

DECISION NO. 2006-EMA-006(a)

In the matter of an appeal under section 100 of the *Environmental Management Act*, S.B.C. 2003, c. 53.

BETWEEN:	Xats'ull First Nation	APPELLANT
AND:	Director, <i>Environmental Management Act</i>	RESPONDENT
AND:	Gibraltar Mines Ltd.	THIRD PARTY
BEFORE:	A Panel of the Environmental Appeal Board Alan Andison, Chair Dr. Robert Cameron, Member Cindy Derkaz, Member	
DATES:	December 4-8, 2006, January 15-19 and 22-26, 2007, and February 22-23, 2007	
PLACE:	Williams Lake and Vancouver, BC	
APPEARING:	For the Appellant: Peter Grant, Counsel Michael Lee Ross, Counsel For the Respondent: Dennis Doyle, Counsel For the Third Party: Keith Clark, Counsel Michael Bromm, Counsel	

MAJORITY DECISION OF PANEL MEMBERS ALAN ANDISON AND DR. ROBERT CAMERON

APPEAL

[1] The Xats'ull First Nation ("Xats'ull") appeals the April 12, 2006 issuance of Amended Permit PE-00416 (the "Amended Permit") by Douglas Hill for the Director (the "Director"), *Environmental Management Act*, Cariboo Region, Ministry of Environment (the "Ministry"). The Amended Permit authorizes Gibraltar Mines Ltd. ("Gibraltar") to discharge a volume of supernatant¹ from a tailings pond at the Gibraltar Mine site into the Fraser River near Marguerite, BC. The Xats'ull submit, among other things, that the Amended Permit fails to protect human health and the environment. They further submit that their aboriginal fishing rights and title will

¹ Supernatant is a liquid overlying material deposited by settling or precipitation.

be adversely affected by the Amended Permit, and that the Director failed to adequately consult with them before issuing the Amended Permit.

[2] The Environmental Appeal Board has the authority to hear this appeal under section 100(1) of the *Environmental Management Act* (the "*Act*"). Section 103 of the *Act* gives the Board the power to confirm, reverse or vary the decision under appeal, send the matter back to the person who made the decision, or make any decision the person whose decision is appealed could have made, and that the Board considers appropriate in the circumstances.

[3] The Xats'ull ask the Board to rescind the Director's decision. In the alternative, they ask the Board to send the matter back to the Director with directions to amend or reconsider the Amended Permit and to consult with the Xats'ull and seek accommodations of the Xats'ull's aboriginal rights and title.

BACKGROUND

The Mine

[4] Gibraltar, which is a subsidiary of Taseko Mines Limited, owns the Gibraltar Mine. The mine produces copper-molybdenum ore. The mine site covers approximately 109 square kilometres, and includes three active open pit mines, a decommissioned open pit mine (the Gibraltar East Pit), a mill that removes copper and molybdenum from the ore, and a tailings impoundment area that includes a tailings pond, a dam, and a beach.

[5] The mine began production in 1972, but shut down briefly in the 1990's and then again in 1998. Taseko Mines Limited acquired the mine in 1999, and re-opened it in 2004.

[6] The mine produces approximately 70 million pounds of copper and 1.1 million pounds of molybdenum annually. Gibraltar plans to increase that production by 2008 through expansion and upgrades. The mine has a work force of approximately 300 employees. Gibraltar estimates that the mine can produce ore for another 14 years, and possibly longer if further ore deposits are discovered.

The Creation and Discharge of Supernatant

[7] To remove the copper and molybdenum from the ore, the mill crushes and grinds the ore, then mixes it with water, and certain chemicals, to produce a frothy slurry. The froth is collected and dried to form copper concentrate. The waste rock and water are passed through a cyclone to separate the fine sand and the coarser rock particles. It is the water and fine sand that comprise the materials that are sent to the tailings pond.

[8] The milling process generates approximately 36,000 tonnes of tailings per day, which are pumped to a storage facility in a valley approximately 3 kilometres north of the mill site. A sand dam has been constructed at that location to impound the tailings. The tailings are pumped onto the beach adjacent to the tailings pond, where the sand settles out and adds to the dam. The tailings then flow or seep into the tailings pond. Much of the remaining fine suspended solids settle out in the tailings pond, resulting in supernatant. The tailings pond also collects ground water and runoff water from the mine site.

[9] At the time of the appeal hearing, the tailings pond held approximately 90 million cubic metres (m³) of tailings water (supernatant). The water quality in the tailings pond is such that trout, which are stocked by Gibraltar, live in the pond.

[10] Approximately 80 percent of the water used at the mine is reclaimed from the tailings pond. A floating pump-house is used to reclaim water from the pond for re-use in the mill. The remainder of the water used at the mine is pumped to the site from wells adjacent to the Fraser River near Marguerite, through a pipeline approximately 11 kilometres long.

[11] For many years, supernatant from the tailings pond has been pumped to the Gibraltar East Pit, where the supernatant mixes with contaminated pit and dump water from other sources. However, the Gibraltar East Pit has a finite capacity. Gibraltar maintains that it will eventually have to discharge supernatant to the Fraser River or one of its tributaries, in order to address the limitations of on-site storage of runoff and discharges from the mine.

The Original Permit

[12] The Permit was first issued in July 1971. Since 1971, the Permit has been amended numerous times, but throughout that time its general purpose has been to regulate the on-site storage of discharges from the mine operations and runoff at the mine site. Before the amendment that is the subject of this appeal, the Permit only authorized discharges to the ground within the mine site.

The Appellant

[13] The Xats'ull are the most northern community of the Secwepemc (also known as Shuswap) people in British Columbia. The Xats'ull, also known as the Soda Creek Band, are a "band" under the federal *Indian Act* and have a registered population of approximately 350 members, of which approximately 160 live on one of two reserves: the Deep Creek reserve, located off of Highway 97 approximately 25 kilometres north of Williams Lake, and the Soda Creek reserve a few kilometres further northwest on Highway 97, adjacent to the east bank of the Fraser River. The Soda Creek reserve is located approximately 25 kilometres down the Fraser River from the proposed point of discharge. In the Shuswap language, Soda Creek is called Xats'ull.

[14] The Xats'ull operate the Xats'ull Heritage Village, a tourist attraction featuring traditional cultural practices, at the Soda Creek reserve. The Shuswap people were traditionally a semi-nomadic society that gathered seasonal plants in the summer, and hunted and fished year round. They lived in semi-subterranean dwellings known as pit houses during the winter.

[15] The Xats'ull belong to the Northern Shuswap Tribal Council Society, also known as the Northern Secwepemc te Qelmucw ("NStQ"). The NStQ also includes the Tsq'escen' (Canim Lake Band), T'exelc (Williams Lake Band, also known as the Sugar Cane Band), and Stswecem'c/Xgat'tem (Canoe Creek Band/Dog Creek Band). The NStQ represents those four First Nations in the BC Treaty Commission treaty negotiation process. Since 2004, the NStQ has been at stage 4 of the treaty negotiation process, which involves negotiating an agreement in principle.

[16] Approximately six kilometres upstream from the proposed point of discharge is the main reserve of the Esdilagh First Nation, also known as the Alexandria

Indian Band. The Alexandria Band identifies itself as part of a cultural group known as the Tsilhqot'in (also known as Chilcotin) people, which is culturally and linguistically distinct from the Shuswap people. The Alexandria Band was historically composed primarily of people of another cultural group, the Carrier, but today includes people of Chilcotin, Shuswap and Carrier ancestry. The Alexandria Band is represented by the Tsilhqot'in National Government (the "TNG") in treaty negotiations.

[17] In treaty negotiations, the Xats'ull have claimed a traditional territory that extends north of the Bowron Lakes through the Goat River to the Robson Valley trench to Tete Jaune Cache. That area includes a section of the Fraser River from the mouth of Williams Creek north to near a location called Australian, which is north of Alexandria. According to a map from the Statement of Intent filed by the NStQ with the BC Treaty Commission, portions of the Xats'ull's claimed traditional territory south of the Soda Creek reserve overlap that of the Williams Lake Band. Portions of the Xats'ull's claimed traditional territory also encompass the Alexandria Band's reserves, as well as areas near their main reserve that are adjacent to the Fraser River. Additionally, some of the northeastern portions of the Xats'ull's claimed territory overlap with that claimed by the Canim Lake Band.

[18] In this appeal, the Xats'ull assert aboriginal title to the traditional territory that their ancestors exclusively occupied before the Crown's assertion of sovereignty in 1846. They also claim an aboriginal right to fish for food, social and ceremonial purposes in the waters where their ancestors regularly fished before contact with European settlers. Further, the Xats'ull claim aboriginal rights associated with the gathering of food and medicine, hunting for animals, and spiritual practices within their traditional territory.

The Application to Amend the Permit

[19] A preliminary application to amend the Permit was submitted to the Ministry and circulated to stakeholders during February and March 2005. Gibraltar then formally applied to the Ministry for the amendment on August 9, 2005. In its application, Gibraltar proposed that the supernatant would flow from the tailings pond through an existing pipeline before discharging into the Fraser River from an outfall and diffuser that would be installed in the river. The pipeline is currently being used to deliver water from wells near the river to the mine. However, as a result of upgrades at the mine, Gibraltar will be able to meet its future fresh water requirements from wells located on the mine site.

[20] The proposed outfall is to be located approximately 0.5 kilometres from the settlement of Marguerite, which is approximately halfway between Quesnel and Williams Lake. Gibraltar acknowledges that the supernatant contains suspended solids, cadmium, copper, sulphate, and molybdenum, among other things. However, Gibraltar asserts that the concentrations of those substances will either meet the applicable aquatic water quality guidelines or, where the background concentrations in the river are higher than the guidelines, not increase the concentration of those substances by more than five per cent, 100 metres downstream from the point of discharge.

[21] In support of its application, Gibraltar submitted a number of consultants' reports on the potential impacts of the proposed discharge. Hay and Company

Consultants Inc. ("Hayco") produced a report titled, "Gibraltar Mine Plume Modeling Study" (the "Plume Modeling Study"). The Plume Modeling Study was used by Hatfield Consultants Ltd. in preparing a report titled, "Assessment of Predicted Effects of Gibraltar Mine Ltd. Proposed Micro Hydro Facility on Fraser River Water Quality (Revised)" in June 2005 (the "Hatfield Report"). The Hatfield Report is a revised version of a report that Hatfield prepared in February 2005. That initial report was revised in response to comments from government agencies, public stakeholders, Ministry staff and First Nations, including the Xats'ull. Golder Associates Ltd. produced a report titled, "Supplementary Environmental Impact Study for the Proposed Tailings Supernatant Discharge from the Gibraltar Mine to the Fraser River Near Marguerite, BC" in July 2005 (the "Golder Report"). The Golder Report used data in the Hatfield Report, as well as toxicity data reported in literature, to prepare a supplementary environmental impact assessment. Those reports were submitted as evidence in this appeal.

Consultation on the Proposal and Application

[22] When making decisions that may affect aboriginal rights, the Crown has a legal duty to consult with aboriginal people. The Supreme Court of Canada dealt with the obligation to consult and accommodate First Nations in two important decisions: *Haida Nation v. British Columbia (Minister of Forests)*, [2004] 3 S.C.R. 511 [*Haida*], and *Taku River Tlingit First Nation v. (British Columbia) (Project Assessment Director)*, [2004] 3 S.C.R. 550 [*Taku*]. In *Haida*, the Court held that, where aboriginal rights and title remain unresolved through treaties or other means, the Crown has a duty to consult with First Nations whose asserted aboriginal rights may be affected by a decision of the Crown or its agents. The Crown's duty to consult with aboriginal people is distinct from any obligations that government decision-makers may have to consult with members of the general public who may be affected.

[23] The Director acknowledges that he, as an agent for the Province, had a duty to consult with the Xats'ull before issuing the Amended Permit. However, the parties dispute the degree of consultation that was required in the circumstances, and whether the Director's efforts fulfilled his duty to consult with the Xats'ull. The parties also dispute whether the discharge will have any effects on the environment, human health, or the aboriginal rights that are claimed by the Xats'ull.

[24] Prior to issuing the Amended Permit, the Director, and other Ministry staff, engaged in communications with representatives of the Xats'ull, the Williams Lake Band, Alexandria Band, and other aboriginal groups with interests in the area around the point of discharge. Although the duty to consult with aboriginal peoples rests with the Crown, the Court noted at paragraph 53 of *Haida* that "[t]he Crown may delegate procedural aspects of consultation to industry proponents seeking a particular development; this is not infrequently done in environmental assessments." Some aspects of the consultation process in this case were delegated to Gibraltar.

[25] A brief summary of the consultation in this case is set out below. A detailed chronology of events was provided to the Panel as a joint submission of the parties, and is attached to this decision as Appendix "A".

Consultation summary

[26] A pre-application meeting was held on February 7, 2005, between the Director, Ministry staff, and Gibraltar staff during which consultation with First Nations was discussed.

[27] In late February 2005, Brian Chapman, an Environmental Protection Officer with the Ministry's Williams Lake office, wrote to Xats'ull Chief Dorothy Phillips, advising her that the Ministry was expecting Gibraltar to submit an application to amend the Permit.

[28] In early March 2005, Bob Patterson, Gibraltar's Manager of Environmental and Governmental Affairs, sent copies of the application to amend the Permit, along with supporting information, to the Xats'ull and various other stakeholders.

[29] In late March 2005, Anthony (Ken) Michel, Xats'ull's Natural Resources Coordinator, sent a letter to Gibraltar (copied to the Ministry) expressing concerns about the proposed amendment, and seeking a meeting. In particular, his letter stated that the Xats'ull had concerns about the impacts of the discharge on the health of fish and fish habitat, fishing activities, access to the Fraser River for traditional and community activities, and commercial activities such as fishing and tourism.

[30] Over the next nine months, an exchange of letters and telephone conversations occurred between Ministry staff (including the Director), Xats'ull representatives, and Gibraltar's staff regarding the proposed amendment. There were also several meetings between Ministry staff, Xats'ull representatives, and in some cases, Gibraltar's staff, regarding the proposed amendment.

[31] On August 9, 2005, Gibraltar submitted its formal application to amend the Permit. In support of its application, Gibraltar submitted a Consultation Report which describes and documents the consultation it conducted with the general public, various municipal, provincial and federal government agencies, and First Nations. That report, which is approximately 500 pages long, was provided to the Panel.

[32] On August 23, 2005, the Director and representatives of Gibraltar attended a meeting with the Xats'ull Treaty Working Group at the Deep Creek community hall, and made a presentation to community members regarding the proposed amendment.

[33] In December 2005, the Director sent a copy of the draft Amended Permit, the existing Permit, and Gibraltar's mine bonding information to the Xats'ull. This document contained some provisions which the Director submits were intended to address the concerns expressed by the Xats'ull, and others, up to that time. These include limits on the volume of discharge per day, lower maximum limits for metals, requirements for bioaccumulation assessments, provisions on outfall leakage and breaks, and a dilution clause to ensure that water quality objectives are met.

[34] In reply, Terry Robertson, a consultant hired by the Xats'ull, advised that the Xats'ull were unable to engage with the Ministry until they had further discussions with Gibraltar and the Ministry of Energy, Mines and Petroleum Resources.

[35] From early January 2006 through to mid-February 2006, further letters were exchanged between the Ministry and the Xats'ull and in February 2006, the Director attended another meeting at the Deep Creek community hall with representatives of the Xats'ull.

[36] In addition, starting in late 2004 and continuing through to the April 2006 issuance of the Amended Permit, Xats'ull representatives had discussions with Gibraltar's staff regarding issues of mutual concern including potential economic benefits for the Xats'ull, such as a joint business venture with Gibraltar. These matters were not all related to the requested Permit amendments.

The Decision-Making Process

[37] On April 10, 2006, the Director prepared a "Ministry Review" report regarding Gibraltar's application. The Ministry Review states that the Director considered a review of the Hatfield Report by Kym Keogh, Environmental Impact Biologist with the Ministry's Williams Lake office, a review of the Plume Modeling Study by Ruth Ann Devos, Environmental Protection Officer with the Ministry's Williams Lake office, Gibraltar's Consultation Report, and an extensive list of references that includes the Hatfield Report, the Golder Report, and the Plume Modeling Study. At page 3, the Ministry Review states as follows:

Concerns raised regarded effects on the salmon fishery, aboriginal fishing activities, human health, or other traditional first nation's activities. It was clear that the potential impact on the Fraser River salmon fishery was a paramount concern of the bands consulted. Any permit amendments should address this concern, and the monitoring and management of the discharge should be conducted to protect this important resource. It is noted that there are also federal regulations [*Metal Mining Effluent Regulations* under the *Fisheries Act*] that exist to protect the fishery resource as well as [Canadian Council of Ministers of the Environment] water quality guidelines for the protection of aquatic biota. Both these processes will be adhered to. It is understood from communications with the bands and the mine staff that Gibraltar Mines Ltd. continues to communicate with local bands on various issues, including economic development. Some of these issues are not directly related to the amendment application. It does not seem reasonable to defer a decision on this application while issues not directly related to the application are sorted out between the bands, Gibraltar Mines, and the Ministry of Energy Mines and Petroleum Resources. Efforts were made in the processing of this application to provide relevant information in a timely way and to allow opportunity for the bands to express concerns. The concerns raised were seriously considered and did have an impact on the development of conditions for an amended permit. Continued communications and information sharing will clearly follow, and are identified in the amended permit through an adaptive management plan clause of the permit...

[underlining added]

[38] The Ministry Review also discusses potential impacts of the discharge on the environment and human health. A summary of predicted impacts on page 9 states:

- Molybdenum will increase about 10% downstream of discharge
- Sulphate will increase about 1% downstream of discharge
- All other parameters of interest remain unchanged, and water quality guidelines will be met outside initial dilution zone for all applicable water uses
- Existing first nation fishing sites will be unaffected
- Existing water intakes downstream of outfall will be unaffected
- Will not significantly contribute to known existing impacts on the river
- Will not affect salmonids using the river
- There are no predicted risks to human health resulting from the discharge
- Is unlikely to affect any red or blue listed species, although EEM ("Environmental Effects Monitoring") program is needed to confirm this due to limited knowledge about such species
- Will provide a means to sustainably manage surplus water in the tailings pond, and extend into the future the need to treat and discharge more contaminated pit and waste rock dump water
- Allow for the generation of hydro power.²

[39] The Ministry Review concludes by recommending the issuance of an amended permit authorizing the discharge of supernatant, subject to various conditions.

The Amended Permit

[40] On April 12, 2006, the Director issued the Amended Permit pursuant to section 16(1) of the *Act*, which states that a director may, "for the protection of the environment," amend the requirements of a permit or approval. For ease of reference, a copy of the Amended Permit is attached to the decision as Appendix "B".³

[41] The provisions of relevance to this appeal are as follows.

[42] The amendments authorize the continuous discharge of "tailings impoundment supernatant" to the Fraser River at maximum rates of 190 litres per second and 5 million cubic metres per 12 month period. The amendments also provide a formula for determining the minimum dilution ratio over any 7-day period.

[43] The authorized works are a "barge and pump, head tank, pipeline, a submerged outfall with diffuser, and related appurtenances," as shown in plans attached to the Amended Permit. The location of the discharge point is described in

² Although Gibraltar's original proposal included a micro hydro facility this is no longer part of the project.

³ Appendix B is a modified version of the Amended Permit created for the convenience of the reader. This version has highlighting and cross-outs representing the April 12, 2006 amendments to the Permit.

section 1.1.7 of the Permit as "the Fraser River at mid-channel, adjacent to occupied crown land ... located near Marguerite, B.C."

[44] Section 1.1.3 of the Amended Permit sets out maximum concentrations in milligrams per litre (mg/L) for numerous parameters in the discharge. For the purposes of this decision, the allowable concentrations have been converted to micrograms per litre ($\mu\text{g/L}$), as the witnesses often used this measurement.

[45] The parameters of relevance are as follows:

- total suspended solids: 25 mg/L [25,000 $\mu\text{g/L}$]
- total cadmium: 0.001 mg/L [1 $\mu\text{g/L}$]
- total copper: 0.03 mg/L [30 $\mu\text{g/L}$]
- sulphate: 1800 mg/L [1,800,000 $\mu\text{g/L}$]
- total molybdenum: 0.7 mg/L [700 $\mu\text{g/L}$]

[46] Section 1.1.3 also sets out a toxicity parameter for rainbow trout.

[47] Section 2.10 of the Amended Permit requires Gibraltar to develop and implement an "adaptive management plan" for the supernatant, whereby the discharge will be reviewed every five years based on findings from the monitoring program and other relevant information. Section 2.10 states that the five year review "will present what actions or permit amendments, if any, are advisable to limit impacts from current or future tailings pond discharges to the environment and to ensure compliance with permit requirements. The review shall also address attainment of objectives for key water quality parameters in the receiving environment."

[48] Sections 3 and 4 of the Amended Permit set out monitoring and reporting requirements, including the requirement for a remote leak detection system in the pipeline, and annual reporting to the Ministry of the results of water quality assessments.

