



Fisheries
and Oceans

Pêches
et Océans

Pacific Region
Major Projects Review Unit
300 – 555 West Hastings Street
Vancouver, B.C. V6B 5G3

June 18, 2002

Mr. Terry Chandler
President
Redfern Resources Ltd.
710 - 777 Hornby Street
Vancouver, B.C. V6Z 1S4

5300-10-005

Dear Mr. Chandler:

Subject: Outstanding Issues Regarding Proposed Tulsequah Chief Project

Fisheries and Oceans Canada (DFO) notes that recently the B.C. Environmental Assessment Office remitted court-ordered materials to provincial Ministers for decision-making on Redfern Resource's proposed Tulsequah Chief project. DFO understands that by this action the harmonized review process vehicle that was hoped to fulfill DFO's and DIAND's responsibilities under the *Canadian Environmental Assessment Act* (CEAA) had ended.

Accordingly, DFO is compelled to depart from the schedule planned in my letter of 25 April 2002 and rather to provide Redfern directly with an update on the nature of the issues unresolved and outstanding in the federal environmental assessment of this project. It is hoped that Redfern will take this opportunity to provide updated information, plans, clarifications, commitments and/or design modifications/relocations as needed to resolve outstanding issues that would appear necessary for reaching a positive conclusion under CEAA. DFO notes that some of these issues fall outside of Redfern's direct control.

In contrast to the material recently remitted to provincial Ministers, the CEAA review considers previous information examined prior to the 1998 review, as well as new information generated subsequent to the 1998 review.

Canada

Outstanding issues are organized in the attached under categories of:

- Fisheries and Water Quality
- Wildlife
- Air Quality
- Health and Socio-Economic Conditions
- Physical and Cultural Heritage
- Use of Lands and Resources
- Historic Archaeological, Paleontological or Architectural Objects

Continuation of the CEAA review will await Redfern's response to these unresolved issues.

Please call me to discuss approaches that Redfern is considering to address these issues.

Sincerely yours,

Original signed by

Herb Klassen
Major Projects Review Unit

Attachment:

cc: J. Johansen
I. Church
S. Sheehan
J. Mathers
D. Stancil

**Attachment Preliminary List of Unresolved Issues Outstanding in the Review
of the Proposed Tulsequah Chief Project – June 2002**

1. Fisheries and Water Quality Issues

1.1 Fisheries and Water Quality Issues Related to the Mine and Minesite

Seepage from tailings facilities

- Unclear whether Redfern plans to install a second poly liner to the tailings facility or under what circumstances (alluded to at Atlin Open House)
- Unclear whether proposed contingency pumping would be required, and for how long (I. Sharpe at Atlin Open House indicated “better than likely” chance for need of pumping – how then is it a contingency?)

Stability of tailings facilities

- Unclear whether the Shazah fan site provides suitable stability attributes appropriate for long term tailings storage (ongoing requirement for core drilling to age Shazah fan)
- Unclear what flow return periods would be used for design of proposed tailings dam (hydrologic monitoring and modeling of Shazah Creek flows inadequate for tailings storage dam design owing to washed-out hydrograph)

Mine effluent discharge

- Unclear whether end of pipe discharge would meet federal metal mine effluent regulations (NB. relevant federal regulations are presently being revised. Results of pilot treatment tests needed for review)
- Unclear whether Redfern’s plans for a discharge facility suitable for the Tulsequah River situation would comply with DFO’s Policy for the Management of Fish Habitat (a suitable discharge system has not yet been proposed nor evaluated for compliance under DFO’s Policy)

Post-Closure Fisheries and Water Quality Issues

- Unclear on details of Redfern proposed post-closure plans and scheduling
- Unclear what criteria for financial instruments could be used to ensure satisfactory post-closure actions are undertaken regarding the following
 - collection and treatment of mine drainage;
 - water management/drainage/erosion control;
 - ongoing Aquatic Effects Monitoring;
 - contingency collection/pumping of seepage;
 - contingency treatment of seepage;
 - long-term riprap supplies for maintaining tailings dyke;
 - transport of personnel and supplies to maintain tailings dyke;
 - maintenance of equipment to maintain tailings dykes;

- equipment storage;
- equipment replacement;
- equipment and materials (fill and soils) to create proposed domed top for tailings;
- tailings area reclamation - seeding/planting of domed top;
- monitoring revegetation;
- maintenance of revegetation;
- decommissioning roads, causeways, airstrip, effluent discharge system
- and etc.

