

YUKON WATER BOARD

Pursuant to the *Waters Act* and *Waters Regulation*, the Yukon Water Board hereby grants a Type B water use licence for placer mining undertaking to:

Glacier Dredge Ltd.
P.O. Box 21234
Whitehorse, YT Y1A 6R2

LICENCE NUMBER: PM08-619

LICENCE TYPE: B **UNDERTAKING:** PLACER

WATERSHED: Klondike River Watershed

HABITAT CLASSIFICATION: Moderate-Moderate

LOCATION: Latitude: 64° 02' N Longitude: 139° 23' W

WATER SOURCE: Dredge Ponds near Bonanza Creek

MAXIMUM QUANTITY: 3,273 cubic metres per day

EFFECTIVE DATE: The effective date of this licence shall be the date on which the signature of the Chairperson of the Yukon Water Board is affixed.

EXPIRY DATE: August 5, 2014

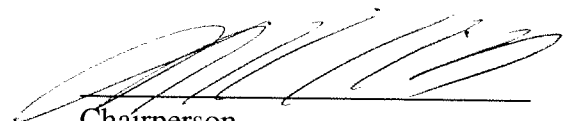
This licence shall be subject to the restrictions and conditions contained herein, and to the restrictions and conditions contained in the *Waters Act* and the *Waters Regulation* made thereunder.

Dated this 18th day of

August, 2009

Joseph Anthony Lyson
Witness

Approved by:


Chairperson
YUKON WATER BOARD

PART A DEFINITIONS

“Act” means *Waters Act* and any amendments thereto.

“Application” means application for water use licence PM08-619 and placer mining land use approval AP08619 and any subsequent information presented to the Yukon Water Board up to the date of the Board’s decision.

“Board” means the Yukon Water Board.

“Compliance Level” means a maximum end-of-pipe concentration that shall never be exceeded.

“Design Target” means the best settling facility that can be established at a placer mining operation, given the prevailing site characteristics.

“Inspector” means any person designated as an Inspector under the Act.

“Natural Boundary” means the visible high water mark of any lake, river, stream or other body of water where the presence and action of the water is so common and usual, and so long continued, as to mark upon the soil of the bed of the lake, stream or other body of water, a character distinct from that of the banks thereof, both in respect to vegetation and in respect to the nature of the soil itself. In addition, the best estimates of the edge of dormant or old side channels and marsh areas are considered to be natural boundaries.

“Regulation” means the *Waters Regulation*.

“Riparian Zone” means a portion of the stream bank, either vegetated or not, immediately adjacent to the stream channel and is measured from the high water mark on each bank of the watercourse and follows the shape of the channel.

“Spring Freshet” means the sudden increase in flow carried by a stream as snowmelt occurs at higher elevations in the watershed.

“Waste” means any substance as defined in the Act.

“Watercourse” means any stream, lake, pond, river, creek, spring, ravine or swamp, whether ordinarily containing the water or not.

“Wetland” means land that is saturated with water long enough to promote wetland or aquatic processes as indicated by poorly drained soils, hydrophytic vegetation, and various kinds of biological activity which are adapted to a wet environment.

“Work Areas” means any area disturbed and/or altered by mining activities, excluding any stable diversion channel.

PART B WATER USE AND WASTE DEPOSIT

1. The Licensee is hereby authorized to:
 - a) obtain water from dredge ponds on claims P08981 and P08861 at a maximum combined quantity of 3,273 cubic metres per day; and
 - b) use this water for a placer mining undertaking on the following grant numbers
P10783 P00748 P08981 P07992 P08861
 - c) deposit a Waste in settling ponds and return a flow of treated water to the dredge ponds.
2. All of the activities authorized in Part B (1) shall be as described in the Application and subject to the conditions of this licence. Where there is a discrepancy between the Application and the conditions of this licence, then the conditions of this licence shall prevail.
3. All work authorized by this licence shall occur on the property that the Licensee has the right to enter upon and use for that purpose.
4. Where there is a discrepancy between this licence and the Klondike River Watershed Authorization, as attached as Appendix A, then the conditions of the Watershed Authorization shall prevail.
5. Effluent Quality Standard: The Licensee shall comply with the following effluent discharge standards for any grab sample taken at the point in the effluent flow immediately before it enters the dredge pond. The Compliance Level for effluent discharge shall be <200 mg/L.
6. All effluent discharge levels included in this licence are identified in excess of natural background concentrations in the Watercourse at the time of sampling.
7. Except as otherwise authorized by this licence, the Licensee shall not deposit, or permit the deposit of Waste containing:
 - a) Anything toxic to fish;
 - b) Floating solids;
 - c) Visible oil or grease; or
 - d) A total concentration of mercury in excess of 0.005 milligrams per litre;

into a receiving Water course, or in any place, under conditions where such Waste, or any other Waste results from the deposit of such Waste, if resulting Waste contains any of the items prohibited by this paragraph, may enter the receiving Watercourse.