[49] It should be noted that the Amended Permit does not authorize the use or occupation of Crown lands. Although the Amended Permit refers to authorized works, some of which are already in place (e.g., the existing pipeline), separate authorization under the *Land Act* is needed to use or occupy Crown land, such as for the purpose of extending the pipeline from its existing location to the point of discharge. In addition, Gibraltar may require additional approvals in order to install the authorized works. These may include authorizations under the provincial *Water Act* and under the federal *Fisheries Act*.

[50] On April 21, 2006, the Xats'ull received notice that the Amended Permit had been issued.

The Appeal

[51] On May 23, 2006, the Xats'ull filed an appeal with the Board regarding the Amended Permit. The Xats'ull appeal on the grounds that the Amended Permit fails to protect human health or the environment, and that the Director's consultation efforts fell short of what was required according to *Haida*. The Xats'ull maintain that they have a strong *prima facie* claim to an aboriginal right to fish for salmon and sturgeon, and a strong *prima facie* claim to aboriginal title, in relation to portions of the Fraser River in and around the point of discharge. The Xats'ull

request that the Board rescind the Director's decision, or alternatively, rescind the decision and send the matter back to the Director with directions to consult with the Xats'ull and seek accommodations of the Xats'ull's aboriginal rights and title.

[52] The Xats'ull also seek their costs associated with the appeal. However, the Xats'ull indicated at the appeal hearing that they would pursue an application for costs after the Board issued its decision on the merits of the appeal.

[53] The Director submits that the authorized discharge will have no measurable impact on fisheries. He also submits that, although the Province does not admit to the Xats'ull's claims of a strong *prima facie* case for aboriginal rights and title, the discharge would not infringe such rights or title if those claims were established. Further, he maintains that the consultation process in this case was more than adequate to meet the test set out in *Haida*. He requests that the Board confirm his decision to issue the Amended Permit.

[54] Gibraltar submits that the authorized discharge will have no adverse effect on the Xats'ull's aboriginal rights. It maintains that the consultation in this case was more than adequate to meet the requirement for consultation set out in *Haida*, and that there is no basis for accommodation of the claimed aboriginal rights because there is no infringement. Gibraltar requests that the Board confirm the decision to amend the Permit.

ISSUES

[55] The issues in this appeal are:

1. Whether the amendments protect the environment in accordance with section 16(1) of the *Act*.
2. Whether the Director fulfilled his duty to consult with the Xats'ull before he issued the Amended Permit.

[56] In deciding the second issue, the Panel has considered the following sub-issues, based on the test set out in *Haida*:

- (1) Existence of a duty to consult
- (2) Scope of the duty
 - (2.1) Strength of the Xats'ull's case
 - (2.2) Seriousness of the potential impact
- (3) Whether the Crown fulfilled its duty?

RELEVANT LEGISLATION

[57] Under sections 6(2) and (3) of the *Act*, a person must not introduce or cause or allow waste to be introduced into the environment. However, section 6(5) provides for exemptions to sections 6(2) and (3). In particular, section 6(5)(a)(i) states that "nothing in this section or in a regulation made under subsection (2) or (3) prohibits... the disposition of waste in compliance with this Act and with... a valid and subsisting permit.

[58] "Waste" is defined in the *Act* to include "effluent", which is defined as follows:

"**effluent**" means a substance that is introduced into water or onto land and that

- (a) injures or is capable of injuring the health or safety of a person,
- (b) injures or is capable of injuring property or any life form,
- (c) interferes with or is capable of interfering with visibility,
- (d) interferes with or is capable of interfering with the normal conduct of business,
- (e) causes or is capable of causing material physical discomfort to a person, or
- (f) damages or is capable of damaging the environment;

[59] There is no dispute that the supernatant in this case is "effluent".

[60] Section 1(1) of the *Act* defines "environment" broadly, as follows:

"**environment**" means air, land, water and all other external conditions or influences under which humans, animals and plants live or are developed;

[61] Section 16 of the *Act* authorizes a director to amend a permit, as follows:

16 (1) A director may, subject to section 14 (3) [*permits*], this section and the regulations, for the protection of the environment,

- (a) on the director's own initiative if he or she considers it necessary, or
 - (b) on application by a holder of a permit or an approval,
- amend the requirements of the permit or approval.

DISCUSSION AND ANALYSIS

1. Whether the amendments protect the environment in accordance with section 16(1) of the *Act*.

Appellant's Position

The Fraser River and its fishery

[62] The Amended Permit authorizes discharge into the Fraser River. The Xats'ull maintain that the authorized discharge should not be allowed as it will have a negative impact on the river and the fishery values within it.

[63] The Xats'ull provided a number of documents containing information about the Fraser River and its fishery resource, and the importance of the river and the

fish to British Columbians generally, and to the Xats'ull specifically. As a background to the Xats'ull's case, the Panel notes the following:

- The Fraser River is a defining geographical feature of British Columbia. It has played a major role in British Columbia's history and development. Long before Alexander MacKenzie struck off overland to the Pacific Ocean in 1793, the river was providing an abundance of food, a mode of transportation and spiritual inspiration for First Nations people.
- The Fraser River is the largest salmon-producing river in the world and the quality of water in the river is critical to the Pacific salmon fishery, both aboriginal and non-aboriginal.
- In addition to salmon, the Fraser River is one of three large river systems on the Pacific coast of North America where spawning populations of white sturgeon (*Acipenser transmontanus*) are known to occur (the other two being the Columbia and Sacramento River drainages). The white sturgeon is the largest freshwater fish in Canada, sometimes exceeding six metres in length. It is a long-lived species with some individuals in the Fraser River living for over 100 years.
- For 13 of the last 14 years up to and including 2006, the Fraser River has topped the Outdoor Recreation Council of BC Endangered River list. It fell to third place in 2006 due to a train derailment/ toxic chemical spill in the Cheakamus River and the decline in steelhead stocks in the Greater Georgia Basin Steelhead streams.
- There has been a decrease in the salmon runs in the Fraser River over the past few years: of the more than two million sockeye expected to spawn in the river in 2004, less than 500,000 returned. The Appellant called a number of witnesses who testified about their observations of the decline in the quantity and quality of salmon in the Fraser River both above and below the proposed discharge site. Their evidence is discussed in detail under issue 2.
- The population of white sturgeon has also declined significantly in recent decades. COSEWIC⁴ designated the white sturgeon populations of British Columbia as "Endangered" in its 2003 Assessment and Update Status Report. With respect to the abundance of sturgeon in the Fraser River mainstem upstream of Hell's Gate, the COSEWIC Report stated at page v that it "may be naturally low but stable." The white sturgeon population in the Upper Fraser River (i.e., upstream from Prince George) has been added to Schedule 1 as "Endangered" under the federal *Species at Risk Act*. However, white sturgeon populations in the mid or lower Fraser River populations have not been listed under that enactment.
- Commercial and sport fishing for white sturgeon has been prohibited in British Columbia since 1994 and although historically the Xats'ull fished

⁴ Committee on the Status of Endangered Wildlife in Canada

for white sturgeon in the Fraser River, they stopped doing so in recent years due to concerns over the fragile state of the sturgeon population.

The Impact of the Amended Permit on Fish and Fish Habitat

[64] The Xats'ull submit that the authorized discharge will adversely affect the water quality of the Fraser River because the supernatant contains levels of certain contaminants, specifically copper and cadmium, that exceed the background levels in the Fraser River and the guidelines set out in the Canadian Water Quality Guidelines for the Protection of Aquatic Life (published by the Canadian Council of Ministers of the Environment, 1999, updated October 2005 ("CCME Water Quality Guidelines"). The Xats'ull submit that the effects of the discharge on water quality may result in a myriad of adverse effects on:

- the ecosystem, including macroinvertebrates (for example: stoneflies, mayflies and caddisflies), on which fish depend;
- juvenile fish by, for example, introducing higher levels of cadmium, which the Xats'ull submit is an endocrine disrupter that can adversely affect salmonids at concentrations as low as five µg/L, also sometimes referred to as parts per billion ("ppb"); and,
- the ability of fish, particularly white sturgeon, to sustain themselves.

[65] The Xats'ull submit that the Ministry's Environmental Impact Biologist, Kym Keogh, expressed concerns about the initial report that was prepared by Hatfield when she reviewed it on or before February 17, 2005, and then reviewed it further on or before April 8, 2005. The Xats'ull maintain that she criticized Hatfield's initial report for failing to look at Fraser River water quality data collected at Marguerite after 1995, and for failing to consider the potential effects of cadmium. In her second review of Hatfield's initial report, she stated as follows:

Cadmium is a concern not only immediately downstream of the discharge point but possibly around the estuary depending on how quickly it reaches background levels... Modeling of cadmium should be done to predict at what point the levels reach background values. Additionally, **reference material** citing the impacts of cadmium **to fish, wildlife and humans for the area immediately downstream should be included.**

[emphasis in Xats'ull's submissions]

[66] The Xats'ull note that the subsequent Hatfield Report discussed cadmium toxicity and included cadmium in its modeling. Citing the CCME Water Quality Guidelines (updated to 2002), the Hatfield Report states that the lowest observed effects concentration of cadmium for *Daphnia magna* (water fleas) is 0.17 µg/L, and for some fish species is 0.2 µg/L. The Hatfield Report further states, at pages 28 to 29:

Aquatic toxicity of cadmium is largely attributed to its dissolved form; however, cadmium has a high affinity for negatively charged particles, and tends to rapidly leave solution and accumulate in bottom sediments (CCME 2002). Therefore, total cadmium measured in the

Fraser River may largely be sorbed to particles, reducing or eliminating its toxicity.

[67] The Xats'ull also note that the Golder Report states as follows at pages 6 to 7, regarding the toxicity of cadmium:

Cadmium is a non-essential metal toxic to freshwater organisms at relatively low concentrations. It is readily taken up via the respiratory surfaces (gills) and accumulates mainly in the kidney, gills and liver. Toxicity in freshwater fish occurs at levels below 0.1 mg/L... The mobility, bioavailability and toxicity of cadmium in aquatic environments are enhanced under conditions of low pH, low hardness, low suspended and dissolved organic matter levels, high redox potential, and low salinity... **Other toxic effects of cadmium include reduced growth, reproduction and swimming performance in fish.**

[emphasis in Xats'ull's submissions]

[68] The Xats'ull note that the Golder Report relied on the data sets previously relied on in the Hatfield Report, and that the Director relied on the same data. The Xats'ull submit that neither the subsequent Hatfield Report nor the Golder Report updated the Marguerite water quality data. The Xats'ull further submit that, although Ms. Keogh was aware of the availability of more recent data, she did not pursue the issue, and the Director overlooked Ms. Keogh's earlier criticism.

[69] The Xats'ull argue that the data in the Hatfield Report and the Golder Report would have informed the Director that the reported mean background concentration of cadmium in the Fraser River was 0.3 µg/L, and the assumed concentration in the tailings pond was 0.25 µg/L, both of which are in excess of the water quality guideline of 0.025 µg/L, as adjusted for the possible ameliorating effects of the hardness of the water in the Fraser River. The Xats'ull further submit that, in the Ministry Review, the Director effectively dismissed any concerns about the toxicity of cadmium, despite the fact that the Hatfield Report noted that a cadmium concentration of 0.17 µg/L was found to cause observed toxic effects in water fleas, and that a concentration 0.2 µg/L was found to cause observed toxic effects in some fish species.

[70] Moreover, the Xats'ull argue that the Director effectively dismissed the possibility that elevated background levels of cadmium (or other potentially toxic substances such as copper) could directly or indirectly affect invertebrates and fish, and render them more vulnerable to contaminants in the supernatant. The Xats'ull submit that elevated background levels of cadmium may compound the effects of other contaminants introduced with the discharged supernatant. The Xats'ull maintain that, although cadmium levels in both the Fraser River and the tailings pond appear to have dropped as a result of the use of new sampling methods at Marguerite in March 2003 and more sensitive detection limits for the tailings pond water in 2005, more than two-thirds of the samples at Marguerite have been above the 0.025 µg/L CCME Water Quality Guideline, and all except one of the samples from the tailings pond exceeded the guideline. Further, the Xats'ull argue that the Director had none of that new information when he decided to issue the Amended Permit.

[71] The Xats'ull dispute Gibraltar's assertion that tests on three rainbow trout that were caught in the tailings pond demonstrate that the discharge will have no harmful effects on fish or fish habitat in the Fraser River. Gibraltar caught three trout from the tailings pond on June 24, 2005, and sent the fish to an environmental lab for tissue analysis. That analysis indicated that the metal concentrations in the tissue were no different from concentrations found in fish taken from pristine lakes in BC. The Xats'ull submit that those results should not be used to extrapolate the potential effects of the discharge on aquatic life in the Fraser River. This is especially so with respect to sturgeon and other benthic (bottom-dwelling) organisms which may be exposed to toxins in sediments that fish such as salmon and trout (that are not bottom dwellers), would not be exposed to.

[72] The Xats'ull submit that, as early as February 2005, Ms. Keogh expressed concerns that the discharge could lead to increased bioaccumulation of toxins in sturgeon, because sturgeon are bottom dwellers that feed on other bottom dwelling fish such as suckers. The Xats'ull submit that the only fish species mentioned in the initial report by Hatfield were the rainbow trout stocked in Gibraltar's tailings pond, and Ms. Keogh expressed concern over the report's absence of discussion regarding sturgeon in her initial (February 2005) review of that report. Among other things, she stated in her review of that report that the Ministry's senior fish biologist (Mike Ramsey) had advised that "bottom dwellers are exposed to different conditions [than trout] and are likely to take up more metals and ions from the sediment than those fish living in the midstream." She also expressed concerns about the effects of increased sulphate concentrations downstream of the discharge point, and she stated that the Ministry "would like to have suckers considered as a surrogate for sturgeon" in assessing potential impacts.

[73] The Xats'ull submit that, at a July 28, 2005 meeting with the Director and Ms. Keogh, Mr. Michel expressed concern over the long term effects of the discharge on fish populations, including bottom feeders such as suckers and sturgeon. In response, Ms. Keogh told him that Golder Associates was writing a report on fish concerns, and a 5-year study from the Kootenays on the effects of contamination on sturgeon would be coming out soon. She also stated that a program of sucker sampling, as a surrogate for sturgeon in the Fraser River, was planned to take place in the fall. The Xats'ull maintain, however, that the 5-year study was never provided to them, and the sucker sampling program has not taken place.

[74] The Xats'ull also note that, in her second (April 2005) review of the initial Hatfield Report, Ms. Keogh recommended: collecting sediment samples from the tailings pond to see how various metals have accumulated; collecting the interface water at the bottom sediment/water line to demonstrate what is likely being taken up by bottom feeders and invertebrates; and, identifying the invertebrate populations in the tailings pond and what the resident trout feed on. The Xats'ull argue that those suggestions were never implemented. The Xats'ull maintain that, the Director was ultimately satisfied that there would be no significant effects on sturgeon, due to the dilution capacity of the Fraser River, and the fact that the dissolved metals in the discharge would bond with particulates and settle into sediments, thereby reducing their bioavailability. However, the Xats'ull point out that Ms. Keogh's concerns regarding the effects on sturgeon were based on the fact

that sturgeon are bottom feeders and are, therefore, subject to bioaccumulation not just from the uptake of metals in dissolved form, but also from the ingestion of metals trapped in the sediment and by feeding on bottom-dwelling invertebrates or suckers that may themselves bioaccumulate metals.

[75] Additionally, the Xats'ull submit that the Golder Report acknowledges at page 6 that:

- it is widely accepted that aquatic animals take up and accumulate substantial amounts of metals through ingestion of contaminated prey;
- in aquatic invertebrates, trophic transfer⁵ has been demonstrated for several metals including copper, cadmium, and zinc;
- trophic transfer of metals in fish is not a well-studied subject but several metals including copper, cadmium and zinc are readily taken up from food and accumulated in fish.

[76] However, the Xats'ull submit that the Ministry Review ignores the possible effects of metals such as cadmium and copper on juvenile salmon through direct exposure and trophic transfer while they live in the Fraser River, and the bioaccumulation of those and other metals in white sturgeon, whose diet includes salmon. The Xats'ull argue that the Director failed to address those points despite the fact that the Ministry and Gibraltar's consultants had over a year to address the concern over the bioaccumulation of metals such as cadmium and copper in the area's sturgeon. The Xats'ull submit that the Director, in his testimony at the appeal hearing, admitted that no such studies were done before he issued the Amended Permit, and that he had no idea of the impact of additional particulate matter on the rearing of white sturgeon in the area.

[77] The Xats'ull further submit that when Ms. Keogh expressed her concerns about sturgeon in 2005, she incorrectly assumed that the only sturgeon in the area are at Hawks Creek, 25 to 30 kilometres downstream of the discharge point, and that sturgeon in the Middle Fraser River migrate downstream and then back upstream to their home base, with few exceptions. The Xats'ull submit that, contrary to those assumptions, sturgeon have been found at Australian, a relatively short distance upstream of the discharge point, and the Fraser River White Sturgeon Monitoring Program Comprehensive Report (1995-1999) concluded, based on radio-tagged sturgeon, that movements of Middle Fraser sturgeon varied seasonally, and in the Fall sturgeon migration was "variable with maximum distances traveled from 19 kilometres downstream to 36.6 kilometres upstream...."

[78] Finally, the Xats'ull maintain that the Director ignored the possibility that other pollutants from upstream sources (and elevated background levels of some substances, such as copper and sulphate) may make the Fraser River's aquatic life

⁵ A scientific abstract entitled "Environmental Effects of Dredging: Trophic Transfer and Biomagnification Potential of Contaminants in Aquatic Ecosystems" by Dillon et al., dated JAN 1995 provides a definition of trophic transfer as follows:

Trophic Transfer is defined as the transport of contaminants between two trophic levels (that is, prey to predator) (Swartz and Lee 1980).

more vulnerable to the potential harmful effects of the discharge. They argue that he should have required Gibraltar's consultants or Ministry staff to investigate possible synergistic effects.

[79] The Xats'ull further submit that he failed to consider the stress that higher temperatures put on fish such as salmon, and the reality that the river's temperatures have been increasing and will continue to increase in the future even without the discharge.

[80] Stan Proboszcz, a Fisheries Biologist, who holds a Master of Science degree in Fisheries Biology, gave evidence on behalf of the Xats'ull. He was qualified to give expert evidence regarding the appropriate environment for aquatic life and the impact of contaminants on fish species from the quality of water in the Fraser River. Mr. Proboszcz testified that more studies are required to determine the impact of the discharge of the supernatant on fish in the Fraser River. Specifically, he noted that rainbow trout sampling is unreliable for water quality impact on salmon and sturgeon. He also suggested that further studies were required using different concentrations of the contaminants present in the supernatant discharge to determine the impacts on fish. Generally, he concluded that the studies that had been carried out were inadequate to conclude that the discharge of supernatant would not negatively impact salmon or sturgeon in the Fraser River.

Diffuser Issues

[81] The Xats'ull also submit that the Director misunderstood where the diffuser would be located. The Xats'ull submit that the Director testified that he thought it would be located mid-channel, near the bottom of the Fraser River. However, during the hearing, Gibraltar provided a diagram of the proposed design for the diffuser which shows that it will actually be diffusing closer to the surface of the water than the bottom of the river. The Xats'ull submit that this could affect the way that the discharge mixes with the river water and how it affects water temperature in the river, and that the Director did not take that into account when he issued the Amended Permit.

[82] Additionally, the Xats'ull argue that there are certain environmental risks associated with a mid-channel diffuser, despite claims by Gibraltar and the Ministry that a mid-channel diffuser will provide better mixing, and that it was chosen over a side-channel diffuser in response to concerns expressed by First Nations and Ministry staff regarding the impact of a side-channel diffuser on fisheries. The Xats'ull submit that Hayco's first version of the Plume Modeling Study noted certain risks associated with a mid-channel diffuser. That report states as follows at pages 8 and 9:

The H3D model results indicate that it is **marginally** more desirable to release contaminants from the centre of the Fraser River instead of from the side...

The riverbed data obtained at Marguerite station showed that the bed elevations vary seasonally and the movement is most striking in the centre of the river... Thus the outfall may be susceptible to scour and undermining, pipe blockage, and damage by debris. The change in elevation is less dramatic on the side of the river, which makes releasing from the side a more attractive choice

than from the centre. In addition, the installation and maintenance of the outfall will be less complicated for the side release case.

... as far as the outfall is concerned, the large vertical movement of the central part of the river bed would be a considerably larger problem, as the outfall line could potentially plug up or become damaged...

[emphasis in Xats'ull's submissions]

[83] The Xats'ull submit that the initial report by Hatfield stated a further disadvantage to using a mid-channel diffuser at page 20:

River bed data for this reach of the Fraser River obtained by Hayco indicate that bed elevations, particularly at the centre of the river, vary seasonally (Figure 5.1 in Appendix 1). Therefore, a diffuser installed centre-channel may be susceptible to scour pipe blockage, and damage from moving debris. **In addition, installation of a diffuser and associated pipeline in the Fraser River would require instream construction activities that could affect fish and fish habitat during construction.**

[emphasis in Xats'ull's submissions]

Director's Position

[84] The Director submits that his decision was based on adequate relevant information on water quality and the receiving environment. The Director submits that the joint federal-provincial government water quality monitoring station at Marguerite, near the authorized discharge point, provides a reliable data source for environmental impact assessment. In that regard, he submits that an October 2006 draft report, prepared by Environment Canada and the British Columbia Ministry of Environment and titled "Water Quality Assessment of Fraser River at Marguerite (1984-2004)", confirms the relevance of the information he relied on in assessing the application to amend the Permit (i.e., the 1996 Ministry report titled, "State of Water Quality of Fraser River at Marguerite (1984-1995)").