(federal criteria may differ from that of provincial)

- Unclear whether Redfern would commit to undertake the above actions
- Unclear what reclamation plans and schedules would apply for minesite roadways, causeways, and airstrip
- Unclear how an effluent discharge system would be decommissioned
- Unclear how the provincial review of the above elements would be undertaken, and federal department inclusion in those reviews to meet federal requirements (owing to uncertainties from New Directions in provincial government on future review processes)

Habitat displacement at causeways

- Unclear whether the proposed causeways in Tulsequah River floodplain are essential to the project (DFO's Policy for the Management of Fish Habitat's hierarchy of preference would place avoiding the HADD as a high priority – an ongoing information request has been for Redfern to consider alternative routes)

Cumulative effects assessment

- Unclear whether results of provincial staff "snap shots" of water quality in the system support earlier mass balance analyses of water quality in the system (Committee discussions in fall 2001 suggested that the "snap shot" approach would provide a better handle on the issues than the mass balance approach)

1.1 Fisheries and Water Quality Issues Related to Access Roads

Baseline Information

- Unclear whether Redfern intends to treat potentially fish-bearing streams as if they were fish-bearing in the absence of a complete fisheries survey (conflicting interpretations of the Project Report and subsequent SUP road design plans that diminished fish protection)

Watercourse Crossings

- Likely that Redfern's intention to remove only bridges and large culverts during road deactivation would result in blockages to fish passage of remaining culverts over fish streams as well as crossing failures of non-fish bearing streams and resultant sediment release into fish habitats downstream
- Likely that Redfern's proposed road designs submitted during the Special Use Permitting process would have failed to provide adequate fish passage to upstream habitats at the vast majority of watercourse crossings along the proposed access road. (Fisheries Compilation Maps 1-10 by Gartner Lee, 31 January 2000, and comments by DFO on them 30 May 2000)
- Likely inconsistencies between the above road design plans and the current Fish Stream Crossing Guide (2002) and contravention of DFO Pacific Region's position that corrugated metal pipes installed on fish-bearing streams usually result in a harmful alteration, disruption or destruction of fish habitat (Henderson, 16 August 2000)
- Unclear whether Redfern, prior to final road design, would conduct site-specific habitat surveys of potentially fish-bearing streams at crossing sites, and protect critical spawning habitats in the road alignment through alignment relocation or use of clear-span bridges
- Unclear whether Redfern would adopt the "Timing Windows" and corresponding stream protection requirements developed by review agencies that were conveyed in correspondence Klassen to Chandler (4 February 2000)
- Unclear whether Redfern would adopt stream crossing construction techniques that would isolate the construction area from stream flows where instream work is permitted
- Unclear whether bridge upgrades on the public highway north of Atlin would involve intrusions into fish habitat or comply with DFO standards and policies

Sediment Release from Access Road

- Likely that mitigation measures proposed would be ineffective in reducing road-generated suspended sediment concentrations of many watercourses particularly in the Nakonake system, to levels compliant with CCME guidelines during storm events and during spring thaw in light of haulage rates and haul schedule proposed.
- Likely that suspended sediments generated from the proposed road would harm bull trout during storm events and during spring thaw
- Likely that catastrophic failures of the proposed access road over the course of the anticipated road life would release substantial amounts of sediment and debris that would cause destruction of fish and fish habitat
- Likely that enforcement of implementation of mitigation plans would be ineffective to meet CCME guidelines on sediment released from above causes (trends of

