practicable, the proponent shall report the discovery to YG–Heritage Resources, in accordance with relevant legislation, and NND–Heritage Department. The proponent shall not resume work until the appropriate authorities indicate that it is appropriate to do so.

### **COMMUNITY STRUCTURE AND DYNAMICS**

*To eliminate, reduce or control significant adverse effects on community structure and dynamics, the following mitigative measures are required:*

64. As part of standard employee site training, the proponent shall institute an awareness-training component on community values, vulnerability and potential adverse effects experienced in small communities as a result of development projects nearby.
65. The proponent shall implement a Substance Abuse Policy for the project. The policy will prohibit possession and/or consumption of drugs or alcohol on site (including within the temporary work camp) and include a “zero-tolerance approach” for workers who cause drug- and/or alcohol-related disturbances in the community. Under the policy, all on site workers will receive mandatory substance abuse and chemical dependency awareness training. The policy may include mandatory pre-employment testing and random drug testing during employment for all workers on site. The policy shall include management protocols to address substance abuse-related incidences, including repeat offences. As proposed by the proponent, an Employee Assistance Program shall be implemented under the Substance Abuse Policy to help workers with substance abuse.
66. As proposed by the proponent, a “community liaison” shall be designated during the construction period to triage any community concerns about the project, including project personnel, and monitor reported incidences of substance-abuse related issues. The liaison will maintain regular contact with local leadership (e.g. Village Mayor and Council and NND Chief and Council) and other local agencies (e.g. RCMP, YG-Health & Social Services in Mayo), as appropriate.

### **LOCAL SERVICES AND INFRASTRUCTURE**

*In order to eliminate, reduce or control significant adverse effects on local services and infrastructure, the following mitigative measures are required:*

67. The proponent shall apprise the Mayo Health Centre, NND-Health & Social Department, Yukon Emergency Medical Services, and the Mayo volunteer fire department of its health and safety protocols, and collaborate with these agencies to delineate roles and

responsibilities among the parties and establish notification procedures.

68. The proponent shall continue to consult with the municipality of Mayo on project usage of water, waste and sewage facilities.

69. If offsite wastewater disposal is required, the proponent shall develop a plan for offsite wastewater disposal that incorporates:

- Identification and characterization of wastewater streams and accounting to estimate disposal volumes;
- Confirmation with disposal facilities that, a) the facility is legally allowed to accept the wastewater; and b) the facility has the capacity to accept the wastewater; and
- Determination of whether an authorization (e.g. Special Waste Permit) is required to transport and dispose of the wastewater, in consultation with YG-Environment, Environmental Programs Branch.

#### **HEALTH & SAFETY**

*To eliminate, reduce or control potential impacts on public health and safety, the following mitigative measures are required:*

70. As proposed by the proponent, in order to limit access to project infrastructure, the proponent shall install security gates, fencing, signage and/or other deterrent measures, as appropriate.
71. The navigational channel shall not be obstructed at any time during project construction or operations.

**Dates**

<b>Recommendation Issued:</b> May 12, 2010	<b>Referred Back:</b> N/A	<b>Final Recommendation Issued:</b> N/A	<b>Decision Document Issued:</b> June 02, 2010
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**Recommendation Received From**

Designated Office	<input type="checkbox"/>	Location:
Executive Committee	<input checked="" type="checkbox"/>	
Panel	<input type="checkbox"/>	a) Panel of the YESAB
	<input type="checkbox"/>	b) CEAA Panel
	<input type="checkbox"/>	c) Joint Panel (YESAB and other assessment body)

**Authority**

By signing below, the Yukon government, Fisheries and Oceans Canada, Infrastructure Canada and Transport Canada have exercised their authority as per YESAA s. 76 to issue a decision document on this project.

**Yukon Government:**

Name: Janet Moodie

Position: Deputy Minister, Executive Council Office

Signature: *original signed*

Date: June 02, 2010

**Fisheries and Oceans Canada:**

Name: Briar Young

Position: Area Manager

Signature: *original signed*

Date: June 01, 2010

**Infrastructure Canada:**

Name: Tamara Skillen-Haynes

Position: Manager Environmental Review and Approvals

Signature: *original signed*

Date: June 01, 2010

**Transport Canada:**

Name: Doug Soloway

Position: Superintendent, Environmental Assessment Management Program

Signature: *original signed*

Date: June 01, 2010

**Copies Forwarded to (as required by YESAA s. 81 ):**

- x Project Proponent Yukon Energy Corporation Limited
- x YESAB Executive Committee
- x Other Body/Person as Required Yukon Water Board