[85] The Director submits that no adverse impacts on fisheries are expected based on the quality of the supernatant, the use of a diffuser, the minor volume of discharge relative to the flow of the Fraser River, and the short distance downstream from the discharge point at which water quality guidelines are met (or, in the case of copper, background levels are met).

[86] The Director refers to the Ministry Review which discussed the bioaccumulation of metal and the effect on fish as follows:

Bioaccumulation of metals in salmon and sturgeon was raised as a concern. It is noted that salmonids are less susceptible to bioaccumulation of chemical contaminants as they are not bottom feeders. As well, adults spend little time feeding while travelling upstream to spawning areas. Juveniles spend some time in the river, in backchannels and creek mouths, but gain little mass during that time, relative to their eventual mass when consumed as adults. Two of the main parameters of concern, sulphate and molybdenum, are not

noted to bioaccumulate. Data on local sturgeon is scant; however, it was noted that sturgeon in other parts of the Fraser are exposed to higher levels of sulphate than are found naturally in their habitat in other parts of the system. Monitoring of resident fish species is proposed, so that trace metal bioaccumulation can be monitored. Other species, such as lamprey, whitefish, sculpins and suckers are consumed by sturgeon, so they may be a suitable indicator for metal exposure by sturgeon. Rainbow trout reared in the tailings seepage pond in undiluted effluent have been tested for metal content and no difference was found when compared to fish collected from "pristine" lakes in B.C.

[87] The Director notes that the supernatant is of sufficient quality to support trout in the tailings pond. He submits that the metal content in muscle tissue from trout caught in the tailings pond in June 2005 is within the range found in trout from pristine lakes in BC, and that standard bioassay procedures have shown that the supernatant is not acutely lethal to trout or coho salmon, even at 100% effluent concentrations. The Director maintains that the characteristics of the supernatant in the tailings pond, including temperature and chemical composition, are stable due to the significant size of the pond and the long period of retention in the pond before the supernatant would be discharged. He maintains that records of the temperature in the tailings pond show that the temperature is only slightly warmer than the Fraser River. He notes that the tailings and mine runoff collected in the pond are treated with lime before being discharged to the pond, to neutralize the runoff and promote precipitation and sedimentation of metals in the tailings. He submits that the resulting effluent has very low suspended solid concentrations, with a median of 2 mg/L and a maximum of 17 mg/L.

[88] The Director submits that the Fraser River is relatively straight and free-flowing at the authorized discharge point, with gradually sloping sides that lead to a steeper drop near the centre of the channel. He submits that, even at low flows and maximum discharge rates, the river will provide an effluent dilution rate of approximately 27:1 within 10 metres of the discharge point, 150:1 at the edge of the initial dilution zone ("IDZ"), and 1800:1 at complete mixing. He defined the IDZ as being no more than 100 metres downstream from the discharge point and no more than 25% of the river's width⁶. He maintains that the diffuser is to be installed near the mid-point of the river and will be oriented upwards from the bottom of the river, to maximize mixing and minimize settling of suspended solids in the vicinity of the diffuser.

[89] Additionally, the Director submits that the discharge criteria in the Amended Permit exceeds those set out in the *Metal Mining Effluent Regulations* (a regulation under the federal *Fisheries Act*), and are within the range stipulated by the BC Pollution Control Objectives for Mining, Smelting and Related Industries (a

⁶ The CCME Water Quality Guidelines define the IDZ more generally at pp. 37-38, but also state that in BC, "the existing guidance indicates that an IDZ may extend up to 100 m downstream from a discharge and may not encompass an area greater than 25% of the stream width (extending from the bed to the surface; BCMOE 1986)."

publication of the former Pollution Control Board, Ministry of Environment, dated 1979). The Director further submits that the CCME Water Quality Guidelines will be met within the IDZ, except for copper. The Director maintains that background copper concentrations in the Fraser River at Marguerite already exceed the guidelines, and there will be no measurable increase in copper concentrations as a result of the discharge.

[90] Regarding cadmium, the Director submits that cadmium levels in the discharge plume were modeled using a conservative number, and the model shows that all aquatic guidelines will be met within several metres of the diffuser. He notes that the Amended Permit sets a maximum cadmium concentration in the effluent of 1 µg/L (0.001 mg/L), which is one tenth of the level modelled as the maximum in the technical review. He submits that the Plume Modelling Study predicted that cadmium levels will only be marginally higher (less than 5%) than background levels at the edge of the dilution zone. He further submits that new data available to the Panel regarding cadmium levels indicates that background levels in the Fraser River at Marguerite are trending lower than those previously observed, and cadmium concentrations in the supernatant are lower than assumed in the Plume Modeling Study. He submits that this new data shows that cadmium concentrations will substantially meet water quality guidelines by the edge of the IDZ.

[91] In addition, the Director submits that the guidelines, including the CCME Water Quality Guidelines, are conservative because they are based on tests using completely soluble metal salts, such that the metal is completely bio-available to aquatic organisms, whereas in reality some forms of the metals may bind to sediments that are not bio-available. He also submits that increasing water hardness reduces the toxicity of cadmium, according to the CCME Water Quality Guidelines. In particular, he submits that the guideline for cadmium at the mean water hardness of the Fraser River is 0.025 µg/L based on the formula in endnote '1' of those guidelines, as opposed to the general freshwater guideline of 0.017 µg/L listed in the guidelines.

[92] Regarding sturgeon, the Director submits that he considered the population of sturgeon known to inhabit the Hawks Creek area, 20 to 40 kilometres downstream of the authorized discharge point. He submits that there is no evidence of sturgeon inhabiting the Fraser River near the proposed discharge point, based on recent electrofishing surveys or previous set lines located immediately up or down stream of the discharge point. He also submits that observations indicate only sporadic use by sturgeon of the Australian Creek area upstream of the discharge point. He also submits that, in surveys conducted between 1995 and 1999, no sturgeon were caught at nine locations between Australian Creek and Hawks Creek, including two sites at Marguerite. Moreover, he notes that on August 15, 2006 (after the Amended Permit was issued), the federal Cabinet decided, on the recommendation of the federal Minister of Environment, not to list white sturgeon of the Middle Fraser River as an endangered species under the federal *Species At Risk Act*. The decision states that the Middle Fraser River population of sturgeon is of "naturally low abundance and is constrained by habitat and food availability" and the population "appears stable."

[93] Additionally, the Director submits that the Amended Permit includes monitoring and adaptive management requirements which will allow for the detection and mitigation of any unforeseen environmental impacts.

[94] In support of those submissions, the Director referred to the Hatfield Report, the Plume Modeling Study, and other documents. In addition, both the Director and Ms. Keogh testified as witnesses. Ms. Keogh, an Environmental Impact Biologist with the Ministry's Williams Lake office, was qualified to give expert evidence regarding environmental impact assessments pertaining to streams in BC, hydrology, water quality, fish interaction, and aquatic toxicity.

[95] The Director also notes that a copy of the application to amend the Permit was referred to local health authorities, and they raised no concerns. A copy was also referred to Environment Canada, which responded that it would be satisfied as long as the Amended Permit complied with the *Metal Mining Effluent Regulations*. The Director submits that the criteria in the Amended Permit are more stringent than those in the *Metal Mining Effluent Regulations*.

Gibraltar's Position

[96] Gibraltar submits that the evidence establishes that there will be no harmful effects from the authorized discharge. With respect to the four contaminants in the discharge that were identified to be of concern, Gibraltar submits the following, based on the Hatfield Report:

- Sulphate – all water quality guidelines would be met within 10 metres downstream of the discharge; background conditions in the Fraser River would be elevated a maximum of 11% at low river flow, 0.48% at high flow, and 2.79% at mean flow; and concentrations would typically approximate background to within 5% in all months except December to March.
- Copper – the lowest water quality guideline could never be met because the Fraser River background levels already exceed that guideline; concentrations would be within 1 µg/L of background levels within 10 metres of the discharge; and under all conditions, concentrations would be within 2% of background levels within 100 metres of the discharge.
- Molybdenum – under all but low flow conditions, concentrations would fall below all guidelines within 10 metres of the discharge, while at low flow they would do so within 100 metres.
- Cadmium – mean background concentrations in the Fraser River exceed the CCME Water Quality Guidelines but are below all other guidelines; concentrations would be within 2% of background levels within 100 metres downstream of the discharge at any level of river flow and would be expected to be within the natural variability of the Fraser River within 10 metres downstream of the discharge; and no effects were expected on aquatic biota in the Fraser River as a result of the discharge.

[97] Gibraltar notes that the Hatfield Report also concluded that the plume from the discharge point would generally stay in the centre of the Fraser River as it diffused, as opposed to migrating to the shallows along the edge of the river.

[98] Gibraltar submits that the Hatfield Report used several levels of conservatism in its analysis, and the worst-case scenarios which were modeled are unlikely to occur. It submits that the Hatfield Report adopted two target criteria for analyzing discharge concentrations: (1) whether water quality guidelines would be met; and (2) whether the downstream concentration of the discharge would approach 5% of upstream concentrations for copper, given that elevated background levels of copper in the Fraser River exceed water quality guidelines. Gibraltar notes that the Hatfield Report used data on background concentrations in the Fraser River from 1984 to 1995, as well as data on cadmium concentrations that were subsequently updated. However, Gibraltar submits that the new data regarding cadmium concentrations in the tailings pond and background concentrations in the river shows that cadmium concentrations in the tailings pond (maximum of 0.33 µg/L) are almost two orders of magnitude lower than that used in the worst-case assumption in the Hatfield Report (10 µg/L), and background concentrations in the Fraser River (0.017 to 0.297 µg/L) are also lower by a similar amount than was assumed in the Hatfield Report.

[99] Gibraltar maintains that the new data on cadmium concentrations does not affect the conclusions in the Hatfield Report regarding the issue of whether water quality guidelines will be met. Gibraltar submits that the Hatfield Report provided (and the Plume Modelling Study expanded on) a set of dilution factors that can be used to predict the concentration of any component of the effluent at various distances downstream from the discharge point. Gibraltar submits that applying the dilution factors to the updated values for cadmium shows that the lowest water quality guideline for cadmium (i.e., 0.025 µg/L) will be met by the edge of the IDZ at all flow conditions.

[100] Regarding the Golder Report, Gibraltar submits that it confirms that no harmful effects on aquatic receptors are expected, and no effects on ruminants such as elk and deer are expected from exposure to molybdenum in forage irrigated with water from the Fraser River. On Golder's recommendation, Gibraltar conducted a 96-hour toxicity test on rainbow trout and coho salmon in undiluted tailings pond water, which showed a 100% survival rate. Gibraltar also conducted sublethal toxicity tests on water fleas and fathead minnow larvae, and submits that those tests showed that no sublethal effects on invertebrates or fish are expected to occur at the edge of the IDZ. Moreover, Gibraltar submits that Golder developed an adaptive management plan for the discharge, which has been incorporated into the Amended Permit.

[101] Martin Davies and Barbara Wernick testified as expert witnesses in support of Gibraltar's submissions. Todd Wambolt, Gibraltar's Senior Environmental Engineer, also gave evidence, mainly regarding the water quality in the tailings pond and Gibraltar's methods for testing water quality.

[102] Mr. Davies is the author of the initial report by Hatfield, and the Hatfield Report. He was qualified as an expert in environmental effect monitoring and study design, fisheries biology and stream ecology both with respect to the Fraser River, water and sediment quality and monitoring, and environmental management. Mr.

Davies testified that the Hatfield Report is based on the lowest relevant water quality guidelines that were generally set at ten times below the level at which effects on organisms were observed. He also stated that the models on which the Hatfield Report are based used worst-case scenarios such as the lowest river flows, the highest concentrations of cadmium, copper and molybdenum ever detected in the tailings pond and a sulphate concentration that was one third higher than the maximum level ever observed in the tailings pond.

[103] In response to Ms. Keogh's concerns, Mr. Davies provided the Panel with a memo dated June 2, 2005, to Todd Wambolt. In that memo, Mr. Davies noted that the initial terms of reference provided to Hatfield did not require it to address fisheries issues, but he stated that Ms. Keogh's concerns regarding fish and fish habitat could be addressed, with the exception of the effects associated with installing the diffuser. He also proposed a response to those concerns. The Hatfield Report incorporated Mr. Davies' proposed response, where it states as follows (pages 24 to 25):

... the predicted worst-case downstream concentration of 10.0 mg/L sulphate remains below typical concentrations in the Fraser River upstream of Prince George... Fish communities in these upper reaches of the Fraser River generally are similar to those found in the middle Fraser River (McPhail and Carveth 1994), suggesting that fish communities in the middle Fraser likely will not to be [sic] detrimentally affected by this predicted change in sulphate concentration.

This includes white sturgeon, a provincially Red-listed and federally Endangered species found in the middle Fraser and therefore a species of particular concern. White sturgeon populations in the Fraser River upstream of Prince George where natural sulphate levels exceed those predicted following commencement of tailings water discharge, were judged by COSEWIC (2003) to be stable, with the population structure indicating effective recruitment. Further, as a facultatively anadromous species (Lower Fraser River populations may spend considerable time in salt water, particularly as juveniles... and adults may migrate long distances in marine water between coastal river systems...) white sturgeon likely are tolerant of a wide range of ion concentrations. Sulphate concentrations in sea water are approximately 2,700 mg/L....

[104] Ms. Wernick is the author of the Golder Report, and was qualified to give expert evidence regarding environmental permitting, monitoring and impact assessment; aquatic toxicity and stream ecology including the Fraser River; and fish biology. Ms. Wernick testified that the precautionary principle informs the way she approaches projects such as the Golder Report. She stated that, because worst-case scenarios (i.e., low river flow and highest recorded concentrations of contaminants in the discharge) were used to predict potential effects from the discharge, there is, in her opinion, no risk of serious or irreversible harm in this case, and the level of uncertainty is not significant. Ms. Wernick also confirmed that water quality guidelines are very conservative being at least ten times, and for some parameters, up to 100 times, below the level of observed effects.

[105] Ms. Wernick testified that if, at the edge of the IDZ, water quality guidelines were met, or background concentrations were approximated within five per cent, she would not be concerned about harm to the river or the organisms in it.

The Panel's Findings

What are the relevant considerations under section 16(1)?

[106] Although section 6(2) and (3) of the *Act* creates a broad prohibition against the discharge of waste into the environment, those sections are subject to section 6(a)(i), which allows the disposition of waste "in compliance with a valid and subsisting permit".

[107] Section 14(1) authorizes a director to issue a permit to introduce waste into the environment "subject to requirements for the protection of the environment that the director considers advisable". Such requirements may include requiring the permittee to construct works, or monitor the method of handling, treating, transporting, and discharging the waste. An amendment must similarly protect the environment according to section 16(1).

[108] There is a tension inherent in this scheme. The tension is between protecting the environment and authorizing the introduction of waste into that same environment. Although the government has a broad goal or policy of protecting the quality of the environment for present and future generations, it is also faced with a society that generates a great deal of waste that needs to be disposed of. This waste includes "effluent" that, by definition, may injure or be capable of injuring the health or safety of a person, property or a life form, or may damage or be capable of damaging the environment. How can this waste be disposed of in a manner and still protect the environment?

[109] The Panel finds that this *Act*, like its predecessor the *Waste Management Act*, reflects a policy of compromise. This policy was described by the BC Supreme Court in *BC Minister of Environment, Lands and Parks (MELP) v. Alpha Manufacturing* (1996), D.L.R. (4th) 688, as follows:

... it is abundantly clear from the Waste Management Act as a whole that it represents the legislative policy of controlling, ameliorating and where possible, eliminating the deleterious effect of pollution on the environment in a broad sense. The means adopted are in great measure the provision of permits and approvals before potentially polluting activities can be undertaken.

[emphasis added]

[110] On appeal, the Court of Appeal expressly agreed with the conclusions above (*British Columbia (Minister of Environment, Lands and Parks) v. Alpha Manufacturing Inc.*, (1997), 150 D.L.R. (4th) 193 (B.C.C.A.)).

[111] Thus, the *Act* is not an example of a zero tolerance, or zero harm approach. Permits may be issued allowing waste into the environment (defined as the air, land, water and all other external conditions or influences under which humans, animals and plants live or are developed). The environmental impact of the waste is to be controlled, ameliorated and, where possible, eliminated.

[112] It appears that the underlying rationale is that the environment can assimilate, dissolve, treat or otherwise deal with wastes within certain limits that do not lead to unacceptable conditions or harm. Thus, one can use the environment's assimilative capacity within limits that do not lead to unacceptable results. This is what the Director and Gibraltar say will happen to the discharge in the present appeal. The Xats'ull disagree.

[113] In order to determine the impact on the environment, three critical questions must be answered: (1) what are the potentially harmful physical, chemical and biological components of the discharge (i.e., will the receiving environment assimilate, dissolve or treat the discharge); (2) how will these impact the receiving environment; and (3) whether there are any particular sensitivities or special features of the receiving environment that should be taken into consideration?

[114] Regarding the third question, different or more stringent standards may apply to what might be broadly described as "sensitive" environmental situations, whereas less stringent values may apply when it is shown that unacceptable deleterious changes to the receiving environment will not result.

[115] Depending on the answers to these questions, a permit or amendment may or may not be granted. A director has significant discretion and clearly has authority to reject an application if the environment will not be adequately protected.

1) What are the potentially harmful physical, chemical and biological components of the discharge (i.e., the contaminants of concern)?

[116] The approach in the Hatfield Report was to select only those contaminants that had mean concentrations in the tailings water that both: (1) exceeded the relevant provincial or federal water quality guidelines⁷; and, (2) were higher than the ambient (background) mean concentrations in the Fraser River at Marguerite.

[117] The contaminants of concern were identified as:

- total copper,
- total cadmium,
- total molybdenum, and
- dissolved sulphate.

[118] The Xats'ull did not dispute this approach. The Panel has reviewed the data provided in the tables in the Hatfield Report and finds that the above approach is reasonable.

2) What is the impact on the receiving environment?

[119] In order to assess the impact of these substances on the receiving environment in this case, the Panel will consider (a) how the permitted levels of the

⁷ In British Columbia water quality guidelines have been developed by the Ministry for a number of purposes including the protection of aquatic life, livestock watering, crop irrigation and drinking water. In addition to the provincial guidelines, the federal government has established the CCME Water Quality Guidelines. Guidelines are reviewed and updated from time to time in accordance with new research.

contaminants of concern in the supernatant will affect the water quality in the river; (b) what is the impact on the fish and fish habitat of concern in this case; (c) how reliable are the assumptions with respect to the anticipated impacts; and (d) the effectiveness of the conditions in the Amended Permit to ensure adequate (or proper) assessment and monitoring of the receiving environment for negative impacts. The Panel will then consider the final question of whether there are any particular sensitivities which impact the above evaluation.

[120] Underlying all of these considerations is the main question of whether the Amended Permit will adequately protect the environment.

- a) *How the permitted levels of the contaminants of concern in the supernatant will affect the water quality in the river*

[121] When analyzing the impact of the proposed discharge on the water quality of the river, the Director applied the lowest water quality guideline, including lower interim or working guidelines that have not yet been approved. For copper, cadmium and dissolved sulphate, the lowest water quality guideline is the guideline for the protection of aquatic life. The lowest water quality guideline for molybdenum is the CCME Water Quality Guideline for crop irrigation.

[122] The experts also applied these guidelines when evaluating the potential impact of the discharge to the environment.

[123] The Panel also notes that the British Columbia Approved Water Quality Guidelines, 2006 Edition, provides that a site specific "assessment of the water quality is desirable" when substance concentrations exceed the guidelines.

- (i) Copper

[124] Information provided in the Hatfield Report shows that copper in the Fraser River at Marguerite ranged from a minimum of 1 µg/L to a maximum of 59 µg/L between 1983 and 1995⁸, with a mean (average) background concentration of 7 µg/L. The maximum concentration of copper recorded in the tailings pond from 1992 to 2005 was 28 µg/L with a mean concentration of 7.3 µg/L. The Panel notes that the maximum concentration of copper in the tailings pond (28 µg/L), is less than one half of the maximum background copper (59 µg/L) in the river.

[125] The Amended Permit provides that the concentration of copper in a "Grab Sample" of tailings pond effluent at the point of discharge shall not exceed 30 µg/L (0.03 mg/L). This is 2 µg/L above the highest recorded concentration of copper in the tailings pond.

[126] The lowest water quality guideline for copper is the CCME Water Quality Guidelines for the Protection of Aquatic Life of 2 µg/L, based upon the mean hardness in the water. The British Columbia Approved Water Quality Guidelines for fresh water aquatic life for copper is 8.8 µg/L (based on the mean CaCO₃ hardness

⁸ A monitoring station at Marguerite has been one of four major water quality monitoring stations on the Fraser River for both the provincial and federal governments since the mid 1980's. Water sampling results are available online. However, the Hatfield Report used water quality monitoring data for Marguerite from 1983 to 1995 that had been originally assembled and analyzed in a 1998 report by Regnier and Shaw.

in the river at Marguerite). The mean background concentration of copper in the river (7 µg/L) exceeds the lowest water quality guideline for the protection of aquatic life by 5 µg/L.