- provincial funding of enforcement staff suggest insufficient resources would be available to be effective)
- Unclear whether road designs or sufficient gravel supplies are available to construct proposed road to standards that might provide sufficient preventative mitigation against sediment release during above conditions
 - Unclear how Redfern would minimize road failures through road design and construction techniques in unavoidable unstable areas along proposed access corridor
 - Unclear how construction techniques for the proposed winter access road would preclude snow/ice/dirt mixtures in the road prism from melting and causing suspended sediments to flow into nearby watercourses during spring thaw

Accidents and Malfunctions

- Likely that accidents would occur during slippery road conditions of spring thaw resulting in spillage of toxic materials into fish-bearing streams, particularly in Nakonake system where spring thaw is extended to ~three months owing to elevations traversed (the proposed haul schedules through the spring thaw period contrasts hauling restrictions during spring thaw on most roads in northern British Columbia, which apparently are based on WCB concerns of driver safety, as well as road protection requirements)
- Unclear whether Redfern has plans or assurances that would effect immediate cleanup responses when road or watercourse failures occur over life of the proposed road (plans for responses and responsibilities have not been identified)
- Unclear whether emergency response teams along the whole route would be prepared (equipment and training) to address spills of any material being transported to or from the mine (if reliance on these largely volunteer teams is anticipated, what preparations for them are planned?)

Post-Closure Fisheries and Water Quality Issues

- Likely that the proposed road would not be decommissioned at the end of the proposed project (details on issues in Cumulative Effects section below , Sediment Release from Access Road section above and other relevant sections)
- Unclear on details of Redfern's post-closure plans and scheduling for the proposed road
- Unclear what criteria for financial instruments could be used to ensure satisfactory decommissioning/post-closure actions are undertaken regarding the following
 - water management/drainage/erosion control on proposed road;
 - decommissioning/reclamation of proposed road
 - and etc.(federal criteria may differ from that of provincial)

- Unclear whether Redfern would commit to undertake the above actions

Cumulative Fisheries and Water Quality Effects Issues of the Proposed Access Road

- Likely that access management provisions from proposed locked gates on proposed Spruce-Wilson corridor in the long term would be ineffective (based on widespread experience across province with locked gates)
- Likely that fishing activity in Spruce Lake anticipated to be induced by the proposed road could cause irreversible loss of remnant headwater stock of arctic grayling (population isolated by a waterfall on Spruce Creek, and probably diminished by previous placer activity. Lake would be visible from proposed road)
- Likely that access management provisions from proposed manned gate at Sloko River bridge over the long term life of the proposed road would be ineffective (easily circumvented in most seasons)
- Likely that induced use of the proposed road would increase in fish (esp. bull trout) mortalities, degrade water quality (increased suspended sediments from road runoff) and damage fish habitat over time in the Nakonake system (from fishing and additional vehicular traffic (authorized or unauthorized) induced by the proposed access road or through possible extensions in mine life and likely extension in post-project road life)
- Unclear whether Redfern was intending on imposing angling restrictions on mine/road workers during construction, operations, and decommissioning phases
- Unclear whether Redfern's proposed angling and gear restrictions would be applied to FN fishers, commercial fishers and/or other "legitimate" users of the proposed access road
- Unclear whether Redfern intends to upgrade/update its Fish and Fish Habitat Mitigation and Compensation Plan (in light of the above considerations, the previous Fish and Fish Habitat Mitigation and Compensation Plan no longer reflects adequate planning and commitments required to meet DFO's Policy for the Management of Fish Habitat)
- Unclear how the proposed road would be maintained or operated post-project if it remained commissioned

2. Wildlife Effects

2.1 Grizzly Bear Issues

Baseline information

- Likely that baseline information on population dynamics insufficient to support an effective adaptive management approach or to monitor its success or failure (Reliance on modelling to estimate populations for impact assessment and follow-up monitoring rather than controlled surveys)