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8. Except as authorized by this licence, no Waste shall enter any Watercourse as a result of any operation carried out by the Licensee.
 9. If subsequent to the issuing of this licence, the Licensee uses water and/or deposits Waste in one or more ways not authorized in this licence, and the combined effect of those uses and/or deposits of Wastes, as determined by an Inspector:
 - a) has no potential for significant adverse environmental effects; and
 - b) does not interfere with existing rights of other water users of Waste depositors; and
 - c) satisfies the criteria set out in column 2 of Schedule 6 of the Regulation;no amendment to this licence will be required for that use of water and/or deposit of Waste.
 10. Fuels, lubricants, cleansers, solvents and similar chemicals or substances shall be used, transported, stored and disposed of in such a way that said substances are not deposited in, or allowed to be deposited in, waters.

PART C MINING ACTIVITIES

11. All storage and settling facilities and associated infrastructure located outside the Watercourse channel shall be of adequate capacity and construction.
12. All works associated with the undertaking, including, but not limited to, spillways, water intakes, reservoirs, and settling facilities shall be maintained in good repair.
13. Settling facilities shall be provided for all mining wastewater.
14. Available overburden shall be stockpiled for use in future site restoration, and such stockpiles shall be located where they will not adversely affect water quality in any Watercourse.
15. The Licensee shall comply with the Riparian Zone requirements for moderate-moderate habitat classification.
16. The Licensee shall provide barriers consisting of fish guards, screens, coverings or nets on all water intakes as follows:
 - a) Screens or nets shall have a minimum of 3.5 openings per centimeter and openings no greater than 3.2 millimetres along any given side.
 - b) If a punch plate or similar material is used, openings shall be no greater than 3.2 millimetres in length or width.

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- c) There shall be no less than 929 square centimeters of open screen for every 205 litres per minute being withdrawn.
 - d) The barriers shall be monitored and maintained to ensure that they function effectively at all times when water is being withdrawn.
 - e) The barriers shall be designed and installed in such a manner that the screen is submerged and a uniform flow is maintained through the total screen area.
 - f) Water shall not be withdrawn when the barrier is removed for renewal, repair or inspection.
 - g) The Licensee shall cease pumping or decanting and take remedial action if there is alteration the Riparian Zone and/or bed or bank of the Watercourse.

PART D SEASONAL CLOSURE

17. The Licensee shall comply with the following conditions pertaining to seasonal closure:
- a) The mines site shall be left in a stable condition at the end of each mining season.
 - b) An inspector shall be contacted not less than 2 weeks prior to seasonal closure.
 - c) Spring Freshet shall not be routed through Work Areas.
 - d) All mined or otherwise disturbed ground surfaces, including cut banks, fill slopes and tailings piles shall be stabilized annually to prevent erosion and surface runoff from carrying sediment into adjacent Watercourses.

PART E DECOMMISSIONING

18. Prior to final decommissioning and/or expiry of this licence, the Licensee shall:
- a) ensure that the mined areas approximates its pre-licence condition in gradient and stability, except as may otherwise be required in this licence; and
 - b) contact an Inspector not less than 2 weeks prior to final decommissioning.

PART F REPORTS, SAMPLING AND ANALYSIS

19. Where there is a surface discharge from the settling facilities, the Licensee shall take weekly samples at a point upstream of the water supply and intake and at a point in the effluent flow immediately before it enters the natural stream flow, and shall analyze these samples for suspended solids.

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20. Where no discharge from the settling facility to a Watercourse occurs, whether by surface discharge or seepage, no sampling is required.
 21. On or before the anniversary date of issuance of this licence, and for each year during which this licence is in effect, the Licensee shall submit an annual report to the Board.
 22. Annual reports during the year reported shall include the information required by this licence and by the Regulation including, but not necessarily limited to:
 - a) The quantity of water used under this licence; and
 - b) The quantity, concentration and type of any Waste deposited under this licence; and
 - c) All data collected which is required by this licence; and
 - d) A description of the reclamation that has taken place; and
 - e) A list of grant numbers of claims where any reclamation has taken place.