[127] As set out above, in Ms. Wernick's opinion there is no cause for concern if the concentration of a contaminant in the river as a result of the proposed discharge, does not exceed five per cent of the background concentration. For copper, this would be an increase of up to 0.35 µg/L (i.e., 5% of the mean background concentration of 7 µg/L).

[128] The Plume Modeling Study predicted that, in the worst case scenario (i.e., low river flow, mean river background concentration of 7 µg/L, and the highest recorded tailings pond concentration of 28 µg/L), the concentration of copper in the river would increase from 7 µg/L to 7.14 µg/L at the edge of the IDZ. This increase of 0.14 µg/L is less than half the 0.35 µg/L or 5% above the background levels that Ms. Wernick would consider acceptable.

[129] The Panel finds that the background concentration of copper in the river is the primary factor determining the downstream concentration, and that there will be no significant measurable increase in the concentration of copper in the river outside of the IDZ as a result of the proposed discharge. The Panel also finds that these concentrations do not pose any significantly greater risk than the existing copper concentrations in the river.

[130] However, the Panel is concerned that although the predicted increase in copper concentration at the edge of the IDZ is only 0.14 µg/L higher than the mean concentration of copper in the river, the mean concentration in the river is already three and one-half times higher than the CCME Water Quality Guidelines for the protection of aquatic life. The effect of the Amended Permit is to allow an increase in absolute terms to the level of copper in the river. This, in and of itself, is cause for concern even if the guidelines are very conservative, as stated by various witnesses.

[131] In conclusion, the Panel finds that the background concentration of copper in the river exceeds the lowest water quality guideline for aquatic life. Therefore, in the Panel's opinion, adding more copper to the river will only worsen the current water quality situation in relation to this contaminant.

(ii) Cadmium

[132] Appendix 1 to the Hatfield Report contains the raw data from Gibraltar's tailing water sampling program from 1992 to 2005. In the case of cadmium, all but one of the samples are recorded as being below the detection limit⁹. A detection limit is the lowest concentration that can be measured with acceptable accuracy with the equipment or method being used. If a concentration is below the detection limit, it is usually reported as not detectable or it may be reported as being less than the detection limit (e.g., < 10 if the detection limit is 10). The actual concentration in the sample may be anywhere between the detection limit and zero.

⁹ From April 21, 1992 to March 2, 2005, there were 28 observations for total cadmium in the tailings pond, of which 27 were recorded as being below the detection limit.

[133] The Hatfield Report established the criterion with respect to detection limits to be used for the Plume Modeling Study. Hatfield used one-half of the detection limit to calculate mean (average) and median (the concentration at which half the results are higher and half the results are lower) concentrations. For maximum and minimum values, Hatfield used one times the detection limit as the concentration to be reported. This criterion ensures that predicted outcomes are conservative. However, inclusion of non-detectable observations with relatively high detection limits may give results that do not represent actual concentrations.

[134] Over the years, the equipment and methods for measuring concentrations have improved, resulting in lower detection limits.

[135] According to the Hatfield Report, cadmium in the Fraser River at Marguerite ranged from 0.1 µg/L to 1.4 µg/L between 1983 and 1995, with a mean background concentration of 0.3 µg/L. The maximum concentration of cadmium recorded in the tailings pond from 1992 to 2005 was stated to be <10 µg/L, with a mean concentration of 2.5 µg/L. This was the information before the Director when he made his decision to issue the Amended Permit.

[136] The lowest water quality guideline for cadmium is 0.025 µg/L, adjusted for the mean hardness of the Fraser River at Marguerite.

[137] At the appeal, the Panel was presented with more recent data for cadmium from the water monitoring station at Marguerite, as well as data from Gibraltar's sampling of the tailings pond, and of the river at the point of the proposed discharge. Gibraltar's recent sample analyses were carried out using a lower detection limit.

[138] From its review of the more recent Marguerite monitoring station data, the Panel notes that the concentration of cadmium in the river at Marguerite from January 1996 to June 2006 ranged between 0.013 µg/L and 3.1 µg/L. From March 2003, when a different analytical method (assumed to have a lower detection limit) was implemented, the background concentration of cadmium has ranged between 0.013 µg/L and 0.29 µg/L.

[139] According to the sampling carried out by Gibraltar at the proposed discharge site, the concentration of cadmium in the river from August 2005 to December 2006 ranged from 0.02 µg/L to 0.077 µg/L, with a mean concentration of 0.04 µg/L. The concentration of cadmium in the tailings pond over the same period ranged from 0.073 µg/L to 0.33 µg/L, with a mean concentration of 0.172 µg/L.

[140] The Amended Permit provides that the concentration of cadmium in a "Grab Sample" of tailings pond effluent at the point of discharge shall not exceed 1 µg/L (0.001 mg/L), which is three times the highest concentration of cadmium observed in the tailings water according to Gibraltar's recent sampling.

[141] The Panel finds that the recent sampling for cadmium has provided considerably different information than that which was available to the Director when he made his decision to issue the Amended Permit. It is also substantially different from the data used to arrive at the conclusions in the Hatfield Report, the Plume Modeling Study and the Golder Report all of which led to the Director's decision with respect to the maximum concentration of cadmium in a "Grab Sample" under the Amended Permit.

[142] As with copper, the mean background concentration of cadmium in the river (0.3 µg/L or, according to Gibraltar's more recent data, 0.04 µg/L) exceeds the lowest water quality guideline.

[143] The Panel finds the background concentration of cadmium in the river is the primary factor in determining the downstream concentration. The Panel is concerned that any addition of cadmium to the river will have the effect of increasing the level of cadmium in absolute terms when the background concentration of cadmium in the river already exceeds the lowest water quality guideline.

(iii) Molybdenum

[144] According to the Hatfield Report, the concentration of molybdenum in the Fraser River at Marguerite ranged from 0.1 µg/L to 1 µg/L between 1983 and 1995, with a mean concentration of 0.5 µg/L. The maximum concentration of molybdenum recorded in the tailings pond from 1992 to 2005 was 644 µg/L, with a mean concentration of 399 µg/L.

[145] The Amended Permit provides that the concentration of molybdenum in a "Grab Sample" of tailings pond effluent at the point of discharge shall not exceed 700 µg/L (0.7 mg/L).

[146] The CCME lowest water quality guideline for molybdenum is 73 µg/L for aquatic life, and 10 µg/L for crop irrigation. The 10 µg/L guideline applies when the copper to molybdenum ratio is less than 2:1. When this ratio is greater than 2:1, the irrigation guideline is 20 µg/L. The lowest guideline of 10 µg/L is used in the discussion below.

[147] The Plume Modeling Study predicted that in the worst case scenario (i.e., low river flow, mean river background concentration of 0.5 µg/L, and the highest recorded tailings pond concentration of 644 µg/L), the molybdenum concentration at the edge of the IDZ would be 4.88 µg/L and 0.86 µg/L at complete mixing. These concentrations are 2.39 µg/L and 0.59 µg/L, respectively, at mean river flow.

[148] In the average case, molybdenum concentrations are 3.21 µg/L and 0.72 µg/L at the edge of the IDZ and at complete mixing, respectively, at low river flow. At mean river flow the concentrations are 1.67 µg/L and 0.56 µg/L, respectively.

[149] The Panel finds that in the worst case scenario, the concentration of molybdenum in the river at the edge of the IDZ as a result of the proposed discharge would increase by 4.38 µg/L. This is more than nine times the mean concentration of molybdenum in the river before the proposed discharge. However, the concentration of molybdenum in the river would still be less than one-half of the lowest water quality guideline for crop irrigation (10 µg/L) and almost 15 times lower than the lowest water quality guideline for the protection of aquatic life (73 µg/L).

[150] The Panel finds that the increased concentration of molybdenum in the river as a result of the proposed discharge will not exceed the guidelines and, in fact, is sufficiently below the guidelines that it does not raise the same concerns about negative impacts to the water quality as the previous two contaminants.

(iv) Sulphate

[151] According to the Hatfield Report, sulphate in the Fraser River at Marguerite ranged from a minimum of 2.5 mg/L to a maximum of 15.5 mg/L between 1983 and 1995, with a mean concentration of 9.0 mg/L. The maximum concentration of sulphate recorded in the tailings pond from 1992 to 2005 was 1250 mg/L, with a mean concentration of 1001 mg/L.

[152] Gibraltar expects the maximum concentration of sulphate in the tailings pond to increase as mining activity increases in the future. Accordingly, the Hatfield Report and the Plume Modeling Study used a higher maximum concentration of sulphate (1800 mg/L) to predict the effect of the proposed discharge.

[153] The Amended Permit provides that the concentration of sulphate in a "Grab Sample" of tailings pond effluent at the point of discharge shall not exceed 1800 mg/L.

[154] The lowest water quality guideline for sulphate is 100 mg/L.

[155] In the worst case scenario (i.e., low river flow, mean river background concentration of 9.0 mg/L, and a tailings pond concentration of 1800 mg/L), the sulphate concentration is predicted to be 21.2 mg/L at the edge of the IDZ and 10.0 mg/L at complete mixing. At mean river flow the concentrations drop to 14.3 mg/L and 9.3 mg/L, respectively.

[156] The Panel notes that, while the concentrations of sulphate at the edge of the IDZ are greater than the maximum background concentration in the river at low flow, the expected concentrations at complete mixing for all flow conditions are less than the 15.5 mg/L maximum background concentration recorded for the river.

[157] The Panel finds that in the worst case scenario the concentration of sulphate in the river at the edge of the IDZ, as a result of the proposed discharge (21.2 mg/L), would be less than the lowest water quality guideline of 100 mg/L.

[158] Therefore, the Panel finds that the increased concentration of sulphate in the river as a result of the proposed discharge will not exceed the guidelines and, in fact, is sufficiently below the guidelines that it does not raise the same concerns about negative impacts to the water quality as do copper and cadmium.

(b) *What is the impact on the fish and fish habitat of concern in this case?*

[159] The Xats'ull submit that the authorized discharges will have a negative impact on sturgeon and salmon.

[160] With respect to the sturgeon, the Xats'ull presented evidence of an intensive 5 year study¹⁰ of white sturgeon in the Fraser River showed that a genetically distinct group of sturgeon inhabits the middle Fraser River area (Hell's Gate to Prince George). The sampling showed that white sturgeon were encountered sporadically upstream of the Chilcotin River confluence, with areas of localized use at Australian Creek approximately 30 kilometres upstream from Marguerite, and Hawks Creek, approximately 25 kilometres downstream from Marguerite. Although

¹⁰ *Fraser River White Sturgeon Monitoring Program Comprehensive Report (1995 to 1999)* by RL&L Environmental Services (2000).

no fish were caught at Marguerite during the 5 year study, tagged sturgeon have been observed to travel distances greater than 50 kilometres.

[161] In her review of the initial report by Hatfield in February 2005, Ms. Keogh expressed the following concerns with respect to white sturgeon:

... Sulphate however, continues to exceed background levels for at least 41 km depending on the discharge location. This is a potential concern as sturgeon have been identified living within that 41 km portion of the Fraser River and appear to congregate in areas rather than be spread throughout the length of the river. A senior biologist in the fisheries section of WLAP [now the Ministry] has expressed concern about potential impacts on the sturgeon. White sturgeon of the Fraser River are considered to be an imperiled (red-listed) species but it is expected to increase to critically imperiled which is equal to an endangered class. While there are rainbow trout currently living in the tailings pond, the fisheries biologist feels that bottom dwellers are exposed to different conditions and are likely to take up more metals and ions from the sediment than those fish living in the midstream.

Fish habitat is also of concern immediately downstream of the proposed shoreline discharge location. The flow appears to move towards and over a sandbar and may concentrate the tailings pond water in a back channel. The sandbar and the back channel could act as a sink for metals if they settle into the sediment and re-suspension during high water or fish activity could be an issue. This sandbar was on a portion of the stream bed that in higher flows expected during spring would be ideal spawning habitat for resident fish species like Largescale suckers, Mountain whitefish, etc. These resident species are suspected to be a large portion of the diet for Fraser River white sturgeon, although during the spawning migration, salmon are highly utilized. Anadromous fish species are not of concern as they typically spawn in tributaries and watersheds off the Fraser River and not in the main channel itself. A five year study on the Fraser River white sturgeon groups was not able to provide details about their spawning and fall migration pattern in this area of the Fraser River but some groups have been known to migrate 100 km. Reduced spawning habitat is one of the key threats to white sturgeon populations and while not as well understood, reduced water quality is also considered to be associated with reduced sturgeon numbers. While reduced water quality and habitat are not the only threats to the white sturgeon, these two are applicable to this discharge project when considering the potential important.

[162] The Panel notes that the diffuser is now proposed for the centre of the river and, accordingly, the comments respecting impacts on the sand bar may be somewhat modified.

[163] The Golder Report at page 6 states that it is widely accepted that aquatic animals take up and accumulate substantial metals through the ingestion of contaminated prey. The efficiency of the transfer of metals up the food chain is both metal and species specific. Trophic transfer in aquatic invertebrates has been

demonstrated for several metals including copper and cadmium. These metals are also readily taken up from food and accumulated by fish. However, metals accumulated from food are far less toxic than metals accumulated from the water column. Based on a literature review the Golder Report concludes that harmful effects are not anticipated as a result of the proposed discharge.

[164] Although the Director considered bioaccumulation of metals in sturgeon and salmon, he did not address the potential effects of cadmium and copper on white sturgeon. Nor did he require any baseline studies to be conducted on surrogate species such as suckers as had been recommended by Ms. Keogh. Both the Director and Gibraltar refer to the testing for metals carried out on three rainbow trout reared in the tailings pond in support of their conclusion that there will be no negative impact on fish as a result of the discharge. However, the evidence of Mr. Proboszcz and Ms. Keogh clearly indicates that studies of toxic effects on trout are not readily applicable to determining potential effects on benthic fish such as sturgeon.

[165] The Xats'ull submit that salmon will be impacted by the discharge, but there was little evidence presented in support of this claim. There was some documentary evidence of a decrease in the number of salmon returning over the past few years but there is a lack of evidence as to the cause of this. Rather, the information before the Panel that is most specific to salmon comes from the Ministry Review which states in relation to the bioaccumulation of metal and the effect on salmon as follows:

Bioaccumulation of metals in salmon and sturgeon was raised as a concern. It is noted that salmonids are less susceptible to bioaccumulation of chemical contaminants as they are not bottom feeders. As well, adults spend little time feeding while travelling upstream to spawning areas. Juveniles spend some time in the river, in backchannels and creek mouths, but gain little mass during that time, relative to their eventual mass when consumed as adults. Two of the main parameters of concern, sulphate and molybdenum, are not noted to bioaccumulate.

[166] Thus, the Panel finds that there is limited evidence to suggest that there will be a negative impact to salmon from the proposed discharge.

[167] Although there may not be many sturgeon in and around the middle Fraser River, the evidence is that sturgeon travel some distance and may travel through the IDZ and surrounding area. In addition, the sturgeon down river may be feeding on prey which have accumulated these metals while in and around the IDZ. There is clear evidence before the Panel that this is a reasonable possibility, although the number of sturgeon that would be affected is uncertain, and in all likelihood, relatively low.

[168] Based on the evidence presented, the Panel finds that there is a potential for an adverse impact on white sturgeon from the discharge of supernatant in accordance with the Amended Permit.

- (c) *How reliable are the assumptions with respect to the anticipated impacts?*

[169] In cases such as these where the application is for a new process or method of discharge, one must try to predict the outcomes. In this case, the impact of the supernatant on the background levels in the river was assessed on the basis of computer modeling. In particular, the modeling was used to predict how the contaminants would disperse and mix in the river after they left the diffuser. This information is relevant to a determination of the impact of the contaminants on the river at various locations.

[170] Gibraltar and the Director relied upon the results of computer modeling and urged the Panel to accept those results.

[171] The Xats'ull have raised some concerns with the reliability of the modeling and with uncertainties in relation to the diffuser.

- i) Computer modeling

[172] Hayco's computer modeling study was used to predict the concentrations of the four contaminants of concern as the discharge plume moved down and mixed with the Fraser River water. The first Hayco report formed the basis for conclusions in the first report by Hatfield. A second Hayco report (i.e., the Plume Modeling Study) was prepared to provide additional scenarios and was included as Appendix 2 to the Hatfield report.

[173] Mr. Davies testified that Hayco had developed its own model but used a US Environmental Protection Agency model to support its own model. He further stated that the model had been used for a number of years and had been found to be reasonable for a river such as the Fraser.

[174] The Xats'ull did not disagree with the use of the model. However, they expressed concern about the reliability of some of the data.

[175] The Panel notes that regardless of how many variables are used to predict outcomes, computer models, particularly of complex systems that vary with time, may not give results that are consistent with real world situations. For example, Figure 6.1 of the Plume Modeling Study shows a substantial change in the river bed at Marguerite during the spring freshet in 1997. The configuration of the river bed before the freshet indicates two deeper channels in the river bed, one on each side of the approximate centre line. The Panel is concerned that the change in flow volume combined with what appears to be a significant change in the levels of the river bed might be difficult to incorporate into a computer model. No evidence was presented to address either this concern or with respect to the possible effect of changes in the river bed on the model prediction for downstream concentrations of the contaminants of concern. Hayco did state in its Plume Modeling Study, page 8, paragraph 1, that:

In order to construct the model, certain assumptions were required, primarily that the geometry was as simple as presented. In fact, the river bottom is undoubtedly not as flat as was assumed in the model. The actual river would contain various bars and deep zones, all of which would lead to shear zones and enhanced mixing compared to the situation in the model. Thus, the model underestimates rates of mixing,

and overestimates distances required to achieve a particular degree of mixing.

[176] While this addresses concerns about a fixed condition in the river, the Panel is not satisfied that it addresses what appear to be substantial changes in the river bed. It may be that the bars and deep zones and shear zones could create greater mixing laterally, which could expand the width of the plume to beyond the 25% of the river width allowance for the IDZ, especially at low flows.

[177] The Panel considers that further information regarding the computer model as related to changes in the river bed would be of assistance as this may impact the location and/or configuration of the diffuser which could then impact the mixing capability in the river. The concentrations calculated for the 100 metre downstream boundary of the IDZ should also be confirmed to apply to the 25% maximum width boundary of the IDZ.

ii) Diffuser

[178] The Panel notes that the normal purpose of a diffuser is to distribute discharge perpendicular to the river flow to achieve the maximum dilution within the IDZ. The Plume Modeling Study did not identify the configuration (parallel or perpendicular to the river flow) of the diffuser used in the model. However, Mr. Wambolt testified that the diffuser would be installed parallel to the river flow but that an attempt would be made to angle the diffuser to some extent. The Panel is concerned that, if the model included a diffuser perpendicular to the river flow, the actual downstream concentrations calculated for a diffuser situated nearly parallel to the river flow might be higher than the concentrations provided in the reports. In addition, the Plume Modeling Study stated that downstream concentrations would be lower for a multi-port diffuser but went on to state in its conclusions that:

...

A multi-port diffuser would serve to increase the initial rate of dilutions near the outfall. Since the intrinsic river mixing is sufficient to meet water quality guidelines for sulphate with 10 m of the outfall, a multi-port diffuser offers little net benefit.

[179] Hayco used four different cases for its analysis of the effects of multi-ports: 1 port, 2 ports – 10 metres apart, 4 ports – 10 metres apart and, 16 ports – 5 metres apart. The diffuser lengths appear to be: for 2 ports – 10 metres, for 4 ports – 30 metres and, for 16 ports – 75 metres.

[180] In its graph showing the results for different diffuser configurations, Hayco showed that the molybdenum concentration would reach 10 µg/L at about 50 metres downstream with a single port diffuser. The distance to reach 10 µg/L for the 16 port diffuser would be about 12 metres. The Panel acknowledges that both of these distances are within the 100 metres downstream IDZ.

[181] However, the type of diffuser, including the number of ports or direction relative to the river flow that was used in Hayco's Model Description section to calculate the results provided in its tables, was not provided to the Panel.

[182] In its section on "Near Field Dispersion of Tailing Water", the Hatfield Report only made reference to a single-port centre-channel diffuser. However, Mr.

Wambolt testified that the diffuser would be 10 metres long and that it would be a multi-port diffuser.

[183] The Panel is not satisfied that there is a definite agreement on the configuration, length and number of ports for the diffuser to be installed and, because of this, is not satisfied that the downstream concentration results that have been predicted are consistent with the diffuser to be installed.

[184] In addition, as noted by the Xats'ull, it is unclear whether Hayco's concerns with a mid-channel diffuser as identified in the first version of the Plume Modeling Study, have been properly considered or addressed. Those concerns were set out at pages 8 and 9 of that study as follows:

The H3D model results indicate that it is marginally more desirable to release contaminants from the centre of the Fraser River instead of from the side...

The riverbed data obtained at Marguerite station showed that the bed elevations vary seasonally and the movement is most striking in the centre of the river... Thus the outfall may be susceptible to scour and undermining, pipe blockage, and damage by debris. The change in elevation is less dramatic on the side of the river, which makes releasing from the side a more attractive choice than from the centre. In addition, the installation and maintenance of the outfall will be less complicated for the side release case.

