

## 10 Conclusions

After a systematic review and assessment of all project interactions with valued ecological, social and cultural components of the Wolverine Project environment, it has been determined that the project will have no significant adverse environmental effects. The detailed design and project development process includes measures for ongoing assessment and action to ensure Yukon Zinc can meet their commitments to environmental protection. Adaptive management, including monitoring and refinement of mitigation measures, in consultation with YGT, the Kaska Dena and other interests, as appropriate will ensure project success.

### 10.1 Key Findings

#### 10.1.1 Aquatic Habitat

Project effects on instream flows will be limited to:

- Reduced baseflow in upper Wolverine Creek during mine operations due to mine dewatering.
- Increased flows in Go Creek due to treatment and diversion of minewater from the Wolverine drainage.
- One time flow reduction in upper Go Creek during construction to commission the tailings facility.

No significant adverse effect on instream fish habitat is expected.

Metals and nitrate levels will be elevated above baseline conditions for a short section of Go Creek between the effluent discharge downstream of Hawkowl Creek and Money Creek. Baseline metals levels in Go Creek at times exceed CCME guidelines for protection of aquatic life. Site-specific water quality criteria for protection of aquatic life will be established at the baseline monitoring site (W12) above the Money Creek confluence, in consultation with the Yukon Water Board. Accordingly no toxic effects on aquatic biota or fisheries are expected.

Environmental effects monitoring (EEM) will track trends in metals levels in waters and stream sediments. Increasing trends will trigger additional monitoring of fish and plant tissue to assess risk of bioaccumulation and to guide adaptive management (improved treatment), if necessary. No significant effects on water quality or fish in Go Creek are expected.

At closure, groundwater flows through the backfilled mine workings could potentially mobilize metals due to ARD and metal leaching. Potential effects will be mitigated by paste backfill employing cement to neutralize and precipitate metals and restore pre-mine conductivity. Progressive backfill during operations will allow monitoring to test effectiveness of mitigation measures and guide adaptive management, if necessary.

Groundwater with elevated metals levels could potentially discharge to surface waters in Wolverine Creek or Little Wolverine Lake following closure. Potential effects could be reduced by dilution in the groundwater and surface waters. Metal concentrations in the Wolverine Lake drainage are naturally elevated due to the mineralization in the area. Based on existing conditions in Wolverine Creek, expected mitigation effectiveness,

monitoring during operations and opportunities for adaptive management, no significant effects on water quality or fish are expected in lower Wolverine Creek or Little Wolverine Lake.

### 10.1.2 Wildlife

The project results in disturbance of a relatively small area within a region that is rich in wildlife habitat and very little existing disturbance, apart from the Robert Campbell Highway. Using conservative assumptions about the size of the project disturbance footprint, effects on habitat availability for all valued species assessed are expected to be low in magnitude and therefore not significant.

Barrier effects to wildlife movement are predicted to be low. The project is on the perimeter of the Finlayson Caribou Herd Range. Concentrate haul south to Watson Lake will avoid potential effects on intensely utilized caribou range to the north. The relatively narrow right-of-way for the access road and low level of traffic will allow wildlife to cross with little impediment. Accordingly effects on wildlife movement patterns are expected to be not significant.

Potential wildlife mortality due to wildlife collisions and hunting on the access road is a concern. Mitigation measures to manage hunting/collision mortality will be implemented as part of the Environmental Protection Plan:

- Access to the private mine haul road will be restricted by a locked gated during the construction, operations, and decommissioning and closure phases of the project.
- Firearms will not be permitted.
- Hunting and fishing will be prohibited at all times on or in the vicinity of the project site.. This restriction will apply to all mine employees, managers and contractors. It will be in effect throughout the life of the project from construction through to closure and reclamation. Infringement of this policy is to be reported. This hunting and fishing prohibition has been in place successfully during the latter part of the exploration phase of the project.
- Fuel haul and concentrate haul volumes will not exceed 13 round trips per day on the proposed mine haul road. Incidental traffic will be kept minimal with air access to the mine predominating.
- Maximum speed limit on all access roads will be set at 60 km/hr.
- Any observed wildlife corridors will be signed to alert drivers to potential wildlife crossings.