PART G GENERAL CONDITIONS

23. The expiry date of this licence shall be August 5, 2014
24. Sewage, including all human excreta and wastewater associated with daily camp operations, shall be deposited of in accordance with the *Public Health and Safety Act* of the Yukon.
25. The location of subsurface grey water pits and/or privies shall be not less than 30 metres from the Natural Boundary of any Watercourse, and at least 1.2 metres above bedrock or the water table.
26. If very permeable soils are encountered, the pit privy or grey water pit shall be lined with 0.6 metres of sand or silt.
27. All garbage and refuse shall be kept in a covered container until removed from the site or, where appropriate, incinerated and buried under not less than 1 metre of compacted soil in pits located not less than 30 metres from the Natural Boundary of any Watercourse.
28. The Licensee shall immediately contact the 24-hour Yukon Spill Report number (867) 667-7244, and implement the Spill Contingency Plan should a spill or unauthorized discharge occur. A detailed written report on any such event including, but not limited to, dates, quantities, parameters, causes and other relevant details and explanations shall be submitted to the Board no later than 10 days after its occurrence.
29. No condition of the water use licence limits the application of any federal, territorial, first nation or municipal legislation.

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30. In the event that the Licensee fails to comply with any provision or condition of this licence, the Board may, subject to the Act, cancel the licence.
31. Where any direction, notice, order or report under this licence is required to be in writing, it shall be given:
- a) To the Licensee, if delivered, or mailed by registered mail, to the following address:

Glacier Dredge Ltd.
P.O. Box 21234
Whitehorse, YT Y1A 6R2

and shall be deemed to have been given to the Licensee on the day it was delivered, or 7 days after the day it was mailed, as the case may be; or

- b) To the Board, if delivered, faxed or mailed by registered mail, to the following address:

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

Fax#: (867) 456-3890

and shall be deemed to have been given to the Board on the day it was delivered or faxed, or 7 days after the day it was mailed, as the case may be.

- c) The Board or the Licensee may, by notice in writing, change its address for delivery.
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KLONDIKE RIVER WATERSHED
AUTHORIZATION FOR WORKS OR UNDERTAKINGS AFFECTING FISH HABITAT
FOR SPECIFIED STREAMS IN THE YUKON TERRITORY

Pursuant to Section 35(2) of the Federal *Fisheries Act*;

The Minister of Fisheries and Oceans Canada (the “Minister”) hereby revokes the conditions of the Yukon Placer Authorization (June 1993) and subsequent amendments pertaining to placer mining works or undertakings and sediment discharge standards in the Klondike River watershed.

The Minister hereby authorizes the “*harmful alteration, disruption or destruction of fish habitat*” resulting from placer mining works or undertakings and discharge of sediment at concentrations specified in this authorization, uncontaminated by deleterious substances, within certain streams or portions of streams in the Klondike River watershed as identified on the *Yukon Placer Fish Habitat Suitability Map - Klondike River Watershed* (Schedule 1).

Authorization issued to:

Individuals or companies conducting placer mining in certain streams or portion of streams within the Klondike River watershed, Yukon Territory that hold a valid Water Use License pursuant to the *Waters Act* (Yukon) for placer mining activities.

Location of Project

The works and undertakings are located within the drainage basin of the Klondike River watershed, in the Yukon Territory. This authorization applies to certain streams or portions of streams classified on the *Yukon Placer Fish Habitat Suitability Map - Klondike River Watershed* (Schedule 1). Larger-scale maps may be available from the Yukon Placer Secretariat or Fisheries and Oceans Canada.

Valid Authorization Period

The valid authorization period for the harmful alteration, disruption and destruction of fish habitat resulting from placer mining works or undertakings is from March 31, 2008 until such time as this authorization is revoked, rescinded, amended or replaced by the Minister.

Amendments or revisions to the terms and conditions identified in this authorization may be required if placer mining activities result in an unforeseen risk to fish or fish habitat resources as demonstrated through monitoring of management parameters (water quality, aquatic health, and physical habitat compensation or rehabilitation). An annual and 5-year review will be conducted to review results of monitoring activities and should amendments be recommended, the process will be guided by the *Adaptive Management Framework for Yukon Placer Mining*, available from the Yukon Placer Secretariat or Fisheries and Oceans Canada.