... as far as the outfall is concerned, the large vertical movement of the central part of the river bed would be a considerably larger problem, as the outfall line could potentially plug up or become damaged....

[Xats'ull's emphasis]

[185] The Director should confirm that the proposed diffuser length, number of ports, location and configuration in the river (parallel with or perpendicular to the river flow) do not change the results of the modeling study. If they do change the results, the Director may need to modify the anticipated dilutions and downstream concentrations, as well as the IDZ width boundary concentrations, accordingly.

(d) *How effective are the provisions in the Amended Permit to assess and monitor the receiving environment for negative impacts?*

i) Determining adequate dilution during low flows

[186] The Panel notes that section 1.1 of the Amended Permit includes a formula to be used to calculate the dilution that would be required in the river during periods of low flow. This formula is based upon the concentration of molybdenum in the tailings pond water. As the concentration of molybdenum increases beyond a certain value, the greater the dilution factor must be. At a constant river flow, the rate of discharge from the tailings pond must decrease with increasing molybdenum concentrations beyond the certain value.

[187] Hayco did not include this dilution factor in any of its calculations in the Plume Modeling Study. The Panel requested that further evidence be provided by

Hatfield to show the effect of this dilution factor calculation on downstream conditions.

[188] According to the wording of section 1.1, the formula would only be used, and the rate of discharge decreased, when the mean (average) concentration of molybdenum in the tailings water over the previous six months exceeded 380 µg/L. The Panel notes that the tables in the Hatfield report show that this has not occurred between October 1997 and December 2006. During this period copper was at its second highest concentration in April 1999, and at its fourth highest concentration in May 1999. Also, during this period sulphate exceeded 1100 mg/L on 37 occasions and exceeded 1200 mg/L on six occasions.

[189] The Panel recognizes that the mine was not in operation between December 1999 and May 2004. This could have had some effect on the concentration of molybdenum in the tailings water. However, the six month averages between April 2004 and December 2006 have been relatively consistent between 263 µg/L and 281 µg/L, well below the 380 µg/L that would trigger the use of the dilution equation in the Amended Permit.

[190] Given the above, the Panel finds that the benefit of a dilution equation that requires a significant increase in molybdenum concentrations for a period of six months is negligible. In addition, if there is a concern that at low river flows the discharge rate should be lowered in order to reduce the concentrations of contaminants of concern, a formula requiring the concentration of one of these contaminants to be increased for a period of six months seems unusual. It is not clear to the Panel why one would wait for six months to determine whether to implement the low discharge flow formula. At the end of the six month period, the concentrations of any or all of the contaminants of concern may have been reduced. This seems to be like "closing the barn door after the horse is gone."

[191] Accordingly, the Panel finds that this formula is an inadequate method of establishing dilution during low flows and it should be reconsidered.

ii) Temperature

[192] Concerns had been raised by the Xats'ull regarding possible effects of the temperature of the tailing water upon fish life and upon mixing of the discharge in the river. In his "Table of Concerns", the Director provided an explanation that temperature effects would be minimal, and that the environmental effects monitoring required in the Amended Permit would include temperature monitoring in the effluent and the river to confirm that there are no impacts.

[193] Given the limited evidence that was provided to the Panel, the Panel is not prepared to make any findings respecting the impact of the discharge on the temperature of the Fraser River or to require any additional provisions in the Amended Permit.

iii) Monitoring

[194] The Amended Permit includes a section titled "Biological, Toxicity and Environmental Effects Monitoring Program". This program requires Gibraltar to perform a number of tests and design and develop certain monitoring programs. Section 3.6 of the Amended Permit states:

Biological, Toxicity and Environmental Effects Monitoring Program

The Permittee shall conduct monthly toxicity testing on rainbow trout and *Daphnia magna* of tailings pond supernatant collected at the final outfall. The 96-hr LC₅₀ rainbow trout toxicity test shall be carried out in accordance with the procedures described in "Biological Test Method: Reference Method for Determining Acute Lethality of Effluent to Rainbow Trout", Report EPS 1/RM/13 July 1990. The 48-hr LC₅₀ *Daphnia Magna* toxicity test shall be conducted in accordance with the procedures described in "Biological Test Method: Reference Method for Determining Acute Lethality of Effluent to *Daphnia Magna*," (Reference Method EPS 1/RM/14), July 1990.

Sublethal toxicity testing of tailings pond supernatant collected at the final outfall shall be conducted twice annually in accordance with the Metal Mining Effluent Regulation (pursuant to Subsections 34(2), 36(5) and 38(9) of the federal *Fisheries Act*).

A river monitoring program shall be designed and conducted by a qualified professional to verify the modeling of the initial dilution zone and effluent dispersion, and to verify that receiving environment water quality guidelines are being attained for all applicable uses. A study design for this program shall be submitted to the Regional Manager, Environmental Protection before commencement of the discharge, and no later than October 31, 2006.

The Permittee shall develop an environmental effects monitoring program in accordance with the Metal Mining Effluent Regulation (pursuant to Subsections 34(2), 36(5) and 38(9) of the federal *Fisheries Act*), to assess impacts on the receiving environment. The program shall include an initial site characterization and habitat description, including identification of all near field downstream depositional areas of the river and aquatic plants, that is completed prior to commencement of the discharge. The biological monitoring program shall also include monitoring for potential metal bioaccumulation conducted in the vicinity of the outfall. A study design for the biological, toxicity and environmental effects monitoring program developed by a qualified professional shall be submitted to the Regional Manager, Environmental Protection before commencement of the discharge, and no later than October 31, 2006.

[195] The Panel notes that the monthly toxicity testing of tailings pond supernatant, collected at the final outfall, will be carried out on rainbow trout and *Daphnia magna* (water fleas), but not on a sturgeon substitute. Water fleas, a small freshwater crustacean of the Order Cladocera, are apparently a common subject of testing for the following reasons:

This daphnid is found in ponds and lakes of North America including western Canada, and is often an important component of aquatic communities. Daphnids are sensitive to a broad range of aquatic contaminants, and are used in toxicity tests internationally. They have

the advantages of small size, short life cycles (which allow rapid tests), and relative ease of culture in laboratories. (*Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Daphnia magna*. Environment Canada. December 2000, page 1)

[196] Although water fleas will provide an indication on the relative health of the aquatic community, as will trout, the Panel is also of the view that there should be testing on a substitute for sturgeon since there was evidence that sturgeon which are bottom feeders have distinctive sensitivities to the contaminants of concern, and this was one of the recommendations made by the Ministry's own environmental impact biologist, Ms. Keogh. This may provide better data upon which the receiving environment can be monitored for negative impacts.

[197] Both the Director and Gibraltar have referred the Panel to the requirement for an adaptive management plan in terms of ensuring long term protection of the environment. This plan is required in section 2.10 of the Amended Permit and states as follows:

2.10. Adaptive management plan

The permittee shall develop and implement an adaptive management plan for managing tailings pond supernatant. The purpose of the plan is to provide terms of reference for reviewing the authorised discharge to the Fraser River once every five years. Such a review shall consider findings from the monitoring program, updates to the water balance, information presented in annual reports, and other relevant sources of information. The five year review will present what actions or permit amendments, if any, are advisable to limit impacts from current or future tailings pond discharges to the environment and to ensure compliance with permit requirements. The review shall also address attainment of objectives for key water quality parameters in the receiving environment. The five year review will be conducted to include involvement of key interested parties. An adaptive management plan shall be submitted to the regional manager, environmental protection before commencement of the discharge, and no later than October 31, 2006.

[198] The Panel agrees that this is an important component of the Amended Permit for the purposes of protecting the environment. However, given the impact of the contaminants of concerns on the river, particularly copper and cadmium, as well as the inherent uncertainty in computer modeling, the Panel is of the view that the Director should not wait five years for the first review. In the circumstances, the Panel recommends that the Director consider the feasibility of requiring that the first review be performed earlier – after the first or second full year of operation, and then every five years.

3) Whether there are any particular sensitivities or special features of the receiving environment that should be taken into consideration?

[199] As stated earlier, different or more stringent standards may apply to "sensitive" environments, whereas less stringent values may apply when it is shown that unacceptable deleterious changes to the receiving environment will not result.

[200] The Xats'ull argue that there are particular sensitivities in this case. Specifically, the importance of the Fraser River salmon fishery, the threatened status of the Fraser River sturgeon, the current problems with contaminants in the river due to urban and industrial activities, and the observed decreases in salmon runs. They also point out that it is on the Endangered River List.

[201] The Panel accepts that the current condition of the Fraser River, including the high background levels of copper and cadmium, is such that it warrants a more cautious approach to allowing new discharges into it.

[202] In addition, there is evidence that there are particular sensitivities in relation to sturgeon. Although they do not warrant a special designation under the *Species at Risk Act* in the Middle Fraser River, their numbers are clearly low, albeit stable. In the Panel's view, the sturgeon warrant some additional consideration and protection during the assessment of impact to the environment. Sturgeon are bottom feeders and the evidence is sufficient to establish that this type of fish is more susceptible to these type of contaminants through bioaccumulation.

Conclusions on Issue 1

[203] Based upon the Panel's review of the scientific evidence, it makes the following findings and recommendations.

[204] The Panel notes that the Ministry Review asserted that "water quality guidelines will be met" outside the IDZ for all applicable water uses. This is not the case. The Panel further notes that the mean background concentrations of copper and cadmium in the river are already above the lowest water quality guideline for aquatic species. Adding more of these contaminants to the river will have the effect of further increasing the concentration in the river.

[205] There is no dispute that the current state of water quality in the Fraser River is already compromised according to conservative standards even prior to any discharge from the tailings pond. Various residential, agricultural and industrial activities along the river, over time, have contributed to this situation. The Panel finds that, based on the present issues with water quality and the sturgeon and salmon populations, a great deal of caution must be exercised before a discharge of any additional contaminants is authorized.

[206] The Panel finds that the additional contaminants permitted under the Amended Permit may impact the river in some respects. This is due to the uncertainties in relation to the configuration, length and number of ports for the diffuser, the uncertainty in relation to whether Hayco's concerns with a mid-channel diffuser have been properly considered and addressed, and the uncertainties around how changes in the river bed will impact the mixing capability of the river and the width of the plume in and around the diffuser. As stated above, the Panel is not satisfied that the downstream concentration results that have been predicted are consistent with the diffuser to be installed. These results may also change depending on the configuration of the river bed.

[207] Although the Amended Permit requires some testing and monitoring, the Panel is of the view that the initial design of the diffuser and the location of the diffuser should be confirmed and found satisfactory from the outset. It is much

better to consider and address something at the outset, than to try to "fix it" after the fact.

[208] There should be some improvements to the modeling data in order to ensure that the impact assessment is more reliable. In particular, further information regarding the computer model as related to changes in the river bed would be of assistance as this may impact the location and or configuration of the diffuser which could then impact the mixing capability in the river. The Panel has also concluded that the concentrations calculated for the 100 metre downstream boundary of the IDZ should be confirmed to apply to the 25% maximum width boundary of the IDZ.

[209] The Panel also notes that there was no baseline study in respect to the benthic community at the site of the proposed discharge before the Director issued the Amended Permit.

[210] The Panel finds that the Director did not fully consider the potential effect of the discharge on sturgeon. There are no baseline studies conducted on surrogate species such as sucker, as recommended by Ms. Keogh. In addition, although section 3.6 of the Amended Permit requires testing of the water flea, which is a sensitive aquatic organism, there is nothing in the Amended Permit requiring suckers, or some other surrogate, to be monitored for the purposes of assessing potential impacts of the discharge on sturgeon. Monitoring of suckers or some other available surrogate that inhabits the discharge area should be considered for inclusion in the Amended Permit.

[211] While the Panel has found that there are some provisions in the Amended Permit that will be effective in assessing and monitoring the receiving environment for negative impacts, some minor improvements should be made to the Amended Permit to further safeguard the environment. In particular, the Panel has found that the dilution formula in the Amended Permit is an inadequate method of establishing dilution during low river flows because of the 6-month time frame. The Director should consider reducing this time line so that discharge may be reduced or halted on a more timely basis when required.

[212] In devising a new formula or procedure to modify the effluent discharge during periods of low river flow, the Director should consider using the lowest recorded flow in the river regardless of whether the river is "ice free". On page 3 of the Plume Modeling Study in paragraph 3, 360 m³/s was chosen. The lowest flow of 218 m³/s was not chosen by Hayco because "these are not likely ice-free flows." The Panel is of the view that the lowest number should be used in this case given the existing issues with water quality, the river may not be subject to ice free flows in future years, and using the lowest possible number will ensure that the receiving environment is protected when it may be at its most vulnerable because of low flows.

[213] The Panel recognizes that a number of the guidelines have been established by applying a ten times reduction factor to the concentrations of contaminants of concern that result in a toxic effect. The Panel notes that this reduction is a safety factor. This safety factor acts as a precautionary principle. The Panel does not consider the reduction factor to be a rationale for a discharge to permanently increase background concentrations of contaminants of concern.

[214] The Panel, therefore, directs the Director to consider discharge flow reduction during periods of low river flow with the discharge flow to be based on river flow.

[215] The Panel further directs the Director to consider whether the discharge meets the appropriate guidelines at the edge of the IDZ and, in particular, ensure that the guidelines for copper and cadmium do not result in an exceedance of the mean river upstream background concentration of contaminants. This may require effluent treatment as well as flow reduction techniques.

[216] Finally, the Panel directs the Director to consider developing site specific guidelines (as per the British Columbia Approved Water Quality Guidelines, 2006 Edition) for copper and cadmium.

[217] The Panel recognizes that there may be other means of achieving the goal of meeting the guidelines and that some combination of the above suggestions as well as other alternatives may be appropriate.

[218] Because of the Panel's concerns respecting the receiving environment and the provisions of the Amended Permit, the Panel finds that there is a potential for unacceptable deleterious changes to the receiving environment from discharge of the supernatant in accordance with the Amended Permit. Consequently, based on the evidence before it, the Panel finds that further information and consideration is required before it can reasonably be concluded that the amendments will adequately protect the environment, as required under section 16(1) of the *Act*.

[219] The Panel sends the Amended Permit back to the Director with the following directions. The Director is directed to:

- Determine whether further information regarding changes in the river bed should be incorporated into the computer model, as this may impact the location and or configuration of the diffuser which could then impact the mixing capability in the river. As stated in the decision, the bars, deep zones and shear zones may create greater mixing laterally, which could expand the width of the plume to beyond the 25% of the river width allowance for the IDZ, especially at low flows. Consequently, the concentrations calculated for the 100 metre downstream boundary of the IDZ should also be confirmed to apply to the 25% maximum width boundary of the IDZ. If the modeling results change as a result of the above, the Director may need to modify the anticipated dilutions and downstream concentrations accordingly.
- Confirm that the proposed diffuser length, number of ports, location and configuration in the river (parallel with or perpendicular to the river flow) do not change the results of the modeling study. If they do change the results, the Director may need to modify the anticipated dilutions and downstream concentrations accordingly.
- Confirm that Hayco's concerns regarding the mid-channel location, as identified in the first version of the Plume Modeling Study, have been considered and, where appropriate, addressed.
- Add a requirement in the Amended Permit for monitoring of suckers, or some other available surrogate for sturgeon, that inhabits the discharge area for the purposes of assessing the impact of the discharge on the benthic community and sturgeon in particular.

- Devise a new formula or procedure to modify the effluent discharge during periods of low river flow for section 1.1 of the Amended Permit, so that discharge may be reduced or halted on a more timely basis when required. The Panel has provided additional considerations in its discussion above.
- Consider an alternative discharge schedule during low flows, as outlined by the Panel above.
- Consider developing site specific guidelines (as per the British Columbia Approved Water Quality Guidelines, 2006 Edition), for copper and cadmium.

[220] Finally, the Panel makes one recommendation. The Panel recommends that section 2.10 of the Amended Permit be changed to require that the initial adaptive management plan review be conducted earlier, after the first or second full year of operation, and then every five years.

2. Whether the Director fulfilled his duty to consult with the Xats'ull before he issued the Amended Permit.

Summary of the law regarding the duty to consult

[221] The Crown has a legal duty to consult aboriginal people who assert aboriginal rights that may be affected by a decision of the Crown. According to *Haida*, the honour of the Crown requires the Crown to pursue the reconciliation of unresolved aboriginal rights with other rights and interests through honourable negotiations. Where warranted, the Crown must also try to address potential effects on aboriginal rights. Aboriginal groups have a corresponding obligation to identify their rights, participate in the consultation process, act in good faith, and try to reach a mutually satisfactory solution. At paragraph 42 of *Haida*, McLachlin, C.J., stated as follows for a unanimous Court:

At all stages, good faith on both sides is required. The common thread on the Crown's part must be "the intention of substantially addressing [Aboriginal] concerns" as they are raised (*Delgamuukw, supra*, at para. 168), through a meaningful process of consultation. Sharp dealing is not permitted. However, there is no duty to agree; rather, the commitment is to a meaningful process of consultation. As for Aboriginal claimants, they must not frustrate the Crown's reasonable good faith attempts, nor should they take unreasonable positions to thwart government from making decisions or acting in cases where, despite meaningful consultation, agreement is not reached: see *Halfway River First Nation v. British Columbia (Ministry of Forests)*, [1999] 4 C.N.L.R. 1 (B.C.C.A.), at p. 44; *Heiltsuk Tribal Council v. British Columbia (Minister of Sustainable Resource Management)* (2003), 19 B.C.L.R. (4th) 107 (B.C.S.C.)...

[222] The scope and content of the Crown's duty to consult aboriginal people varies with the circumstances, as stated at paragraph 39 of *Haida*:

In general terms... the scope of the duty is proportionate to a preliminary assessment of the strength of the case supporting the existence of the right or title, and to the seriousness of the potentially adverse effect upon the right or title claimed.

[223] Thus, where the Crown has a duty to consult, a “preliminary assessment” of two factors is undertaken to determine the scope of the duty: (1) the strength of the aboriginal peoples’ case supporting the existence of the aboriginal right or title; and (2) the seriousness of the potentially adverse effects of the Crown’s decision on the aboriginal right or title claimed.

[224] In *Haida*, the Court characterized the varying levels of consultation that may be required in different circumstances as a spectrum. The Court also stated that the level of consultation required in a given case may change as new information comes forward during the process. At paragraphs 43 to 45 of *Haida*, the Court discusses the different levels of consultation that may be required:

In this respect, the concept of a spectrum may be helpful... to indicate what the honour of the Crown may require in particular circumstances. At one end of the spectrum lie cases where the claim to title is weak, the Aboriginal right limited, or the potential for infringement minor. In such cases, the only duty on the Crown may be to give notice, disclose information, and discuss any issues raised in response to the notice.

...

At the other end of the spectrum lie cases where a strong *prima facie* case for the claim is established, the right and potential infringement is of high significance to the Aboriginal peoples, and the risk of non-compensable damage is high. In such cases deep consultation, aimed at finding a satisfactory interim solution, may be required. While precise requirements will vary with the circumstances, the consultation required at this stage may entail the opportunity to make submissions for consideration, formal participation in the decision-making process, and provision of written reasons to show that Aboriginal concerns were considered and to reveal the impact they had on the decision. This list is neither exhaustive, nor mandatory for every case...

Between these two extremes of the spectrum just described, will lie other situations. Every case must be approached individually. Each must also be approached flexibly, since the level of consultation required may change as the process goes on and new information comes to light. The controlling question in all situations is what is required to maintain the honour of the Crown and to effect reconciliation between the Crown and the Aboriginal peoples with respect to the interests at stake...

[underlining added]

[225] According to the Court, a case will be at the low end of the spectrum if “the claim to title is weak, the aboriginal right limited, or the potential for infringement minor.” In other words, a case will be at the low end of the spectrum if any one of those factors is present. A case will be at the high end of the spectrum if “a strong *prima facie* case for the claim is established, the right and potential infringement is of high significance to the aboriginal peoples, and the risk of non-compensable damage is high.” Thus, a case will be at the high end of the spectrum if all of those factors are present.

[226] Regarding what constitutes an “adequate” consultation process, at paragraph 46 of *Haida*, the Court referred to the New Zealand Minister of Justice’s *Guide for Consultation with Maori 1997*, which states that:

Consultation is not just a process of exchanging information. It also entails testing and being prepared to amend policy proposals in the light of information received, and providing feedback. Consultation therefore becomes a process which should ensure both parties are better informed...

[227] Similarly, at paragraph 43 of *Haida*, the Court cited the following sentence from T. Isaac and A. Knox in *The Crown’s Duty to Consult Aboriginal People* (2003), 41 Alta. L. Rev. 49, at p. 61: “[C]onsultation’ in its least technical definition is talking together for mutual understanding”. The Court further held that what is required is “a process of balancing interests, of give and take” (paragraph 48).

[228] The provincial government’s policies on consultation with First Nations also provide guidance on how provincial Crown agencies should conduct consultation. Those policies are set out in two documents: the “Provincial Policy for Consultation with First Nations”, October 2002 (the “2002 Consultation Policy”); and “The New Relationship”, May 2006. At page 18, the 2002 Consultation Policy states as follows regarding consultation processes:

Where a sound claim of aboriginal rights and/or title is made out, consultation efforts must attempt to address and/or accommodate a First Nation’s concerns relating to the impact of proposed activities on the aboriginal interests that it identifies or of which the Crown is otherwise aware.

