



February 18, 2011

Amanda Joynt
Fish Habitat Biologist
Department of Fisheries and Oceans (DFO)
P.O. Box 1871
Inuvik, NT
X0E 0T0

Dear Ms. Joynt:

RE: Application for Fisheries Act Authorization for The Use of Frozen River Sediment as a Source of Backfill for the Unipkat I-22 Sump Remediation on Arvoknar Channel
DFO file No.: 10-HCAA-CA6-00097

This letter is has been sent to provide supplementary information to support our application for a *Fisheries Act Authorization* and is intended to provide DFO with information requested by phone on February 15, 2011.

The Prime Contractor on-site will be Hazco Environmental Services (Hazco). Hazco is responsible for all other service providers working at the site. Kevin Erickson is the Hazco Project Manager (kerickson@hazco.com or (587) 888-0761). Norm Watwood of Hazco is the site superintendant (nwatwood@hazco.com or (403) 850-0540). Mackenzie Delta Integrated Oilfield Services (MDIOS) will provide the majority of staff and equipment at the site and the Iron Wolf excavator will be provided by Big Eagle.

Fish species and habitats present near the work site are summarized in Table 1 in this letter.

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Table 1: Fish Species and Their Habitats Expected in the Vicinity of the Project

Species	Preferred Habitat	Likely to be affected By Proposed Work
Broad Whitefish (<i>Coregonus nasus</i>)	Mainstream, Side Channels, Spawns over gravel	Not likely due to lack of gravel on the proposed point bar.
Lake Whitefish (<i>Coregonus clupeaformis</i>)	Cool Deep Lakes, Large Mainstream river, Spawns over gravel sometimes sand and can spawn in shallow water.	Not likely because the proposed point bar is above water level during spawning season.
Inconnu (<i>Stenodus leucichthys</i>)	coastal areas and outer delta for overwintering and feeding, Spawn in fast flowing water over gravel	Not likely because the proposed point bar is not gravel.
Northern Pike (<i>Esox lucius</i>)	Freshwater, shallow lakes, marshes, sloughs, slow rivers, lots of vegetation cover, Spawns over vegetation sometimes sand/gravel	Not likely due to lack of vegetation cover on the point bar.
Burbot (<i>Lota lota</i>)	Freshwater, Deep lakes, cool large rivers, Spawns January to march	Not likely because the proposed point bar is above water level during spawning.
Longnose Sucker (<i>Catostomus catostomus</i>)	Quite shallow water with vegetation cover, Spawns over gravel	Not likely due to lack of vegetation cover and lack of gravel.
Arctic Cisco (<i>Coregonus autumnalis</i>)	Brackish waters, Spawns in fast flowing water over gravel,	Not likely due to lack of vegetation cover and lack of gravel. Fresh water is likely dominant in the channel.
Least Cisco (<i>Coregonus sardinella</i>)	Spawns in shallow areas of rivers over gravel/sand,	Not likely because the proposed point bar is above water level during spawning season in summer and fall.
Flathead Chub (<i>Platygobio gracilis</i>)	Turbid flowing main river channels, Spawns mid summer when water is at it's lowest level.	Not likely because the proposed point bar is above water level during spawning season in summer and fall.

The channel width in the vicinity of the site (1 km upstream and 1 km downstream) ranges between 200 m and 310 m and averages approximately 225 m.

An application for a Type B water Licence has been filed with the NWT Water Board that includes a request to use up to 295 m³ of water per day. Prior to a water licence being issued our project will withdraw no more than 100 m³ of water from the river channels per day. No water will be withdrawn from lakes.

The proposed borrow source on the point bar was above water level when the channel froze over this winter and is currently covered by snow but no ice. The upper surface of the borrow source location is approximately 0.3 m above the top of the channel ice and therefore at least 1 m above the top of liquid water in the channel. To mitigate affects of spring flow over the excavated area, the excavation will be limited to keep the elevation of the base at least 0.1 m above the elevation of current top of the ice. This translates to a total excavation depth of 0.2 m. The proposed area outlined in the figures provided with the original application is approximately 2.4 ha which is capable of producing more than enough borrow material with a 0.2 m deep excavation.

Once the excavation has been completed, a 0.1 m thick layer of water will be placed in the excavation to form an ice cap over any loose sediment. It is anticipated that high water levels during spring flows will deposit new sediment over this ice cap to begin filling the excavation. During summer, the layer of ice will melt out from beneath the deposited sediment which will settle on the base of the excavation. Subsequent high water events will continue to deposit sediments in the excavation.

The condition and re-sedimentation of the excavation will be monitored in conjunction with monitoring conducted at the remediated sump. The first monitoring event will take place during the late summer of 2011 during low water. The amount of sedimentation in the excavation will determine the frequency of future monitoring events but it is anticipated that a second event will occur in the late summer of 2013.

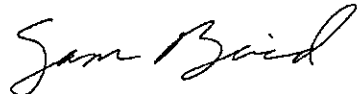
In March 2011, the final extents of the excavation will be mapped using a mapping grade GPS receiver. Future monitoring events will map the observable extents with the same or similar GPS receivers and compare the data to that collected in previous years. Photographs of the excavation and surrounding area will be taken from the same locations and in the same directions each year to compare changes in the size and shape of the excavation and surrounding point bar. Field notes will record the presence or absence of water and vegetation in the excavation and any noticeable changes to bar morphology beyond the excavation area.

SHELL CANADA LTD.
Unipkat I-22 Sump Remediation

February 18, 2011

If you have any questions please feel free to contact me at (403) 990-1382 or at sbird@ieg.ca.

Yours truly,
IEG CONSULTANTS LTD.



Sam Bird B.Sc.
Environmental Scientist

c.c. Randall Warren – Shell Canada Energy
Randy Ambler – Shell Canada Energy
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Mike Harlow – Northwest Territories Water Board