Description of Works or Undertakings

This authorization permits the harmful alteration, disruption or destruction of fish habitat, in certain streams or portions of streams in the Klondike River watershed resulting from placer mining works or undertakings. Those undertakings covered by this authorization are limited to:

- The construction of diversion channels,
- In-stream works,
- Water acquisition, and;
- Discharge of sediment from settling facilities.

Works or undertakings are completed in accordance with methods identified in the *Guidebook of Mitigation Measures for Yukon Placer Mining* available from the Yukon Placer Secretariat and Fisheries and Oceans Canada.

Conditions of Authorization

1. The general watershed conditions of this authorization notwithstanding, should any specific works, undertakings, or activities authorized by this authorization, due to weather conditions, different soil, local topography, updated fisheries information or other natural conditions, appear in the opinion of the Fisheries and Oceans Canada, likely to cause greater adverse environmental effect than was contemplated by this watershed authorization, then Fisheries and Oceans Canada may direct the specific Placer Mining operation to suspend or alter works and activities to avoid or mitigate adverse effects with respect to fisheries resources. In circumstances where DFO holds the view that greater adverse environmental effects will occur at a specific site than were contemplated by this watershed authorization Fisheries and Oceans Canada may also modify the application of this authorization to that specific site. Should Fisheries and Oceans Canada propose such modification Fisheries and Oceans Canada will give the Placer Mining operation the opportunity to discuss and respond to the proposed modification.
 2. All works or undertakings will be conducted in accordance with:
 - 2.1. The measures identified in the *Guidebook of Mitigation Measures for Yukon Placer Mining* as per the fish habitat suitability classification of streams or portions of streams identified on the *Yukon Placer Fish Habitat Suitability Map - Klondike River Watershed* (Schedule 1).
 - 2.2. Discharge standards for placer mine effluent identified in the *Sediment Discharge Standards for Placer Mine Effluent – Klondike River Watershed* (Schedule 2).
 - 2.2.1. Sediment discharge standards will be phased in as identified in Schedule 2.
 3. Prior to proceeding with placer mining works or undertakings that are likely to result in the harmful alteration, disruption or destruction of fish habitat, the proponent will complete the applicable *Fish Habitat Design, Operation and Reclamation Worksheets* (Appendix A – G of the
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Guidebook of Mitigation Measures for Yukon Placer Mining) and include these worksheets as a component of their submission for project review to the Yukon Environmental and Socio-economic Assessment Board and the Yukon Water Board.

4. Fish habitat reclamation measures will be identified in the *Fish Habitat Design, Operation and Reclamation Worksheets* in accordance with the measures identified in *Guidebook of Mitigation Measures for Yukon Placer Mining*. These worksheets are to be included in the submission for project review to the Yukon Environmental and Socio-economic Assessment Board and the Yukon Water Board.
5. The proponent must ensure that all plans developed pursuant to this authorization have been duly prepared and acknowledges sole responsibility for all design, safety and workmanship aspects of all the works associated with this authorization.
6. In the event that any of the forgoing conditions cannot be met, the provisions of this authorization do not apply and the proponent will apply to Fisheries and Oceans Canada for review prior to proceeding.

The holder of this authorization is hereby authorized under the authority of section 35(2) of the Federal *Fisheries Act*, R.S.C., 1985, c.F. 14, to carry out the work or undertaking described herein. This authorization is valid only with respect to fish habitat and for no other purposes. It does not purport to release the applicant from any obligation to obtain permission from or to comply with the requirements of any other regulatory agencies. Failure to comply with any condition of this authorization may result in charges being laid under the Federal *Fisheries Act*.

Authorization #: 08-HPAC-PA5-00051

Date of Issuance: April 11, 2008

Approved by:



Steve Gotch

Title: Manager, Oceans Habitat and Enhancement Branch
Yukon / Transboundary Rivers Area
Fisheries and Oceans Canada

Yukon Placer Fish Habitat Suitability Map - Klondike River Watershed (Category A)



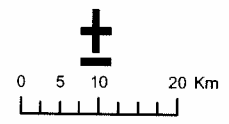
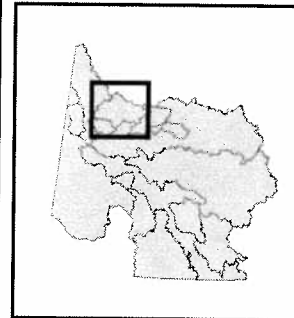
Watercourse Classification