[229] The New Relationship resulted from meetings with representatives of the Province, the First Nations Summit, the Union of BC Indian Chiefs, and the BC Assembly of First Nations, in order to develop new approaches for consultation and accommodation, and a vision for a “new relationship” to deal with aboriginal concerns. The New Relationship document states, in part:

We are all here to stay. We agree to a new government-to-government relationship based on respect, recognition and accommodation of aboriginal title and rights. Our shared vision includes respect for our respective laws and responsibilities. Through this new relationship, we commit to reconciliation of Aboriginal and Crown titles and jurisdictions.

[230] At paragraph 47 of *Haida*, the Court stated that, in some cases, the consultation process may reveal a duty on the Crown’s part to accommodate aboriginal interests:

When the consultation process suggests amendment of Crown policy, we arrive at the stage of accommodation. Thus the effect of good faith consultation may be to reveal a duty to accommodate. Where a strong prima facie case exists for the claim, and the consequences of the government’s proposed decision may adversely affect it in a significant way, addressing the Aboriginal concerns may require taking

steps to avoid irreparable harm or to minimize the effects of infringement, pending final resolution of the underlying claim...

[underlining added]

[231] In terms of what constitutes a “strong” versus a “weak” *prima facie* case of aboriginal title or other rights, the parties cited a number of cases in which the courts have applied the *Haida* test, including *Taku, Hupacasath First Nation v. British Columbia (Minister of Forests) et al.*, 2005 BCSC 1712 [*Hupacasath*]; *Blaney et al v. British Columbia (The Minister of Agriculture, Food and Fisheries) et al*, 2005 BCSC 283 [*Homalco*]; and *Musqueam Indian Band v. British Columbia (Minister of Sustainable Resource Management)*, 2005 BCSC 128 [*Musqueam*]. Those cases are discussed in the sub-issues below.

[232] *Haida* also provides that, in assessing the seriousness of the potential impact of a Crown decision on a claimed aboriginal right, there need not be conclusive evidence that the decision will result in actual harm to the aboriginal right. It is sufficient to establish that the decision could cause an adverse effect on the aboriginal right claimed. In *Hupacasath*, the Court stated as follows at paragraph 229:

The authorities reveal that the contemplated adverse effect need not be obvious. The test, as articulated by *Haida Nation*, and subsequently followed in a number of cases, focuses on conduct that has the potential to cause an adverse effect.

[underlining in original]

The Parties' submissions and the Panel's application of the Haida test

[233] The parties' general positions on this issue may be summarized as follows.

[234] The Xats'ull submit that the Director's duty to consult with them regarding his decision to issue the Amended Permit was at the high end of the spectrum, i.e., he was obligated to engage in deep consultation. In making that submission, the Xats'ull rely on the strength of their *prima facie* case of aboriginal title regarding their asserted traditional territory including the area around the Gibraltar mine, the strength of their *prima facie* case of aboriginal fishing rights at Soda Creek and areas upstream to Marguerite, and the potential effects of the Director's decision on their asserted rights. They further submit that the Director failed to meet his duty to consult with the Xats'ull.

[235] The Director submits that the consultation required in this case was at the low end of the spectrum, mainly because the discharge will have minimal effects on the aboriginal rights claimed by the Xats'ull. The Director further submits that the evidence does not support a strong *prima facie* case for the Appellant's claim of aboriginal title in the area near the discharge site, or for their claim of aboriginal fishing rights in that location. He submits that the consultation process that occurred before the Amended Permit was issued went far beyond the minimal level of consultation that was required according to the test in *Haida*.

[236] Gibraltar's position on this issue is similar to the Director's position.

[237] The parties' submissions, and the Panel's analysis and findings, regarding the sub-issues under the *Haida* test, are discussed below.

(1) Existence of a Duty to Consult with the Xats'ull

[238] When the Crown has knowledge of a credible claim of aboriginal rights and the Crown contemplates conduct that could adversely affect those rights, the duty to consult is triggered: *Homalco*, paragraph 16; *Taku*, paragraph 25. As stated at paragraph 64 of *Haida*:

The question is whether the Province had knowledge, real or constructive, of the potential existence of Aboriginal right or title and contemplated conduct that might adversely affect them.

[239] Upon becoming aware of Gibraltar's application, the Director reviewed a map in his office showing that the area in question was within the area that is claimed by the Xats'ull people.

[240] The Director acknowledges that the Crown had a duty to consult the Xats'ull regarding Gibraltar's application to amend the Permit, and the Panel agrees. The Crown had real or constructive knowledge of the Xats'ull's claims of aboriginal rights and title in or about the authorized point of discharge, based, among other things, on the NStQ's statement of intent filed with the BC Treaty Commission. In 2004, treaty negotiations with the NStQ entered stage four, which involves negotiating an agreement in principle. In *Hupacasath*, the fact that negotiations with the First Nation in that case were at stage four was a factor in the Court's conclusion that the Crown was aware of the nature and extent of the First Nation's claims, and the potential for an adverse effect on their aboriginal rights (at paragraph 239).

[241] In the treaty negotiation process, the Xats'ull have claimed title, and rights respecting fish, animals, and plants for traditional food, medicinal and ceremonial purposes in an area that includes the point of discharge, and portions of the Fraser River further downstream. The Xats'ull maintain that those rights are an integral part of their aboriginal culture. The Soda Creek reserve is approximately 25 kilometres downstream of the discharge point. The Director was informed that there were aboriginal fishing sites downstream of the point of discharge. The Director was also aware from reports submitted with Gibraltar's application and comments made by Ministry staff and the Xats'ull that the proposed discharge could affect fish populations in the Fraser River.

[242] For these reasons, the Panel finds that the Crown was aware of the potential existence of the Xats'ull's claim of aboriginal title, aboriginal fishing rights, and other aboriginal rights. The Crown also was, or should have been, aware that the Permit amendment had the potential to adversely affect at least some of those rights. Accordingly, the Panel finds that the Director, as an agent of the Crown, had a duty to consult with the Xats'ull regarding Gibraltar's application to amend the Permit to allow effluent to discharge from the mine into the Fraser River.

(2) Scope of the Duty to Consult with the Xats'ull

[243] As discussed above, the scope of the consultation required in a given situation is proportionate to a preliminary assessment of the strength of the case supporting the existence of the aboriginal right or title, and the seriousness of the potentially adverse effect upon the right or title claimed.

(2.1) Strength of the Xats'ull's Claims

[244] In making its preliminary assessment of the strength of the Xats'ull's claims of aboriginal rights and title, the Panel takes guidance from the judicial decisions that set out the legal principles on how claimants can establish the existence of aboriginal rights and title, and how decision-makers should assess the strength of unresolved claims of aboriginal rights and title in the context of consultation. Although the assessment of the strength of an unresolved claim is preliminary in nature in the context of consultation, the legal principles for establishing aboriginal rights and title must be considered in determining the likelihood that the claim will eventually be established.

[245] A claim to aboriginal rights most often arises from a use of the land or resources based on a pre-contact practice, custom and tradition. The elements of proof of aboriginal rights were set out by the Supreme Court of Canada in *R. v. Van der Peet*, [1996] 2 S.C.R. 507, as well as in *Delgamuukw v. British Columbia*, [1997] 3 S.C.R. 1010 [*Delgamuukw*]. The tests from these cases were summarized concisely in a 2001 decision of the Supreme Court of Canada as follows:

Stripped to essentials, an aboriginal claimant must prove a modern practice, tradition or custom that has a reasonable degree of continuity with the practices, traditions or customs that existed prior to contact. The practice, custom or tradition must have been "integral to the distinctive culture" of the aboriginal peoples, in the sense that it distinguished or characterized their traditional culture and lay at the core of the peoples' identity. It must be a "defining feature" of the aboriginal society, such that the culture would be "fundamentally altered" without it. It must be a feature of "central significance" to the peoples' culture, one that "truly made the society what it was" (*Van der Peet, supra*, at paras. 54-59). This excludes practices, traditions and customs that are only marginal or incidental to the aboriginal society's cultural identity, and emphasizes practices, traditions and customs that are vital to the life, culture and identity of the aboriginal society in question. (*Mitchell v. Canada*, [2001] 1 S.C.R. 911 at para. 12)

[246] Thus, the elements of proof of an aboriginal right are:

- a modern practice, tradition or custom;
- continuity of the practice, tradition or custom from a pre-contact practice, tradition or custom to the present;
- the practice, tradition or custom must have been integral, core or central to the people's culture; and
- the people's society must have been distinctive.

[247] Regarding title, the Supreme Court of Canada held in *Delgamuukw* that, to establish title, claimants must provide evidence to establish aboriginal practices which are indicative of exclusive pre-sovereignty occupation of the area by their ancestors (paragraph 143). The claimants must also show that the group's connection with the area was of a "central significance" to their distinctive culture. If the group has "maintained a substantial connection" with the land since

sovereignty, the required “central significance” is established: *Delgamuukw* at paragraphs 150 to 151.

[248] In *R. v. Marshall; R. v. Bernard*, [2005] 2 S.C.R. 220 [*Marshall and Bernard*], the Chief Justice, on behalf of the majority of the Court, provided further guidance on the test for establishing aboriginal title, as well as other aboriginal rights. At paragraph 70, she summarized the majority’s findings as follows:

In summary, exclusive possession in the sense of intention and capacity to control is required to establish aboriginal title. Typically, this is established by showing regular occupancy or use of definite tracts of land for hunting, fishing or exploiting resources: *Delgamuukw*, at para. 149. Less intensive uses may give rise to different rights. The requirement of physical occupation must be generously interpreted taking into account both the aboriginal perspective and the perspective of the common law: *Delgamuukw*, at para. 156. These principles apply to nomadic and semi-nomadic aboriginal groups; the right in each case depends on what the evidence establishes. Continuity is required, in the sense of showing the group’s descent from the pre-sovereignty group whose practices are relied on for the right. On all these matters, evidence of oral history is admissible, provided it meets the requisite standards of usefulness and reasonable reliability. The ultimate goal is to translate the pre-sovereignty aboriginal right to a modern common law right. This must be approached with sensitivity to the aboriginal perspective as well as fidelity to the common law concepts involved.

[underlining added]

[249] At paragraphs 56 and 57, the Chief Justice explained the meaning of the words “occupation” and “exclusive” in the context of a claim of aboriginal title:

“Occupation” means “physical occupation”. This “may be established in a variety of ways, ranging from the construction of dwellings through cultivation and enclosure of fields to regular use of definite tracts of land for hunting, fishing or otherwise exploiting its resources”: *Delgamuukw*, per Lamer C.J., at para. 149.

“Exclusive” occupation flows from the definition of aboriginal title as “the right to exclusive use and occupation of land”: *Delgamuukw*, per Lamer C.J., at para. 155 (emphasis in original). It is consistent with the concept of title to land at common law. Exclusive occupation means “the intention and capacity to retain exclusive control”, and is not negated by occasional acts of trespass or the presence of other aboriginal groups with consent (*Delgamuukw*, at para. 156, citing McNeil, at p. 204). Shared exclusivity may result in joint title (para. 158). Non-exclusive occupation may establish aboriginal rights “short of title” (para. 159).

[underlining added]

[250] The Chief Justice noted that this approach does not preclude nomadic or semi-nomadic people from establishing aboriginal title. At paragraph 66, she states:

... Whether a nomadic people enjoyed sufficient "physical possession" to give them title to the land, is a question of fact, depending on all the circumstances, in particular the nature of the land and the manner in which it is commonly used. Not every nomadic passage or use will ground title to land;... On the other hand, *Delgamuukw* contemplates that "physical occupation" sufficient to ground title to land may be established by "regular use of definite tracts of land for hunting, fishing or otherwise exploiting its resources" (para. 149). In each case, the question is whether a degree of physical occupation or use equivalent to common law title has been made out.

[251] These cases indicate that evidence of exclusive physical occupation and control of a geographic area by the claimant's ancestors prior to the Crown's assertion of sovereignty is important for establishing a *prima facie* case for aboriginal title. Evidence of "continuity", in the sense of showing the group's descent from the pre-sovereignty group whose practices are relied on for the right, is also required to establish aboriginal title. Evidence supporting a claim of aboriginal title may include evidence of continuously occupied village sites, or oral history evidence regarding the exclusive use of specific areas for hunting or fishing. Evidence of non-exclusive occupation or use of an area will typically be relevant in establishing a *prima facie* case for aboriginal rights such as fishing or hunting. For example, where the evidence shows that the claimants' ancestors "had come back to the same place to fish or harvest each year", but once the season was over, "they left, and the land could be traversed and used by anyone", aboriginal hunting and fishing rights may be established, but not aboriginal title: *Marshall and Bernard*, paragraph 58.

[252] At paragraphs 68 and 69 of *Marshall and Bernard*, the Chief Justice also provided direction as to how to evaluate the evidence provided by claimants:

Underlying all these issues is the need for a sensitive and generous approach to the evidence tendered to establish aboriginal rights, be they the right to title or lesser rights to fish, hunt or gather. Aboriginal peoples did not write down events in their pre-sovereignty histories. Therefore, orally transmitted history must be accepted, provided the conditions of usefulness and reasonable reliability set out in *Mitchell v. M.N.R.*, [2001] 1 S.C.R. 911, 2001 SCC 33, are respected. Usefulness asks whether the oral history provides evidence that would not otherwise be available or evidence of the aboriginal perspective on the right claimed. Reasonable reliability ensures that the witness represents a credible source of the particular people's history. In determining the usefulness and reliability of oral histories, judges must resist facile assumptions based on Eurocentric traditions of gathering and passing on historical facts.

The evidence, oral and documentary, must be evaluated from the aboriginal perspective. What would a certain practice or event have signified in their world and value system? Having evaluated the

evidence, the final step is to translate the facts found and thus interpreted into a modern common law right....

[underlining added]

[253] With those legal principles in mind, the Panel has conducted a preliminary assessment of the strength of the Xats'ull's claims of aboriginal rights, including their claim of title to their traditional territory.

Appellant's Position

[254] The Xats'ull claim aboriginal title to a traditional territory that includes the portion of the Fraser River extending from the point of discharge near Marguerite¹¹ downstream to Whiskey Creek¹². The Xats'ull also claim an aboriginal right to fish for salmon and sturgeon in the portions of the Fraser River that are within their traditional territory. In particular, they claim the right to fish for salmon and sturgeon in the portion of the Fraser River that extends from the mouth of Whiskey Creek to the site of the proposed discharge near Marguerite. Furthermore, the Xats'ull claim aboriginal rights associated with the gathering of food and medicine, hunting for animals, and spiritual practices in their traditional territory.

[255] The Xats'ull argue that they have a strong *prima facie* case regarding their claims of aboriginal title and other rights. The Xats'ull presented extensive evidence to the Panel which, they submit, demonstrates the extent of the Northern Shuswap people's traditional territory, and their reliance on resources throughout that territory for hunting, fishing, and gathering berries and medicines. This evidence includes oral history evidence, historical documents, and the fact that the Xats'ull's claim has been accepted for treaty negotiations in the BC Treaty Commission process.

[256] The Xats'ull called numerous witnesses to give oral evidence respecting traditional activities and claims to rights and title. All of these witnesses are members of one of the four communities forming the NStQ and, with the exception of Jean William, are Xats'ull (members of the Soda Creek Band). Jean William is a member of the Sugar Cane Band and has numerous relatives who are Xats'ull. The evidence of the Xats'ull's witnesses was largely uncontested.

- Gordon Keener was born in Williams Lake, has Shuswap ancestors, and learned about traditional practices from his grandfather, George Keener. He testified that he worked on the Soda Creek Traditional Use Study, which examined archaeological sites in the area. He stated that there was evidence of a village at Soda Creek near the present heritage site, and two other villages on the west bank of the Fraser River, with a bridge crossing the river. All of the village sites showed evidence of numerous pit houses. He testified that he also ground-truthed sites as pit houses on the west side of the Fraser River near

¹¹ Approximately 25 kilometres upstream of the northern boundary of the Soda Creek reserve.

¹² Whiskey Creek flows west into the Fraser River, approximately 7 kilometres downstream of the southern boundary of the Soda Creek reserve.

Marguerite. He stated that evidence of pit houses indicates Shuswap habitation, because neither the Chilcotin nor the Carrier people used pit houses.

- Jess Mitchell testified that he observed Northern Shuswap pit houses north of the Fort Alexandria site on the west side of the Fraser River, near the Marguerite ferry site, at Soda Creek, at the old ferry site upstream of Soda Creek Canyon, and along Quesnel Lake.
- George Keener, Jean William and John Phillips all gave evidence regarding to the extent of the Shuswap traditional territory based on oral history.

[257] In addition, the Xats'ull referred to the notes of Alexander Mackenzie, the first European to contact aboriginal people west of the Rocky Mountains in 1793, and the ethnography by James Alexander Teit [*The Shuswap*, Part VII of Vol. 2 of *The Jesup North Pacific Expedition*, edited by Franz Boas (Leiden: E.J. Brill, 1909)]. These documents indicate that, prior to the Crown's assertion of sovereignty in 1846, the Shuswap lived in underground houses during the winter, and they occupied sites from the Columbia River valley on the east slope of the Rocky Mountains to beyond the Fraser River in the west, and from the upper Fraser River in the north to the Arrow Lakes in the south.

[258] The Xats'ull submit that their evidence supports a finding that they have a strong *prima facie* case for their claim of aboriginal title over their traditional territory, including areas in or about the Fraser River extending from south of Soda Creek to Marguerite in the north.

[259] The Xats'ull also submit that the evidence also supports a strong *prima facie* case for their claims of aboriginal rights to fish for salmon and sturgeon within their traditional territory. A summary of the relevant evidence, which was also largely uncontested, is as follows:

- Jean William, who was born in 1937 and grew up in Alexandria, testified that salmon were the main food source of the Northern Shuswap people, and that her grandfather fished at Sheep Creek Bridge. She stated that there were also active fishing sites at Johnson's Bridge, Soda Creek Canyon, Marguerite, and McAllister, just below the Marguerite ferry site, Alexandria, and Farwell Canyon, all of which were traditionally used by the Xats'ull and all of which fall within their traditional territory.
- George Keener, who was born in 1932, testified that there were several fishing sites with Shuswap names in the Soda Creek Canyon. He also described the traditional preparations that would be carried out by Shuswap people before fishing.
- Thomas Phillip testified that the Xats'ull traditionally fished in Soda Creek at night.
- Ralph Phillips, who was born in 1938, testified that he fished at Soda Creek and Johnson Bridge every season since he was a boy until about 5 years ago. His children fish for him now. He also stated that his

grandmother, who died at the age of 86 during the 1980's, told him of the traditional fishing of salmon and sturgeon by the Xats'ull.

- Jean William, Jess Mitchell, John Phillips, and Ralph Phillips testified that the Northern Shuswap people traditionally used dip nets on a long pole to catch salmon from the Fraser River, and they still use this method. Ralph Phillips stated that, in order to fish using a dip net, fishers need a place where the rocks are not "stuck out too far" and there is a change in the water level.
- Jean William stated that she fished below the Marguerite ferry site using a dip net. Jess Mitchell and George Keener stated that people from Soda Creek fished at Marguerite using dipping stands consisting of stakes driven into the riverbed with a platform on top, which allowed them to fish about 10 feet from shore.
- Noella William stated that she grew up at Marguerite on the east side of the Fraser River, and that her family fished at Marguerite all of their lives. She stated that she and other people fished at the ferry site, and dipping stands were used below the ferry. People also fished 100 metres below where the ferry crossing was, or further below that. She stated that she had fished at the proposed discharge point, and her family used to have a dipping stand there. She stated that her family also had dipping stands on the west bank of the river about 2 kilometres downstream from the discharge point. She recalled that Xats'ull people also came to fish at Alexandria.
- Jean William stated that, after salmon were caught, they would be carried away from the river to be cleaned and prepared.
- Jess Mitchell stated that sockeye salmon are the most frequent species caught by the Northern Shuswap people, but spring and pink salmon are also caught.
- Several witnesses testified that each family would catch 100 to 150 salmon each summer, and the fish would generally be dried or salted.
- George Keener recalled that 70 or 80 drying racks would be set up in Soda Creek from July until mid-August, and people would come from Marguerite, Alexandria and Castle Rock to dry salmon there.
- Jean William, Jess Mitchell, Ralph Phillips, and George Keener recalled that, historically, sturgeon were caught by Northern Shuswap people for food. Jean William stated that sturgeon were much larger than a dip net, and she believes that ropes were used to catch sturgeon although she never saw a sturgeon being caught. She remembers her grandmother cooking sturgeon. She said that they used bigger poles and hooks. She also stated that the specific fishing sites for sturgeon were different from the salmon fishing sites.
- George Keener stated that rabbit meat was used as bait for sturgeon, and that the Northern Shuswap people fished for sturgeon at Soda Creek, the mouth of Deep Creek, and on the east side of the Fraser River at Marguerite. Jess Mitchell stated that sturgeon fishing sites

were located at Soda Creek, and at Hawks Creek or Deep Creek. He described the large hooks that were used to catch sturgeon. George Keener testified that he caught a sturgeon in the 1960's and the fish appeared to be healthy. He caught another one in the 1970's at Soda Creek, but it had abscess sores on it, and the fisheries warden told him not to eat it because it was "polluted".