- Likely that grizzly bear populations have minimal ability to absorb (additional) mortalities
- Unclear whether the present role of local populations in the dynamics and vigor of population of a broader area is as a population sink or source
- Unclear on importance of ecological role played by grizzly bear in area (e.g. maintaining riparian health and vigor of other wildlife species)

Minesite GB Issues

Direct GB Effect issues:

- Unclear how Redfern would manage bears and “problem” grizzly bears at minesite

Cumulative GB Effect issues at Minesite:

- Likely that increase in harvest (licensed and unlicensed) of grizzly bear would be facilitated by airstrip during operations and post-mine closure
- Unclear how long proposed airstrip would be serviceable post-closure
- Unclear whether existing mortality rates on local Taku River population is in excess of ability of population to accommodate, considering non-legitimate harvest, and management of “problem” bears

Access Road GB Issues

Direct GB Effect Issues:

- Likely that grizzly bear mortalities would occur through defence of life and property by mine workers and from collisions
- Likely that proposed access road in valley bottoms would act as a population sink
- Likely that grizzly would avoid proposed roads and corridors

Cumulative GB Effect Issues

- Likely that of any reasonable gun restrictions imposed on legitimate non-mine users of the proposed access road would be ineffective
- Likely that failure of access management strategies during life of project would increase grizzly harvest/conflicts (from: legitimate and illegitimate hunting (existing and induced by proposed road), mineral exploration activities (existing and induced), tourism (existing and induced), snowmobiling (existing and induced), together with possible extension of project life, likely extension of proposed road life post-project, and possibility of proposed road post-deactivation)
- Likely that local grizzly bear populations would be extirpated from above effects (e.g. Mt. McMaster grizzly population) (preliminary WLAP modelling results)
- Likely that bear mortalities would occur and avoidance of habitats would expand related to off-road developments/activities induced by the proposed road

- Likely that grizzly bear mortalities would occur from collisions by traffic using the road for other than mine purposes
- Likely that enforcement of hunting and road access regulations would be ineffective (trends of provincial funding of enforcement staff suggest insufficient resources would be available to be effective)
- Likely that adaptive management plans would be ineffective (primarily dependent on provincial funding, which has tended to be downward for wildlife resource management. Also as stated under baseline above)
- Unclear whether gun restrictions would or could be imposed on legitimate non-mine road users (perhaps moot if enforcement would not be effective, as above)
- Unclear whether Redfern would develop bear management policies for the proposed road, or effectiveness of them
- Unclear whether fewer caribou calves (see below) would alter grizzly bear diet and survival
- Unclear whether further hunting restrictions would be applied

2.2 Caribou Issues

Baseline Information

- Likely that baseline information on population dynamics, particularly population regulation mechanisms, would be insufficient to support an effective adaptive management approach or to monitor its success or failure (control populations not feasible)
- Likely that the East Atlin herd has minimal ability to absorb additional mortality rates or decreased calf survival rates
- Unclear importance of ecological role played by caribou in area

Direct Effect Issues on Caribou

- Likely that the proposed access road would facilitate greater rate of predation, cause a partition in their winter range, and exclude caribou habitats from use
- Likely that the above effects would increase mortality rate and decrease survival rate of the Atlin East herd
- Likely that collisions from mine transport operations on the proposed access road and public highways (B.C., Yukon) would increase mortality rate within Atlin East herd

Cumulative Effect Issues on Caribou

- Likely that past and existing pressures (hunting, poaching, tourism, roads, placer operations, town development, snowmobiling, collisions, etc) on the East Atlin Herd have reduced the population to a vulnerable state, likely with zero tolerance for additional cow/calf mortality or reduced survival rates

