



Fisheries and Oceans  
Canada

Pêches et Océans  
Canada

Oceans, Habitat & Enhancement Branch  
Suite 100 - 419 Range Road  
Whitehorse, Yukon Y1A 3V1  
Phone: (867) 393-6785  
Fax: (867) 393-6737

PM 07-553

Your file    Votre référence

**PM 07-553**

Our file    Notre référence

**07-HPAC-PA5-000-000056**

January 11, 2008

Yukon Water Board  
Suite 106 - 419 Range Road  
Whitehorse, Yukon Y1A 3V1

Dear Sir/Madam:

**Re: Placer Mining on Bonanza Creek, tributary of the Klondike River  
PM 07-553; Northern Shoveller Resources Ltd., Gary Crawford**

The following review is of material submitted to Fisheries and Oceans Canada (DFO) in regard to the above application. We expect that the locations of all claims shown in any maps or drawings which were included in the material submitted to this office are correct. If the claims are incorrectly shown, or if the mine or restoration plan is to be changed, or if a variance of any of the conditions is sought, the applicant/licensee should submit an application for amendment to the Yukon Water Board (the Board). Prior to doing so, the applicant/licensee may wish to consult with DFO.

The department is committed to coordinating our respective legislative responsibilities in the spirit of co-operation. The department has provided rationale for the comments provided. **DFO has issued a Letter of Advice directly to the applicant** and the Letter of Advice includes all the comments pertaining to the application that are contained in this intervention. If any further clarification is required please contact Sean Collins at (867) 393-6785.

Please be aware of the new Fish Habitat Management Regime for Yukon Placer Mining which will be phased in over 2008 and 2009, and therefore to ensure compliance with the new watershed based fisheries act authorizations, the terms and conditions associated with this mining plan may be subject to change.

**Part A Stream Classification on Placer Claims**

**Bonanza Creek** is classified as a **Type IV** stream and designated a **Fish** stream pursuant to the YPA in the area of the claims listed in this application. The **historic Dredge Ponds** within claims listed in this application that have connectivity to Bonanza Creek are classified as **Type IV fish habitat** and designated as a **Fish** stream pursuant to the YPA. The **historic Dredge Ponds** within claims listed in this application that have no connectivity to Bonanza Creek are classified as **Type IV** and designated as a **no Fish** stream pursuant to the YPA. If the applicant wishes to mine additional claims, DFO should be consulted as to the classification and designation of the stream in regard to the additional claims and of the requirement to amend the Habitat Restoration Plan.

**Part B Effluent Standards**

The effluent standard for this operation, as set out in the YPA, is 5.0 ml/l settleable solids above natural background.

**Part C General Mitigative Conditions**

The following conditions will also apply to this mining operation and associated activities:

1. Any activities which are located within the natural boundaries of any fish bearing waters and which are related to the development, construction or use of access routes (however defined) and which are not included in the mine plan or on the claims which are subject of this license are not approved or otherwise authorized by DFO. To assure legal certainty, the applicant/licensee is advised to contact DFO to ensure that her/his responsibilities pursuant to the *Fisheries Act* are met.
2. All diversions, channels, ditches, drains, dams or any structure built or otherwise effected should be able to withstand seasonal floods.
3. Spring freshets may not be routed through working areas. Where diversion channels around working areas are built or excavated they should be open in preparation for the spring freshet.
4. Deleterious substances (including, but not limited to, fuels, lubricants, cleansers or solvents, or other chemicals or substances) must be used, transported, stored and/or disposed of in such a way that they are not deposited in or allowed to be deposited in waters frequented by fish.
5. Instream settling, and use of the creek as an effluent conduit were not applied for in this application and are not permitted.
6. Make-up water extracted from **Bonanza Creek** to supplement water reservoirs must be screened whether acquired from a gravity feed, a pump or otherwise to prevent the placement of fish into the mining operation area and settling ponds.

7. All water withdrawals from **Bonanza Creek and those Dredge Ponds with connectivity to Bonanza Creek** must be screened to prevent the entrainment of fish. Standards for screening are:
- a. Mesh must have no less than 8 openings per linear inch (3.5 openings per cm).
  - b. Openings must be no greater than 1/8 inch (3.2 mm) along any given side. If punch plate or similar material is used, openings must be no greater than 1/8 inch (3.2 mm) in length or width.
  - c. There shall be no less than 1 square ft. of open screen area for every 45 imperial/55 US gallons per minute withdrawn (in metric, 929 sq. cm of open screen per 205 litres per minute).
  - d. Screens shall be kept in good and efficient state of repair.
  - e. Water must not be withdrawn at any time that the screen is removed.