- Ken Michel stated that his grandfather taught him how the Xats'ull traditionally fished for sturgeon, and that large sturgeon were pulled out of the water using work horses.

[260] The Xats'ull also submit that evidence from the hearing, showing the topography of the river-bed, shows that there is a sub-surface drop off at the discharge site, and therefore, it is a suitable spot for dip netting from a dipping stand.

[261] The Xats'ull submit that the following evidence supports a finding that they have a strong *prima facie* case for their claim of an aboriginal right to hunt within their traditional territory:

- Jess Mitchell testified that the Northern Shuswap people hunted along Narcosli Creek, east of Alexandria. (The Panel notes that Narcosli Creek is west of Alexandria.)
- Ralph Phillips testified that the Shuswap people hunted in the area around McLeese Lake, the community of Likely, and at the present location of the Gibraltar Mine.
- George Keener testified that the Shuswap people hunted for deer and moose in the area northeast of the area where the Gibraltar Mine is located, and near Tyee Lake, Forest Lake, Marguerite Lake, and Beaver Valley. He stated that hunts were organized for the Xats'ull by Antoine Peeps, a hereditary chief. During those hunts, they would hunt for three deer and half a moose for each family at Soda Creek.
- Ken Michel testified that the Xats'ull people hunt for deer and moose in the Beaver Valley, in corridors where the animals cross the Fraser River near Soda Creek and Marguerite.

[262] The Xats'ull also submit that their spiritual practices teach people that the Fraser River is sacred and should not be polluted or treated with disrespect. In this regard, they rely on the following evidence:

- Jess Mitchell, Jean William, Ken Michel, George Keener, John Phillips, and Ralph Phillips all testified that the elders taught children that the Fraser River should be respected as sacred, and there were ceremonial practices associated with catching the first salmon each season. In addition, salmon would not be cleaned near the river, and fish guts would not be thrown in the river.

Director's Position

[263] The Director submits that the activities of specific individuals are not evidence of aboriginal rights unless they can be traced back to traditional practices which formed an integral part of the culture of the particular community claiming

the right, prior to contact with Europeans. The Director further submits that the historical documents and treatises presented by the Xats'ull do not support the contention that the Xats'ull exclusively occupied the area near the discharge site.

[264] The Director submits that the historical documents and treatises show that the Alexandria Reserve was the site of a village traditionally occupied by the Southern Carrier people, and that the Alexandria Band has, over time, mixed with Shuswap and Chilcotin people. In particular, the Director refers to entries in the journal of Alexander Mackenzie from June 21 and 22, 1793, describing his meeting with aboriginal people along the Fraser River at a village site. A fort called Alexandria was later built, in 1821, near that village site. The people at that site spoke a language that his interpreters, who were from east of the Rocky Mountains, could understand. The Director submits that the language was of the same Athapascan family as that of the interpreters, and shows that the people encountered near Alexandria were Carrier. The Director also notes that those people offered to introduce Alexander Mackenzie to four men from the "next nation," who spoke a different language and were visitors from a village located downstream. The Director submits that those visitors were Shuswap people.

[265] The Director also refers to the diary of Simon Fraser, who was the first white person to travel into Xats'ull territory. On May 31, 1808, Simon Fraser arrived at a Xats'ull village at the Soda Creek canyon with his "Tauten" interpreter. Simon Fraser then traveled south with the chief from Soda Creek, returning to Soda Creek on July 28, 1808. In his entries for July 28, he described the village at Soda Creek canyon as the "last village of the Atnah Nation". On July 29, Simon Fraser left Soda Creek and traveled approximately 12 miles north, where he encountered Tauten people fishing. He described their fishing methods and equipment. The Director maintains that the Atnah people were Shuswap people, and Tauten people were Carrier people. The Director submits that the Tauten's fishing method, as described by Simon Fraser, was very different from the dip net method that the Xats'ull claim was used exclusively by the Shuswap people.

[266] Similarly, the Director submits that the dispatches of Governor Simpson in 1829 describe the "Talkotins" living around Fort Alexandria as "... the last 'Carriers' on the river", and lists the "Atnah" or Chin at Atnah Chief Rapids (Soda Creek) and sites downstream from there. The same document describes the Chilcotins as fishing in the area around Alexandria "when the salmon failed on their lands, which happens frequently."

[267] The Director also refers to Hudson Bay Company journals of September 1837, which indicate that "Taotins" occupied lands around Fort Alexandria, and they built a stronghold to defend the site from unexpected attack by the Shuswap.

[268] The Director acknowledges that the Xats'ull exercise traditional fishing rights in the Fraser River downstream of the discharge point. However, the Director submits that there is no evidence that the Xats'ull exercise aboriginal fishing rights where the IDZ will be located, or at the discharge point, where chronic effect thresholds may be exceeded. The Director points out that the only evidence of aboriginal fishing in the vicinity of the discharge point was from Noella William, who described use of the area by her family and friends when she was a member of the Alexandria Band. The Director maintains that the site where she fished was 100 metres upstream of the discharge point, and her testimony that she cleaned and

dried fish beside the river is inconsistent with testimony from other witnesses (i.e., Jean William and George Keener) that Shuswap people would never clean fish near the river.

[269] Moreover, the Director submits that the discharge site is not a desirable fishing spot, and therefore, any impact on aboriginal fishing rights in that area would be minimal if such rights were exercised there. The Director also submits that neither the pipeline nor the diffuser would impede dip net fishing, as the pipeline will be buried underground and the diffuser will be placed in deep water near the centre of the channel.

Gibraltar's Position

[270] Gibraltar acknowledges that the Xats'ull have a *prima facie* right to fish in the Fraser River near Soda Creek. However, Gibraltar does not concede that the Xats'ull have a *prima facie* claim of aboriginal title. Gibraltar submits that the Xats'ull failed to adduce any meaningful evidence during the appeal hearing that supports a claim of aboriginal title to any area that may be relevant to this matter. Gibraltar adopts the Director's submissions regarding the historical documents that were presented. In addition, Gibraltar notes that the Xats'ull and other Shuswap peoples were traditionally semi-nomadic. Gibraltar argues that, based on *Marshall and Bernard*, it is extremely difficult for the Xats'ull, as semi-nomadic people, to establish aboriginal title over the vast areas they claim, including the areas that are relevant to this matter. Gibraltar maintains that, in any event, the Xats'ull cannot raise a claim of aboriginal title now, since they did not raise it before the Amended Permit was issued.

[271] Furthermore, Gibraltar argues that, to establish that the Xats'ull have any particular aboriginal right, they must show that the right is, and has been, enjoyed by the Xats'ull: (1) since 1846, in the case of aboriginal title; and (2) since before the time of first contact with the Xats'ull, in the case of aboriginal rights such as hunting or fishing rights. Gibraltar notes that the Northern Shuswap and Shuswap are larger groups of aboriginal people that include the Xats'ull, and it argues that the Xats'ull's aboriginal rights are relevant in this appeal, not the rights of larger groups that include the Xats'ull.

The Panel's Findings

[272] On the basis of the evidence, the Panel finds that the Xats'ull have continuously inhabited at least some portions of the area they claim as their traditional territory, such as the Soda Creek Canyon area, since before 1846, they have never been conquered, have never surrendered their rights by treaty, and their rights have not been extinguished by federal legislation.

[273] Specifically, the Panel finds that there is sufficient evidence to conclude that the Xats'ull have a *prima facie* case for aboriginal title to at least some of the traditional territory that they claim. In order to participate in negotiations through the BC Treaty Commission process, the NStQ filed a statement of intent setting out the asserted territory of the four groups it represents, including the Xats'ull, and the basis for their claims. In *Taku*, the Court stated at paragraph 30 that "... acceptance of [the Taku Tlingit First Nation's] title claim for negotiation establishes a *prima facie* case in support of its aboriginal rights and title." Thus, in the present case, acceptance of the Xats'ull's title claim for negotiation establishes a *prima facie*

case in support of aboriginal title and other rights in at least some of the territory they claim. However, as noted in paragraph 239 of *Hupacasath*, the fact that the Xats'ull were accepted into the BC Treaty Commission process does not in itself establish that they have a strong *prima facie* case for aboriginal title, or any other aboriginal right.

[274] Aside from acceptance into the treaty negotiation process, the Xats'ull's claim of title is supported by archaeological and historical document evidence. Although their ancestors were semi-nomadic, in that they moved with the seasons to take advantage of resources, there is evidence of pit houses at Soda Creek, which indicates that this site was physically occupied by the Xats'ull's ancestors year after year, even if that occupation was seasonal. The evidence indicates that the Xats'ull occupied pit houses or villages at that location each winter (and possibly at other times of the year), prior to the assertion of sovereignty, and that Soda Creek Canyon was exclusively occupied by the Xats'ull. The oral evidence indicates that Xats'ull families returned to certain seasonal fishing and hunting grounds each year; however, there is also oral and historical evidence that the fishing sites near Marguerite and Alexandria were shared with other aboriginal groups, and that the Xats'ull may have been visitors there. Thus, while there is evidence to establish that the Xats'ull people fished every season in the Soda Creek Canyon area, and likely exercised control over those fishing sites, there is insufficient evidence to establish that the Xats'ull exercised exclusive control over other seasonal fishing grounds beyond Soda Creek Canyon, or that any exclusive control they may have had over other fishing sites continued once the fishing season was over. Furthermore, there is no evidence that the Xats'ull exercised exclusive control over their seasonal hunting grounds.

[275] Accordingly, the Panel finds that there is a reasonable probability that the Xats'ull will be able to establish title to some parts of their asserted traditional territory. It is clear from the evidence that the Xats'ull's claim "goes far beyond the mere 'assertion' of aboriginal title", as stated in *Haida* at paragraph 70. Final resolution of their title claim will require further evidence, especially regarding areas where their traditional territory overlaps with those claimed by other aboriginal groups. Pending final resolution of their claim, the Panel concludes that the Xats'ull's claim of aboriginal title in areas that do not overlap with other First Nations is "supported by a good *prima facie* case", to use the language used in *Haida* at paragraph 71. The Xats'ull's claim of aboriginal title is weaker in the areas that overlap with other First Nations, specifically, the Alexandria Band's reserves, as well as areas near the Alexandria Band's main reserve adjacent to the Fraser River, near Marguerite.

[276] The evidence also supports a conclusion that the Xats'ull have a strong *prima facie* case for their claims of aboriginal rights to harvest salmon and sturgeon from the Fraser River in the area around Soda Creek Canyon. The oral and historic evidence indicates that fishing for salmon, and sturgeon, in the Fraser River has long been integral to the Xats'ull distinctive culture. The oral evidence was consistent that the Xats'ull have relied heavily on salmon from the Fraser River as a source of food, and have also utilized sturgeon from the Fraser River as a food source. The evidence establishes that the Xats'ull had a particular method for catching salmon along the river. Those claims are strongest in relation to the area

around Soda Creek Canyon, where fishing sites suitable for dip netting are located near the area that was continuously occupied by the Xats'ull. In that area, the Panel is satisfied on the oral and documentary evidence presented that the Xats'ull have established that fishing for salmon and sturgeon on the river is:

- a modern practice, tradition or custom;
- it is a practice, tradition or custom with its roots in a pre-contact practice, tradition or custom, and that it has been continuously exercised when the fish have been available;
- the practice, tradition or custom is integral, core or central to the people's culture; and
- the people's society is distinctive. This latter point is clearly evident from the historical notes and documents which make distinctions between these people and the Carrier people.

[277] The Xats'ull's claims of fishing rights are weaker in the areas around Marguerite and Alexandria. While there is historic and oral evidence that Northern Shuswap people fished in those locations, there is less evidence that the Xats'ull people in particular fished there. However, it is likely that the Xats'ull's ancestors did fish in those areas at times, given the proximity of those areas to their settlement at Soda Creek Canyon and that the Xats'ull are the most northern community of the Shuswap people. Therefore, the Panel finds that the Xats'ull have a good *prima facie* case for fishing rights in those areas around Marguerite and Alexandria. As such, the Panel finds that there is a substantial probability that the Xats'ull will be able to establish an aboriginal right to harvest fish in the Fraser River from the point of discharge at Marguerite and downstream, past their traditional home at Soda Creek Canyon, as far as the mouth of Whiskey Creek.

[278] The Panel received some evidence regarding hunting and gathering within the areas claimed by the Xats'ull; however, none of that evidence was specific to impacts of the discharge to the Fraser River from the Gibraltar mine. That evidence was exclusively concerned with lands and tributaries up land from the Fraser River. Accordingly, the Panel finds that it is unnecessary to further consider the duty to consult with respect to these activities, in spite of the fact that those activities may lead to a legitimate claim under different circumstances. In these circumstances, those claims reside at the lower end of the spectrum.

[279] In summary, the Panel is satisfied that:

- The Xats'ull have established a good *prima facie* case of aboriginal title in the parts of their traditional territory that do not overlap with the territories claimed by other First Nations. There is a reasonable probability that the Xats'ull will be able to establish aboriginal title to at least some parts of the territory they claim, such as the portions at Soda Creek Canyon. The Xats'ull certainly have rights to the use and occupation of the Soda Creek reserve lands, located adjacent to the Fraser River approximately 25 kilometres downstream of the discharge point. The Xats'ull's claim of aboriginal title is weaker in the areas that overlap with the traditional territories used by other First Nations

including the Tsilhqot'in (also known as Chilcotin) and the Carrier nations.

- The Xats'ull have established a strong *prima facie* case that they have aboriginal rights to harvest salmon and sturgeon in portions of the Fraser River that are within Soda Creek Canyon, and a good *prima facie* case in the area around Marguerite. There is a substantial probability that the Xats'ull will be able to establish those aboriginal fishing rights on the Fraser River.
- For the purpose of this appeal, the Xats'ull have established a weak *prima facie* case that they have aboriginal rights to hunt and gather plants in areas that are in or on the Fraser River near the proposed discharge area.

(2.2) Seriousness of the Potential Impact

Appellant's Position

[280] The Xats'ull submit that the evidence it has presented, and the information which was provided to or available to the Director, demonstrates the serious potential risks that the discharge poses to their aboriginal rights and title. The Xats'ull submit that the quantity and quality of salmon in the Fraser River, where the Xats'ull fish, have decreased over the past few years. The Xats'ull maintain that, although historically there were times when the salmon run was lower than usual, its members were always able to fish. In the summer of 2006, the Xats'ull were effectively unable to fish for salmon because the salmon run failed. The Xats'ull acknowledge that the evidence regarding the failure of the salmon fishery was not before the Director, given that the Amended Permit was issued in April 2006. However, the Xats'ull argue that the evidence is significant because it demonstrates the severe condition of the fish stocks on which the Xats'ull rely, even without the addition of the discharge.

[281] Several witnesses testified in support of the Xats'ull's submissions regarding the fragile state of the salmon and sturgeon fisheries. Noella William testified, in her capacity as the Xats'ull's Community Fish Representative, that increasing numbers of fish have spots on them, and that Xats'ull people are concerned about whether the fish are safe to eat. Jean William testified that 2006 was the lowest salmon run that she could recall. Ralph William testified that in the summer of 2006, his family only caught 49 salmon, compared to about 150 salmon 5 years earlier. John Phillips stated that he only caught 1 or 2 fish in 2006. Several witnesses also testified that it has been more difficult to dip net in the past few years due to low water levels.

[282] Gordon Sterritt, the NStQ's Fisheries Planning Program Coordinator, testified regarding the decline of the Xats'ull's catch between 2001 and 2005, as well as the decline in the overall catch by Northern Shuswap people. He stated that only 1,300 sockeye and seven spring salmon were caught in the entire Northern Shuswap territory in 2006. He further stated that, traditionally, the Northern Shuswap people would also catch coho salmon and sturgeon, but no longer do so because those species are endangered.

[283] The Xats'ull acknowledge that they have not fished for sturgeon in recent years, which they maintain is due to their concern over the fragile state of the local sturgeon population. However, they hope to be able to exercise their right to fish for sturgeon in the Fraser River in the future.

[284] The Xats'ull submit that the permitted discharge will cause additional degradation to the water quality of the Fraser River, and additional harm to the fragile salmon and sturgeon fisheries in the river, at the discharge point and downstream from it. The Xats'ull submit that, due to the potential adverse effects of the discharge on water quality, fish and fish habitat, the discharge will harm their ability to exercise their aboriginal fishing rights.

Director's Position

[285] The Director submits that no current fish health or fish abundance issues can be attributed to the amendment to the Permit, since the discharge that is authorized by the Amended Permit has not yet occurred.

[286] The Director submits that the aboriginal fishing rights asserted by the Xats'ull relate primarily to salmon and secondarily to sturgeon, and there is no evidence that salmon or sturgeon frequent the IDZ on anything more than a transitory basis, and therefore, there is little opportunity for a chronic effect to occur. Consequently, the Director argues that no adverse effect on the aboriginal fishing rights asserted by the Xats'ull can be expected to result from the discharge. In these circumstances, the Director submits that according to *Haida* only a minimal level of consultation is required.

Gibraltar's Position

[287] Gibraltar argues that the evidence submitted by the Xats'ull regarding the potential for harm to salmon and sturgeon stocks was considered and addressed by the Director when he considered Gibraltar's application and supporting materials. Gibraltar argues that any risk to salmon or sturgeon from the authorized discharge is low or non-existent.

[288] Gibraltar maintains that the determining factor in this case is the potential for harm to aboriginal rights claimed by the Xats'ull. Gibraltar maintains that there is overwhelming evidence that the discharge will have no detrimental effect on the Fraser River or the organisms interacting with it. Gibraltar further submits that the centre-channel diffuser will not interfere with physical access to or enjoyment of the river. Gibraltar submits, therefore, that regardless of the strength of the Xats'ull's claims of aboriginal rights based upon the fishery or the use of the river, the discharge will not harm the Xats'ull's ability to exercise their aboriginal fishing rights. Accordingly, the consultation required is at the low end of the spectrum.

The Panel's Findings

[289] In evaluating whether the authorized discharge may adversely affect the aboriginal rights claimed by the Xats'ull, the Panel has considered the risk that the effluent may adversely affect the environment or fisheries resource in a way that could adversely affect the Xats'ull's ability to exercise their asserted aboriginal rights.

[290] In weighing the potential effects of the authorized discharge on the aboriginal rights claimed by the Xats'ull, the Panel takes direction from recent judicial decisions. In particular, the Panel has considered the circumstances in *Taku*, where the Court found that the potential adverse effect of the Crown's decision on the First Nation's claims was "relatively serious". That case involved the construction of a road by a mining company through a First Nation's traditional territory, as discussed at paragraphs 31 and 32:

The potentially adverse effect of the Ministers' decision on the TRTFN's claims appears to be relatively serious. The chambers judge found that all of the experts who prepared reports for the review recognized the TRTFN's reliance on its system of land use to support its domestic economy and its social and cultural life (para. 70). The proposed access road was only 160 km long, a geographically small intrusion on the 32,000-km² area claimed by the TRTFN. However, experts reported that the proposed road would pass through an area critical to the TRTFN's domestic economy... The TRTFN was also concerned that the road could act as a magnet for future development. The proposed road could therefore have an impact on the TRTFN's continued ability to exercise its Aboriginal rights and alter the landscape to which it laid claim.

[underlining added]

[291] The Panel has considered the circumstances in *Hupacasath*, where the Court found that the potential effect of the Crown's decision on the First Nation's ability to exercise its claimed aboriginal rights was modest on the portion of its traditional territory that included Crown land, but was serious on the portion that included private lands. That case involved a decision to remove certain privately owned forest lands from inclusion in a Tree Farm Licence ("TFL"). The TFL previously included the private land and adjacent Crown lands, both of which were subject to the same level of regulation as long as they were part of the TFL. The Court summarized the potential effects of the decision at paragraph 223:

The removal decision, by all accounts, results in a lower level of possible government intervention in the activities on the land than existed under the TFL regime. There is a reduced level of forestry management and a lesser degree of environmental over-sight. Access to the land by the Hupacasath becomes, in practical terms, less secure because of the withdrawal of the Crown from the picture. There will possibly be increased pressure on the resources on the Crown land in the TFL as a result of the withdrawal of the Removed Lands. The lands may now be developed and re-sold.

[292] The Court discussed the potential effects on the First Nation's asserted rights at paragraphs 252 to 253:

As a consequence of changes in activities on the Removed Lands, there might be some impact on fishing or hunting on the HFN claimed traditional territory outside the Removed Lands (and on Crown lands). I would say that the potential effect of the removal decision on the claimed aboriginal rights pertaining to the Crown land is modest.

With respect to the Removed Lands themselves, the previous level of regulation of logging, wildlife protection and other activities on the land has been replaced by a different and much more forgiving regime. As well, the use of some of the lands could change altogether, for example through development for housing. The potential effect of the removal decision on the claimed traditional territory in the Removed Lands is serious.

