YUKON PLACER SECRETARIAT

Fish Habitat Management System for Yukon Placer Mining

Water Quality Objectives Monitoring Report (2008)

Prepared by

The Yukon Placer Water Quality Working Group

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WATER QUALITY OBJECTIVES MONITORING REPORT (2008)

The water quality objectives monitoring program is governed by the Water Quality Objectives Monitoring Protocol. The Protocol describes the locations, timing, frequency and methods employed during sampling, as well as the methods used to analyze sampling data. Precipitation data was collected from a variety of sources to assist in the interpretation of results.

The water quality objectives monitoring program relies upon both continuous sampling and grab sampling. Continuous sampling is performed by automated instruments that pump water from the creek or river at a preset volume and at precise times each day. Grab samples are taken by personnel at a selected location, depth and time. Normally the quantity of water taken is sufficient for all the physical and chemical analyses that will be done on the sample. Grab sampling is also performed during sampling “blitzes”, when single grab samples are collected from as many sites as possible within a short timeframe in order to get a snapshot of the water quality in a watershed over a 24 hour period.

It should be noted that with the exception of water use licenses issued after April 11, 2008, the new fish habitat management system did not result in reduced sediment discharge standards or stricter site management practices in 2008. Consequently, the water quality objectives monitoring results for 2008 are an assessment of the *status quo*, as opposed to the beneficial influence of the new rules for Yukon placer mining.

In 2008 water quality objectives were monitored in the following watersheds: Yukon River North, 40 Mile River, Klondike River, Indian River, 60 Mile River, Stewart River, McQuesten River, Mayo River, White River, Yukon River South, and Big Creek.

With specific exceptions, cases where the water quality objectives were exceeded in 2008 can likely be attributed to rain fall, either localized or basin-wide. This increased the amount of surface runoff and subsequent soil erosion from the land, increasing the input of sediment into the receiving waters.

Increases in the volume of sediment laden ground and surface water entering the system added to the amount of sediment in the monitored watercourses. The ability of the receiving waters to dilute these inputs of sediment was negated by the re-suspension of streambed material and by the further erosion of stream banks that occurs with the increased flows that are generated by these rain events. These events lead to an increase in total suspended solids concentration and a decrease in water quality.

A more detailed description of the monitoring results for watersheds where the water quality objectives were exceeded is attached to this report. Results from monitored watersheds where the water quality was not exceeded are not included.