#### **Part D Channel Restoration Measures**

The YPA requires that fish habitat restoration measures be incorporated into the mining plan. The publication, "Guidelines for the Design and Construction of Stream Channels for Yukon Placer Mined Streams" (the Guidelines), provides a standard for the acceptable preparation of these plans. Restoration measures are to be implemented as mining progresses, and should be in place at the end of each mining season for those sections of the creek not expected to be re-diverted in accordance with a mining plan.

The stream restoration measures on claims proposed in this application have been reviewed by Fisheries and Oceans Canada and are accepted subject to conditions. These conditions are listed below, and are underlined. General guidelines follow certain underlined conditions and are offered for the licensee's guidance and consideration.

1. The bed and banks of the Bonanza Creek restored channel must be stable. All influences to the watercourse arising from the mining operation's make-up water supplies should be removed at closure. This will normally require a streambed in the restored channel which is composed of material that is at least as coarse as that material found in the original channel and streambanks with slopes of 1 Vertical to 2.5 Horizontal, or less in most unconsolidated surficial materials such as gravels, sands, etc. If variance from these recommended design criteria is considered necessary or desirable, the licensee is advised to consult with the Natural Resources Officer to ensure that her/his proposed design(s) will achieve an acceptable degree of stability.
2. Treatment of tributary streams:  
The bed and banks of any tributary (including gulches or pups) to Bonanza Creek should be left in a stable condition. This will normally require a stream channel of at least 1.5 times as wide as the original channel; at least as deep as the original channel; no steeper than the natural channel; and with a stream bed composed of material at least as coarse as that in the original channel. If variance from these recommended design criteria is considered necessary or desirable, the licensee is advised to consult with the Natural Resources Officer to ensure that her/his proposed design(s) will achieve an acceptable degree of stability.

3. Armouring:  
Armouring will be employed as directed in Schedule 1, and should in all instances conform to Class I. Where material of sufficient size is available the armour should conform to Class III. If material of sufficient size to meet Class I requirements is not available, acceptable methods of limiting erosion through the protection of banks and/or the control of stream energy should be developed in consultation with the Natural Resources Officer.
4. Riparian (streamside) vegetation re-establishment/erosion control on **Bonanza Creek**:
  - a. The streamside should be left in such a manner that erosion is controlled and revegetation is possible. Where possible, this is best accomplished by grading the streamside to a slope of 10H:1V or less for a distance of 50 meters from the channel bank. If variance from this guideline is considered necessary or desirable, the licensee is advised to consult with the Natural Resources Officer to ensure that her/his proposed design(s) will achieve an acceptable degree of stability.
  - b. Topsoil/organic overburden or fines from washed tailings should be spread on both sides of the restored channel.
  - c. Active revegetation measures are required on at least one side of the restored channel. Methods used may include but are not limited to the spreading of significant amounts of organic materials, or the transplanting of willows, alder, or riparian vegetation (including grasses).

**Part E            Conditions that relate to the use of existing watercourse crossings (fords) of Bonanza Creek**

*Fording* or the construction of *Fords* can result in habitat degradation in many ways, some of which include sedimentation, channel compaction, infilling, rutting, and the creation of barriers to fish passage or migration. Additionally, vehicles or equipment are at risk of becoming stuck or being overturned upon entering the waterway. *Fording* is not encouraged by DFO but in some instances may be considered as a least preferred option. Preferred alternatives to fording are outlined in the two Operational Statements attached to this letter, *Pacific Region Operational Statement Ice and Snow Fill Bridges* and *Pacific Region Operational Statement Small Clear-span Bridges*. If the crossings cannot be conducted as outlined in the Operational Statements and the watercourse crossing should be conducted by *fording* the creek the conditions outlined below should be followed;

1. The use of existing watercourse crossings (fords) should be avoided between April 15<sup>th</sup> and July 1<sup>st</sup> of any given year. This seasonal timing restriction is to provide protection of Arctic grayling spawning periods.
2. Only those existing watercourse crossings (fords) which are located in areas where the bed and the banks of the creek are not highly erodible (composed of large material free of fines) should be used. This is to prevent further degradation to the bed and the banks of the creek, to lessen the risk of equipment becoming stuck in the creek and to prevent the introduction of sediment into fish bearing waters.

3. All machinery used in the crossing should be thoroughly cleaned prior to fording, paying particular attention to connections, pipes and hoses for lubricants, fuels, coolants or other liquids.
4. Watercourse crossings should only occur during times of low water.
5. Watercourse crossings should be conducted at 90° or “right” angles to the banks of the creek to minimize the area of creek channel traveled.
6. No alteration to the bed or the banks of the creek should occur during travel.

Fisheries and Oceans Canada does not request a Public Hearing in regard to this application.

Yours truly,



Sean Collins  
A/Habitat Biologist  
Habitat Protection and Sustainable Development  
Yukon/Transboundary Rivers Area

- c. CS&I Mining Office, YTG  
Environmental Protection, DOE  
Tr'ondëk Hwëch'in First Nation