# Appendix A3

# Fish Capture and Release Plan

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# A3.0 FISH CAPTURE AND RELEASE PLAN

Prior to commencement of instream works and dewatering of the upper four reaches of APC, as per the Water Management Plan (Section 2.9.3 as well as Drawings 4 and 5 of Appendix A1), Qualified Aquatic Environmental Specialist (QAES) personnel will complete a fish salvage of the affected reaches and their associated tributaries (North Arm Tributary, APC Main Branch and APC-5 tributary) prior to freshet in order to capture ARTR before spawning and prevent damage to deposited eggs through desiccation or sediment accumulation. All fish within APC-1 to APC-7, including ST1, and tributaries will be moved downstream where native fish will be placed within ST2A while BKTR will be placed in APC below the fish barrier. A temporary fish barrier will be placed within the downstream end of APC-7, if required an additional temporary barrier will be placed at the confluence with the tributary to APC-7 to prevent fish from migrating into the construction area. Drawing 4 of Appendix A1, outlines the reaches where fish savages will be required as well as the location of temporary fish passage barriers and flow diversion systems.

## A3.1 GENERAL PRACTICES

A Fish Research License (FRL) will be obtained from Alberta Environment and Parks (AEP) prior to instream fishing activities. As per the conditions outlined in an FRL the following standards will be adhered to during fish salvage and reporting activities:

- Standard for the Ethical Use of Fish in Alberta;
- Standard for Sampling Small-Bodied Fish in Alberta; and
- Standard for Sampling Small Streams in Alberta.

Based on the proposed timing of construction it is not anticipated that a *Species at Risk Act* (SARA) permit will be required from Department of Fisheries and Oceans (DFO) as Athabasca Rainbow Trout (ARTR) are not currently listed; however, in the event that ARTR become listed during the implementation of the Remediation Design a SARA permit will be obtained from DFO prior to fish salvage activities.

## A3.2 TIMING OF FISH SALVAGES

The timing of fish salvages will take into consideration the spawning and emerging periods of the ARTR as well as the timing of any approved instream work windows. ARTR typically spawn from late-May to early-June on the descending limb of the snow-melt hydrograph after the accumulation of approximately 115-degree-days (from ice off) and the attainment of maximum daily water temperatures of 6℃ (Sterling 1992); emergence typically occurs in mid-summer. As such, fish salvages within APC-1 to APC-7 and tributaries are anticipated to occur in the spring prior to spawning (mid-April to early May) depending on snow and ice conditions. As part of the Offsetting Plan (Appendix A2) all native fish will be released in ST-2A for the duration of construction. BKTR will be released into APC below the fish barrier. It is anticipated that native fish from ST-2A will be returned to either APC-6 or ST-1 in October following construction.

## A3.3 FISH SALVAGE METHODS

### A3.3.1 APC-1 to APC-4

As specified in the Remediation Design, works for reaches APC-1 to APC-4 will require complete isolation and dewatering. As such, a comprehensive fish salvage will be required in these reaches including their associated tributaries prior to dewatering. In addition, a fish salvage may be required on APC Main Branch to prevent fish from becoming stranded while Main Tailings Pond (MTP) flows are directed into it as per the Water Management

Plan. A semi-permanent flow isolation and fish barrier will be installed at the downstream end of APC-4 while a flow-through fish barrier may be installed on the APC Main Branch at its confluence with APC-4 (Drawing 4, Appendix A1). Fish salvages will commence once isolation structures are in place, water levels have been reduced to an acceptable level (<0.5 m) and water clarity is sufficient that creek bottom can be observed. Given the large area requiring isolation and salvage (up to 2,050 m) field crews will conduct the salvage as follows:

- Field crews will isolate each reach in 100 – 200 m sections using fine-mesh (<5 mm) stop-nets;
- Fish will then be captured within each section using a backpack electrofisher (e.g., Smith-Root LR-20, Model 15 or 12B) and fine mesh dipnets;
- Captured fish will be placed in aerated recovery pails for processing;
- As per the FRL, all fish will be identified to species, enumerated, measured for length (mm) and weight (0.1 g), and transported downstream for release into ST2A for native species and lower APC- 7 for non-native species;
- RNTR will have a genetic sample taken and preserved as per laboratory standards. A PIT tag or similar identification marker will be applied to all RNTR for future identification following genetic results. All pure strain ARTR will be returned upstream of the fish barrier while non-pure fish will be returned downstream of the barrier;
- Multiple-pass electrofishing will be conducted within each isolated section until two consecutive passes are completed with no fish captured or observed;
- Once each section is completed, the downstream stopnet will be removed and re-installed 100 – 200 m upstream and the salvage will continue as above; and
- At the end of each day, field crews will also deploy baited minnow traps throughout the reach, with all fish processed and relocated the following day.

### A3.3.2 APC-5 and APC-7

Work within APC-5 and APC-7 will be conducted under isolation (i.e., while natural flows are occurring in APC). Fish salvages for these reaches will be completed at the same time as APC-1 to APC-4 prior to the spring spawning window and July construction. Channel isolation will be completed using fine-mesh stop nets and fish salvages within these areas will be conducted according to the methods presented above. Downstream flows will be maintained at all times using a dam and pump, flume or similar isolation method. Overall salvage distance on APC, ST1, ST2A and the tributaries is expected to approach 5 km.

## A3.4 EQUIPMENT DECONTAMINTION

All equipment including waders, electrofishing equipment, boats (if required), nets, gloves and fish containment devices will be decontaminated as per the Government of Alberta Decontamination Protocol for Watercraft and Equipment prior to entering the worksite as well as following completion of works or when any equipment leaves the site for other watercourses. All tagging equipment will be cleaned between fish as per laboratory protocols.

## A3.5 REPORTING

All fish capture data will be submitted electronically to the AEP, as per the conditions of the FRL. In addition, construction monitoring reports will present a summary of the fish salvages results when applicable. PIT tag

numbers will be recorded for all RNTR captured and each fish will have a unique ID. Following genetic testing all pure strain ARTR will be identified upon recapture and placed upstream of the barrier. All fish moved upstream will be reported to AEP.