- Likely that induced legitimate uses of the proposed access road and activities spawned by the road would exacerbate above effects
- Likely that access management strategies would fail during the life of the project to prevent use of the proposed road for poaching, snowmobiling and etc. that likely would exacerbate the above effects
- Likely that extension in life of the proposed road post-project, failure of road decommissioning to render the road impassable, and/or possible extensions in mine life would likely exacerbate or accelerate the above effects
- Likely that enforcement of hunting and road access regulations would be ineffective (trends of provincial funding of enforcement staff suggest insufficient resources would be available to be effective)
- Likely that adaptive management plans would be ineffective (primarily dependent on provincial funding, which has been tended to be downward for wildlife resource management)
- Likely that, cumulatively, the above effects in combination with those of the project would cause a population decline leading to the demise of the East Atlin herd (based on preliminary WLAP modelling)

2.3 Moose Issues

Baseline Information

- Likely that baseline data would be insufficient to determine whether effects are realized by the project or to trigger adaptive management strategies

Direct Effect Issues on Moose

- Likely that moose would be killed through vehicle collisions on road paralleling and crossing moose wintering areas
- Likely that moose predation by wolves would increase (afforded by ease of winter access along proposed road)
- Unclear whether proposed road would disrupt fragile predator/prey relationships and thereby cause local extirpation of low density wintering groups of moose
- Unclear what the effect of the proposed road through the Big Canyon pass area would have on travel to moose calving areas (B. Jacks noted that this pass has high usage by wildlife as a corridor)
- Unclear whether metals in seepage from proposed tailings facility would accumulate in riparian vegetation which are consumed by moose and if so would result in elevated metals levels in moose

Cumulative Effect Issues on Moose

- Likely that direct effects on moose from the project, in combination with heavy hunting pressure currently applied to moose populations, particularly in the northern

portion of the proposed access road, would cause permanent decreases or demise of the local moose populations

- Unclear whether the level of effect of increased access into the area and attendant moose harvesting would have on the distribution and population of moose south of the O'Donnell River
- Likely that enforcement of hunting and road access regulations would be ineffective to offset declines in moose populations (trends of provincial funding of enforcement staff suggest insufficient resources would be available to be effective)

2.4 Mountain Goats Issues

Baseline information

- Likely that baseline information on population dynamics would be insufficient to support an adaptive management approach

Direct Effect Issues

- Likely that continuous traffic on proposed road adjacent to escape terrain could cause abandonment of those areas to areas where goats are more vulnerable to predation (e.g. by grizzly bear), especially during kidding periods
- Unclear how goat mortalities from avalanche control could be avoided

Cumulative Effects Issues

- Likely that proposed access control measures would fail over the long term to stop hunters from using the proposed road to access goats.
- Likely that enforcement of hunting and road access regulations would be ineffective to prevent overhunting of goat populations (trends of provincial funding of enforcement staff suggest insufficient resources would be available to be effective)
- Likely that the cumulative effect of the above direct effects, induced hunting, and existing hunting pressures would lead to extirpation of isolated goat populations within some mountain blocks

3. Air Quality Issues

- Unclear whether alternative access routes are possible under different mine operation scenarios which would be more compatible with Canada's intentions to reduce greenhouse gas emissions in consideration of the proposed circuitous route from Tulsequah Chief minesite to Skagway relative to the mine site's close proximity to tidewater. (raised by the public)

4. Health and Socio-Economic Conditions Issues

Direct Effects Issues

- Unclear whether Redfern's has plans and commitments towards ensuring safety of traffic and communities along the proposed haul route. Concerns identified in DIAND's 1998 screening report include:
 - traffic accidents
 - whiteouts behind trucks in the winter,
 - pedestrian safety
 - nature of hazardous materials carried
 - ability of response crews to safely and effectively address spills (knowledge of materials to be carried, and training on how to respond specific to those materials)
 - first response capability of truckers to safely and effectively address spills

- Unclear on final bridge designs, and potential navigability of some waterways proposed to be crossed (requested on behalf of Canadian Coast Guard during previous SUP review)