Habitat Suitability Types

- Water Quality
- Freshwater Fisheries Production Zone
- Moderate-Low Suitability
- Moderate-Moderate Suitability
- Moderate-High Suitability
- Chinook Salmon Production
- Areas of Special Consideration
- Areas of Special Consideration

Development

- Current
- Historical
- Extensive



Map Compiled: April 21, 2008



Sediment Discharge Standards for Placer Mine Effluent – Klondike River Watershed

Habitat Suitability	Water Quality Objective ¹	Sediment Discharge Standard for Mine Discharge
High	<25 mg/L ¹	Compliance Level: <0 mg/L
Moderate-H	<25 mg/L ¹	Compliance Level: <200 mg/L
Moderate-M	<50 mg/L ¹	Compliance Level: <200 mg/L
Moderate-L	<80 mg/L ¹	Design Target: 0.2 ml/L Action Level: 0.8 ml/L Compliance Level: 1.2 ml/L
Freshwater Fisheries Production Zones	<300 mg/L ¹	Design Target: 0.2 ml/L Action Level: 1.0 ml/L Compliance Level: 1.5 ml/L
Areas of Special Consideration		
<i>Klondike River (main stem from mouth to Hunker Creek)</i>	<25 mg/L ¹	Compliance Level: <0 mg/L
<i>Klondike River (main stem downstream from Davidson Creek)</i>	<25 mg/L ¹	Compliance Level: <0 mg/L
<i>Lee Creek (lower main stem)</i>	<25 mg/L ¹	Compliance Level: <200 mg/L
<i>Flat Creek (lower main stem)</i>	<25 mg/L ¹	Compliance Level: <200 mg/L
Extensive Development Zones (previously developed areas in Hunker and Bonanza Creek only)	Downstream WQO mg/L ¹	Design Target: 0.2 ml/L Action Level: 1.0 ml/L Compliance Level: 2.5 ml/L <small>2.5 ml/L is an interim standard with transition to 0.2 ml/L starting in 2015, subject to monitoring and adaptive management.</small>
Water Quality Zones	Downstream WQO mg/L ¹	
Bear Creek – Upstream of tailings at 1100 ft contour		Compliance Level: 2.5 ml/L

¹ The water quality objective is established for management and effectiveness monitoring purposes. The placer mine operator is not required to monitor or report on this objective for compliance purposes.

General Notes Regarding Sediment Discharge Standards

- The point at which the above-listed Sediment Discharge Standards for Mine discharge will be measured will be a point in the effluent flow immediately before it enters the natural stream flow.
- Sediment Discharge Standards for Mine discharge include all releases of effluent (both point and non-point sources) into the natural stream flow of a watercourse.
- All effluent discharge levels are identified in excess of natural background concentrations at the time of sampling.
- When the sediment discharge standard is a settleable solids standard (ml/l), measurement will either involve laboratory analysis, or utilizing an Imhoff cone.
- When the sediment discharge standard is a suspended solids standard (mg/l), measurement will either involve laboratory analysis, or utilizing a portable digital turbidity/suspended solids correlation meter.
- Samples collected for the purpose of determining compliance with the above-listed Sediment Discharge Standards for Mine discharge will be analysed via laboratory analysis.

Phase-In Schedule for Sediment Discharge Standards for Yukon Placer Mining

The Yukon placer mining industry's strong overall compliance record has been achieved through effective dialogue with inspectors from Energy Mines and Resources Yukon, which bases its activities on the principles of Education, Encouragement and Enforcement.

The phase-in schedule proposed below will allow inspectors and the Yukon Placer Secretariat enough time to ensure that each operator fully understands what is required to comply with the requirements of this Authorization and the new management system for Yukon placer mining.

The phase-in of new sediment discharge standards will adhere to the following requirements.

- 2008 – Licensed placer miners will be informed about the operating practices required to comply with the new system for managing placer mining activity under the *Fisheries Act*. Inspectors and the Yukon Placer Secretariat will ensure that each operator is aware of the specific changes required at his or her site.
- 2009 – All licensed placer miners must be oriented to the Design Target and Action Level, and must comply with a Sediment Discharge Standard for Mine discharge of no greater than 2.5 ml/L, or the standard stipulated in their existing water use license, whichever is more stringent.
- 2010 – All operations must be oriented to operate within the Design Target and Action Level, and must not exceed the Compliance Level stipulated in the table of ***Sediment Discharge Standards for Placer Mine Effluent*** for the habitat suitability classification and the watershed in which the mine is located.