Any wildlife mortality on the access road will be recorded and reported and any modifications to the mitigation measures will be considered in consultation with YTG, as required. Based on the effectiveness of these mitigation measures, effects of the access road on wildlife mortality during construction, operations and decommissioning are expected to be of low magnitude and not significant.

At closure, the access road will remain in place and it is assumed that responsibility and authority for the road will pass to the Ross River Dena Council. If public use of the mine access road is allowed post closure, there is a risk of increased mortality to the Wolverine-Fire Lake moose population from legal and illegal hunting. An increase in mortality in excess of the 2 to 3 percent (the allowable rate for sustainability of the

population) could result in a significant adverse effect on the moose population. There are various mitigation options that could be employed at closure to mitigate this effect. These include:

- Close and decommission the access road
- Restrict road access onto the access road
- Limit hunter harvest for moose in the localized area surrounding the access road
- Establish no hunting zones for moose in the localized are surrounding the access road
- Conduct regular enforcement monitoring in the local area, including on and surrounding the road

If adequate mitigation measures to decrease mortality risk to moose are established following closure, this residual project effect of the access road is expected to remain not significant.

### **10.1.3 Socio-Economic Conditions**

The Wolverine Project will be under construction between August 2006 and October 2007, at a capital cost of approximately \$127 million. Construction will require more than 284 person years of employment with a peak number of 150 workers housed in the camp, located near the mine. Construction workers will be sourced locally as much as possible. Construction activity will account for about 5.2% of Yukon's GDP and will yield almost \$11 million in taxes to governments in Yukon. The company will employ 191 workers to operate and maintain the project, in addition to 39 contract truckers and related maintenance workers. In total the mine operations will annually account for about 2.3% of the Yukon GDP or about a \$25 million increase in GDP annually and will result in 382 additional direct and indirect jobs.

Yukon Zinc Corporation is committed to sourcing workers and providers of goods and services for the Wolverine Project in the Yukon, wherever that is commercially feasible. In addition, the company is committed to ensuring the modest increase in road traffic resulting from concentrate haul and incidental travel has little or no effect on orderly traffic flow and traffic safety.

Lastly, although many Yukon residents will be employed at the mine, the company will work to ensure that First Nations employees in particular will have opportunities to balance traditional pursuit on the land with participation in the wage economy.

### **10.1.4 The Ross River Dena Council and Traditional Knowledge**

The Ross River Dena Council, on its behalf and on behalf of the Kaska Nation, have completed a Socio-Economic Participation Agreement (SEPA) with YZC. The SEPA provides a basis for participation by all Kaska in: 1) project exploration and development activities; 2) the review of environmental, social and economic matters related to these activities; and, 3) the environmental assessment and permitting of the Wolverine Project.

The SEPA provides the Kaska with the following during exploration and development activities:

- Employment and service contract opportunities

- The establishment of a management committee to deal with all matters related to the project, and
- Funding for education, training and local economic development initiatives.

YZC will benefit from access to the local Kaska work force and from their support for responsible exploration and development in the Finlayson District. In recognition of the achievement of reaching the mutually beneficial SEPA, Yukon Zinc has also welcomed the RRDC as a shareholder of the company.

YZC is currently funding the Wolverine traditional knowledge (TK) project. Existing information on Kaska land use, water use, fish and terrestrial wildlife use is being reviewed and compiled to assist in the identification and mitigation of the potential impacts from the Wolverine Project. The RRDC TK Oversight Council and YZC have agreed that a separate companion report to the EAR will be completed by December 2005. YZC will incorporate TK information into the final project design work, the development of site specific protection and management plans, and the development of monitoring programs.