Cumulative Effects Issues

- Likely that TRTFN households would see economic costs shifting from traditional foods to increased reliance on purchased foods in face of increasing difficulties harvesting sustenance resources (Staples Addendum S. 3.1.1)
- Likely that access enabled by proposed road would exacerbate stresses on furbearer populations from existing placer operations and harvesting likely to diminish trapping success and associated incomes (Staples Addendum S. 3.1.2)
- Likely that safety concerns would be elevated from increased/focused hunting activities such as enabled in the Spruce/Wilson "loop" area by the proposed access road (Staples Addendum S. 3.1.2)

5. Physical and Cultural Heritage Issues

- Likely that proposed road route would not maintain the integrity of the Nakina trail and the cultural experience of its continued use (Efforts to minimize the physical and noise conflicts of the proposed road and TRTFN's Nakina trail in the Big Canyon area have not satisfactorily addressed TRTFN's concerns as TRTFN voiced in *Comments on Route Alternatives: Tulsequah Chief Mine Access Road SUP Application*, 19 May 2000) (assessment incomplete)
- Likely that construction of the proposed access road would thwart TRTFN's opportunities/intentions/success in designing protection measures for their

traditional territories, community health and future well-being (TRTFN Land Use Planning presentation to PRC in Atlin, Dec 2001) (assessment incomplete)

Cumulative Effects Issues

- Likely that the added effects of the proposed road on alienation of traditional lands and associated cultural values when viewed within historical context of losses from previous developments (placer mining, townsite development, roads, etc.) with regard to specific cultural sites, trails, traplines, and hunting and fishing camps, these cumulatively would contribute to a sense of loss and the undermining of social, cultural and spiritual values (Staples Addendum S. 4.1; 3.1.2)

6. Use of Lands and Resources Effects

- Likely that the proposed road would cause a diminished use of the Nakina trail (Sec 5 above for effects on use of Nakina trail)
- Likely that sustenance resources would be diminished from habitat losses, fragmentation, vehicle collisions, and predator/prey relationships (Section 2 above)
- Likely that traditional harvesting activities would be disrupted from construction, operation of the proposed road (Staples Addendum S. 3.1.2)
- Unclear whether the proposed road development would affect traditional subsistence and medicinal plants or their harvest (context in Staples 1997 S. 4.4; Staples Addendum S. 3.1.1)

Cumulative Effects Issues;

- Likely that sustenance resources, which are already stressed by current placer operations and hunting, would diminish further from increased access to wilderness areas by the proposed access road, particularly the “Blue Canyon” Spruce Creek watershed area (Section 2 above)
- Likely that distribution of subsistence hunting would shift to more distant territories (e.g. south of the O’Donnel River) owing to conflict with sport hunting induced by the proposed road in their usual hunting territor (e.g. esp. north of the O’Donnel River) (Staples Addendum S. 3.1.1).
- Likely that intersection of the proposed access road with two other TRTFN trails would induce use of these trails, associated cabins, and wildlife resources that they access by non-TRTFN hunters, fishers, and other backcountry users (This would bring about competition for these resources and conflict with sustenance harvesting of/from them) (Staples Addendum S. 3.1.2)

- Likely that diminished or fragmented wildlife habitats and populations, as anticipated with construction and operation of the proposed road through and beyond project life, would reduce alternative territories for sustenance harvesting should populations of any given territory require temporary “rest” from harvesting for recovery purposes (Staples Addendum S. 3.1.2)
- Unclear to what degree B.C.’s intended reliance on restrictions on hunting (mountain goat, caribou, moose, grizzly bear) to offset project impacts to wildlife would affect TRTFN’s use of lands and resources
- Unclear whether increased access to Sloko and thereby Nakina Rivers for recreational, commercial and subsistence fishing would reduce high resource values (recreational, cultural and subsistence) held by the TRTFN in the vicinity of the Nakina camp.
- Unclear whether B.C. would impose a ban on mountain goat hunting to offset impacts of habitat fragmentation from project traffic, avalanche control, and induced hunting, and if so, the effect on TRTFN traditional harvest if this hunting ban were imposed.

7. Historic Archaeological, Paleontological or Architectural Objects Issues

- Unclear what results arose from Redfern’s archaeological assessments along the proposed road route and management responses to them