[underlining added]

[293] The Panel has also considered the circumstances in *Homalco*, which have some parallels with this appeal. In *Homalco*, the BC Supreme Court considered a decision to amend a company's licence for a salmon farm, to allow the introduction of Atlantic salmon to the farm. The First Nation claimed aboriginal title and rights in the area, including rights to harvest wild salmon and shellfish in the vicinity of the fish farm. The First Nation argued that the introduction of Atlantic salmon could cause serious adverse effects on wild salmon stocks. At paragraph 34, the Court declined to make specific findings regarding the potential effects of the amendment. However, based on the evidence regarding the potential environmental effects of the amendment, the Court concluded that:

... there are differences in scientific opinion about the effects and risks involved with salmon aquaculture, and particularly the farming of Atlantic salmon and its affect, or potential affect on wild salmon stocks. All of the scientists and panels involved in studying the issues confirm that there are serious gaps in knowledge and that research is needed to fill those gaps.

[294] As a result of the scientific uncertainty, the First Nation argued that the precautionary principle applied and that there should be no Atlantic salmon aquaculture permitted until the Ministry and the licensee could prove that it posed no risk to wild salmon. Conversely, the Ministry argued that the precautionary principle simply says that lack of scientific knowledge is not an excuse to fail to take action, and that an adaptive management approach was consistent with the precautionary principle. No details regarding the adaptive management approach provisions in the amendment were provided in the Court's decision. However, at paragraphs 45 and 46, the Court concluded as follows:

I agree with the respondents that the precautionary principle does not require governments to halt all activity which may pose some risk to the environment until that can be proven otherwise. The decisions on what activity to allow and how to control it often require a balancing of interests and concerns and a weighing of risks. This is exactly the kind of situation which requires consultation, discussion, exchange of information, and perhaps accommodation.

... I do not think I could say the adaptive management approach is not a proper means of accommodation, although there may be some other things that should be considered. Some of these may be the levels of enforcement of the regulations and monitoring those regulations, et cetera...

[295] The Court went on to conclude at paragraph 51 that the First Nation's "claims to aboriginal title and aboriginal rights may well be affected by the actions of the government." The Court held that the obligation to consult, and if appropriate, accommodate, was "not at the lowest end of the spectrum as argued by the respondents. Nor is it the deep level of consultation that the petitioners argue."

[296] Applying these principles to the facts in the present appeal, the Panel finds that the authorized discharge poses some potential risk to the Xats'ull's asserted aboriginal rights. Specifically, there is some risk of harm to their aboriginal right to fish for salmon and sturgeon, given the evidence that these fish are of limited supply in the middle Fraser River, that the Xats'ull have traditional salmon and sturgeon fishing sites in the area that might be affected by the discharge, and that the supply of these fish may be adversely affected by the discharge authorized under the Amended Permit. In particular, the prospect of continuous supernatant discharge, resulting in the risk of continuous impacts on fish resources that are in limited supply, suggests that the Director's decision may have an adverse effect on the Xats'ull's aboriginal right to fish for salmon and sturgeon.

[297] The area where potential adverse effects of the discharge on fish may be greatest is at the point of discharge and the IDZ, near Marguerite. The historical, oral history and archaeological evidence shows that the Xats'ull have traditionally fished near the IDZ at Marguerite, on a seasonal basis, perhaps not every year, but certainly at various times since first contact. In this area, the Xats'ull have established a good *prima facie* case for aboriginal fishing rights in relation to salmon and sturgeon.

[298] However, based on the evidence presented at the hearing, the Panel has already found that the discharge may have a limited impact on salmon. Therefore, the Panel concludes that the Xats'ull's right to fish for salmon will not be significantly affected by the discharge.

[299] Regarding sturgeon, the Panel finds that the evidence establishes that there could be an impact on the Xats'ull's right to fish for sturgeon whether the fishing takes place in the area near the IDZ, or downstream. As sturgeon travel some distances and are bottom feeders, the prospect of continuous supernatant discharge, resulting in the risk of continuous impacts on a fish resource that is already in limited supply, suggests that the Director's decision could have an adverse effect on the Xats'ull's aboriginal right to fish for sturgeon. Although the Xats'ull have been unable to fish for sturgeon for several decades due to scarcity and conservation concerns, their right still exists and could be exercised if sturgeon numbers recover to a level where some fishing is permitted.

[300] With respect to the impact on the right however, there is no evidence from the Xats'ull that sturgeon has ever been a staple of their diet, as was the case with salmon. Nor is there any evidence that sturgeon is or was a significant or valuable item of trade. Thus, the Panel finds itself in a similar position to the Court in *Hupacasath*. In that case, the Court found that, "as a consequence of changes in activities on the Removed Lands, there *might be some* impact on fishing or hunting on the HFN claimed traditional territory outside the Removed Lands (and on Crown lands)." In the present case, the Panel can only say that there might be some impact on the Xats'ull's right to fish for sturgeon. Accordingly, like the Court in

Hupacasath, this Panel finds that the potential effect of the Amended Permit on this claimed aboriginal right "is modest".

[301] Therefore, based on these considerations, the level of consultation regarding the right to fish in general, and for sturgeon in particular, is in the middle of the spectrum.

[302] With respect to Xats'ull's claim of aboriginal title, the Panel finds that the potential effect of the Director's decision is low.

[303] The only area where the Panel has found a good *prima facie* case for aboriginal title is the area in or around Soda Creek Canyon where there is archaeological evidence of pit houses that were used year after year, and there is oral history and historical evidence of continuous use. The Xats'ull also have the right to use and occupy the Soda Creek reserve lands, located adjacent to the Fraser River approximately 25 kilometres downstream of the discharge point. The claims in and around the discharge area and IDZ are weaker due to overlapping claims and, in particular, the fact that one of the Alexandria Band's reserves is within five kilometres from the point of discharge.

[304] In the area where the Xats'ull have established a good *prima facie* case for aboriginal title, the evidence shows that the potential effects of the discharge on aboriginal title will be negligible or non-existent, due to the level of dilution and mixing that will have occurred by the time the river water passes through Soda Creek Canyon. In the area near the point of discharge and the IDZ, their claim to title is weaker, and the evidence of any harmful impact to that title is similarly weak. Therefore, the level of consultation with respect to aboriginal title is at the low end of the spectrum.

Conclusions on the Scope of the Duty to Consult in this case

[305] In deciding on the level of consultation required in the circumstances, the Panel takes guidance from *Hupacasath* (paragraphs 254 and 274-275):

Taking both the strength of the HFN claim, and the seriousness of the potential adverse effects into account, I find that the duty to consult was at a moderate level with respect to the Crown lands, and at a lower level with respect to the Removed [private] Lands.

...

The Crown's duty with respect to alleged aboriginal rights on the Removed Land is at a low level and does not require "deep consultation". It does require informed discussion between the Crown and the HFN in which the HFN have the opportunity to put forward their views and in which the Crown considers the HFN position in good faith and where possible integrates them into its plan of action. The Crown has not met that duty.

The duty on the Crown with respect to the effect of the removal decision on aboriginal rights asserted on Crown land is higher, and requires something closer to "deep consultation". On the evidence, the Crown did not meet that duty.

[underlining added]

[306] Based on the Panel's findings regarding the strength of the Xats'ull's claims of aboriginal rights, including title, and the seriousness of the potential effects of the Director's decision on those asserted rights, the Panel finds that the Director's duty to consult the Xats'ull regarding the decision to issue the Amended Permit was at the middle part of the spectrum.

(3) Did the Crown Fulfill its Duty in this Case?

(Note: The document attached to this decision as Appendix "A", sets out a detailed chronology of the meetings and letters in relation to this matter. Those meetings and documents which the parties maintain are of greater relevance to this issue, are identified in their submissions below.)

Director's Position

[307] The Director maintains that he undertook significant consultation efforts, despite his belief that the minimal level of consultation that was required at law, and he followed provincial policies regarding consultation. The Director testified that he notified the Xats'ull of Gibraltar's intention to apply for the amendment several months before Gibraltar filed its formal application. He also directed Gibraltar to inform the Xats'ull about the details of its proposal and any possible effects on water quality and fisheries. Additionally, the Director submits that he monitored the dialogue between Gibraltar and the Xats'ull at all material times, and he took the initiative to contact the First Nations fisheries monitor responsible for the area of the discharge, and arranged a boat trip with representatives of First Nations and the federal Department of Fisheries and Oceans for the purposes of identifying traditional fishing sites. He submits that the immediate area around the discharge point was not identified as a traditional fishing site. However, the Panel notes that the Xats'ull were not invited to send a representative on the trip and did not participate.

[308] The Director further testified that he met with Xats'ull representatives on at least three occasions to provide information about the proposed discharge and to hear their concerns. He testified that he initiated arrangements for another meeting with the Xats'ull, which was scheduled for December 6, 2005, but that meeting was cancelled by the Xats'ull because they preferred to meet with Gibraltar. On November 29, 2005, after he found out that the December meeting was cancelled, the Director sent the Xats'ull a table summarizing the concerns that were identified during the process and the action that he was proposing to address those concerns, but the Xats'ull did not reply to it. The Director then sent the Xats'ull a copy of the draft Amended Permit, along with a request for comments, on December 14, 2005, approximately four months before he issued the Amended Permit. He stated that, when he sent those materials, he reiterated his availability to meet with the Xats'ull to discuss any concerns they had with the draft, but no response was received. Then, on February 15, 2006, he made himself available on short notice to meet with the Xats'ull's representatives at their community hall. The Director recalls that, while there was some discussion at that meeting about environmental impacts, no new concerns were raised, and the main themes of the meeting were the business issues between Gibraltar and the Xats'ull. The Director testified that he followed up that meeting by sending the Xats'ull some internet sites that contained information about water quality guidelines. He explained that there were no other outstanding requests from the Xats'ull for him to deal with

when the Amended Permit was issued. He notes that the Amended Permit is substantially the same as the draft Amended Permit that he sent to the Xats'ull in December 2005.

[309] The Director submits that, despite those efforts, the Xats'ull chose to focus their efforts on negotiating business arrangements with Gibraltar. In those circumstances, the Director argues that the Xats'ull's efforts to raise concerns through the appeal process about the adequacy and integrity of consultation ought to be viewed with skepticism. The Director submits that First Nations do not exercise a veto power in consultations, and they must not attempt to frustrate the Crown's attempts to consult. The Director argues that a lack of reciprocity by First Nations in consultations does not preclude the Crown from making decisions regarding resource based issues.

[310] Furthermore, the Director testified that the Amended Permit includes several provisions that address concerns expressed by the Xats'ull during consultation. These include: limits on the volume of discharge per day, lower maximum limits for metals, requirements for bioaccumulation assessments, provisions on outfall leakage and breaks, and a dilution clause to ensure that water quality objectives are met. In addition, the Director notes that the provisions in the Amended Permit that require monitoring and adaptive management were inserted to address Xats'ull concerns and to ensure that any future issues regarding impacts on aboriginal rights or title will be addressed.

Gibraltar's Position

[311] Gibraltar submits that the consultation that occurred was extensive, and was well in excess of the minimum level required under *Haida*. It states that the only concerns that were raised by the Xats'ull during the consultation process related to the discharge's potential effects on fisheries or the animals interacting with the river, and the physical impact of the outfall on access to or enjoyment of the river. In this regard, the issues that were raised by the Xats'ull during the consultation process were addressed. Gibraltar points out that the Xats'ull did not express any concerns about respect for the river, or aboriginal title, until these appeal proceedings and, consequently, these matters were not a focus of the consultation.

[312] Gibraltar described the consultation it engaged in with the Xats'ull. It included:

- sending them notices and documents regarding their application;
- taking the Xats'ull's representatives on mine tours;
- engaging independent environmental consultants to prepare reports assessing the potential impacts of the discharge and sending copies of those reports to the Xats'ull;
- holding meetings with the Xats'ull to clarify the nature of the mine operations and the discharge; and
- addressing or proposing ways to address the issues and concerns that were raised by the Xats'ull.

[313] More specifically, Gibraltar's consultation activities were as follows.

[314] At the Ministry's request, Gibraltar notified municipal, provincial, and federal government agencies, the public, adjacent property owners, environmental groups, and First Nations of its proposal. Regarding First Nations, Gibraltar referred its proposal to the Williams Lake Band, the Tsilhqot'in National Government, and the Xats'ull. The Consultation Report notes that the Xats'ull provided a written response expressing concerns. Specifically, on March 29, 2005, Ken Michel sent a letter to Gibraltar expressing concerns that the proposed discharge may:

- impact fish health and fish habitat;
- impact fish harvesting activities;
- result in restrictions on access to the river for traditional and community activities; and
- impact commercial activities such as fishing and tourism.

[315] Mr. Michel requested a meeting between representatives of Gibraltar and the Xats'ull, in order to negotiate a mutually acceptable solution. Subsequent to that request the following events occurred.

[316] On April 8, 2005, Tina Sellers, a representative of the Xats'ull participated in a tour of the Gibraltar Mine.

[317] On April 14, 2005, Bob Patterson sent a letter in response to Mr. Michel's March 29, 2005 letter. In that letter, Mr. Patterson proposed a meeting with the Xats'ull's representatives, and he advised that Gibraltar was "arranging to have further work carried out by consultants to address yours and concerns of others as they arise."

[318] On May 30, 2005, Mr. Patterson and Todd Wambolt gave a presentation to two representatives of the Xats'ull, Ken Michel and Noella William.

[319] On June 8, 2005, Mr. Patterson sent a letter to Mr. Michel as a follow-up to the May 30 meeting. In that letter, he addresses the Xats'ull's concerns as follows:

... From our meeting we noted the following concerns:

1. Will the tailings water quality stay the same or change in the future? This question was also raised by WLAP [the former Ministry of Water, Land and Air Protection, now the Ministry of Environment] and addressed by Gibraltar in the attached letter. In summary, future concentrations of the parameters of concern, namely, sulphate, copper and molybdenum were predicted and upper and lower limits were derived from modeling. Hatfield Consultants have modeled the dilution of these upper limits with the Fraser River from a mid-channel outfall and the revised report will be available shortly. This modeling indicates that concentrations of the parameters of concern drop below all provincial and federal water quality guidelines within 10 m of the outfall with the exception of molybdenum which drops below the guidelines within 100 m.
2. Are there any human health affects of accumulated molybdenum in fish tissue if used as a primary source of diet?

Molybdenum was not detected in flesh tissue from 5 year old samples of rainbow trout stocked in tailings water. However, as an alternative check we have Golder Associates Ltd. searching for information on this issue which will be available and forwarded shortly.

From your letter of March 30, 2005 you noted the following general concerns:

1. Impacts to fish health and fish habitat – these concerns were also raised by WLAP and the Cariboo-Chilcotin Conservation Society and prompted Gibraltar to drop the option of a shoreline outfall and consider a mid-channel outfall only. A mid-channel outfall results in more rapid mixing with river water and does not impact on habitat as would a shoreline outfall. These concerns are also being addressed by Hatfield Consultants in their technical assessment report revised from February 2005 and by Golder Associates through a detailed literature search. This information will also be available shortly.
2. Impacts to fish harvesting activities, restriction of access to the river and impacts to commercial activities – The only option being consider [sic] is a buried and submerged mid-channel outfall which would minimize any or all impacts to fish harvesting and commercial activities and should not change current river access. Although the design of this structure is pending approval for the discharge it will be subject to a formal review by Fisheries and Oceans Canada. We would also be willing to meet with [sic] regarding this issue.

[320] As indicated in the above letter, Gibraltar hired Hatfield Consultants Ltd. and Golder Associates to assess the potential effects of the proposed discharge, and to recommend ways to address concerns expressed by the Xats'ull and others during the consultation process.

[321] On August 8, 2005, Mr. Patterson sent copies of the consultants' reports, including the Plume Modeling Study, to Ken Michel along with a letter, as a further follow-up to the May 2005 meeting. It should be noted that the Plume Modeling Study concludes that the water quality variables for copper and cadmium in the Fraser River at Marguerite exceed BC or CCME Water Quality Guidelines.

[322] Also enclosed with the letter were two tables summarizing the contacts made, and the comments received from all responding agencies or groups, during the consultation process up that point. The August 8 letter also provided information about the potential effects on humans consuming fish as a primary food source. In particular, Mr. Patterson referred to the analysis of tissue from the trout caught in the tailings pond in June 2005. In that regard, he stated, in part:

- Recommended dietary levels of molybdenum ranged from 45 to 250 micro grams per day for adults with an upper tolerable limit of 2000 micro grams per day.

...

The analysis of fish recently caught in tailing water had molybdenum levels less than 0.10 micro grams per gram ($\mu\text{g/g}$) which if using the lower recommended dietary level of 45 micro grams per day would result in a conservative allowable diet of approximately 0.5 kg or 1 pound of fish tissue per day.

[323] On August 23, 2005, representatives from Gibraltar participated in a community meeting with the Xats'ull.

[324] Representatives of Gibraltar and the Xats'ull met on October 25 and 26, 2006, at which the Xats'ull made a presentation regarding an interim benefits agreement with Gibraltar.

[325] Meanwhile, in early 2006, Xats'ull representatives met several times with representatives of Gibraltar and the Ministry of Energy, Mines and Petroleum Resources.

[326] On January 11, Xats'ull representatives met with representatives of the Ministry of Energy, Mines and Petroleum Resources in Victoria.

[327] Then, on January 18, Xats'ull representatives met with Gibraltar staff, including Mr. Patterson, at the mine.

[328] On February 9, 2006, representatives of the Xats'ull met with Mr. Patterson and Rob Rotzinger from Gibraltar to discuss business opportunities and the discharge.

[329] On April 9, 2006, Mr. Robertson sent an email to staff at the Ministry of Energy, Mines and Petroleum Resources saying that the Xats'ull were waiting on capacity funding from that Ministry.

[330] Gibraltar submits that the Director required alterations to Gibraltar's application, and imposed conditions in the Amended Permit, to accommodate the Xats'ull's concerns. For example, to accommodate Xats'ull's concerns about access to the river, it abandoned the side-channel outfall that Gibraltar initially proposed in favour of a mid-channel outfall.

[331] In Gibraltar's view, the Xats'ull were not interested in consultation regarding the proposed discharge; they were more interested in negotiating an interim benefits agreement with Gibraltar so that the Xats'ull would benefit economically from Gibraltar's proposal. Gibraltar maintains that after Mr. Robertson was hired by the Xats'ull, the Xats'ull refused to engage in consultation with the Director, on Mr. Robertson's instruction. In that regard, Gibraltar refers to Mr. Robertson's instructions to Ken Michel, sent via email on November 18, 2005, stating that he should tell the Director that the Xats'ull are unable to meet with the Director until they have gathered more information from Gibraltar. After Ken Michel relayed that message to the Director, the Director sent an email on November 22, 2005, asking what further information they were waiting to get from Gibraltar, and whether he could provide the information or assist in some way. In response, Mr. Robertson sent an email to the Director advising that the Xats'ull wished to continue discussions with Gibraltar directly. Gibraltar submits that, although Mr. Robertson characterized his negotiations with Gibraltar as being related to the discharge, the negotiations mentioned the discharge only as a foundation for the Xats'ull's proposals for joint ventures or other business arrangements with Gibraltar.

Gibraltar further submits that Mr. Patterson refused to deal further with Mr. Robertson after receiving an email in which Mr. Robertson explicitly set out his plan to delay issuance of the Amended Permit unless Gibraltar reached agreements with the Xats'ull on a number of business proposals, and agreed to fund the position for which Mr. Robertson had been hired.

[332] Additionally, Gibraltar maintains that the Xats'ull failed to respond to the summary of concerns that the Director sent to them on November 29, 2005, or the draft Amended Permit sent to them on December 14, 2005, and refused to engage with the Director until after they had further discussions with Gibraltar and the Ministry of Energy, Mines and Petroleum Resources. Gibraltar submits that the Xats'ull disagreed with the approach taken by the Ministry in managing the river. In that regard, Gibraltar refers to the testimony of Thomas Phillips who said that any discharge to the river would be disrespectful, and that no amount of consultation would be adequate unless the Xats'ull community approved the discharge application by a majority vote.

Appellant's Position

[333] The Xats'ull submit that the consultation in this case was inadequate. They submit that neither the Director nor any of the persons he authorized to conduct those consultations ever discussed the Xats'ull's traditional territory or the state of their treaty negotiations, or sought clarification regarding the nature of the Xats'ull's claim of aboriginal title. The Xats'ull submit that the Director incorrectly assumed that the Xats'ull did not have aboriginal title interests in the area around Marguerite because that area is closer to the Alexandria Band, and he incorrectly assumed that title interests were not an issue because they only apply to land, and he was dealing with a river.

[334] The Xats'ull maintain that none of the evidence presented to the Panel regarding their traditional territory, and their reliance on resources throughout that territory for hunting, fishing and other traditional practices, was asked for or received by the Director before he issued the Amended Permit. The Xats'ull argue that, if the Director had made enquiries as to the extent of their aboriginal title, he would have been provided with the same evidence that has since been presented to the Panel, he would have realized that the Xats'ull had a strong *prima facie* claim of aboriginal title and other rights, and he would have realized that he should engage in deep consultation with the Xats'ull.

[335] The Xats'ull submit that a community meeting on August 23, 2005, did not reduce their concern about the discharge to the Fraser River because many questions were left unanswered.

[336] The Xats'ull acknowledge that, after the August 2005 community meeting, their direction changed in the consultation process because it appeared that there would be no way to address their concerns before the discharge was approved. Consequently, Thomas Phillips and Terry Robertson (a consultant to the Band) took over from Ken Michel as the Xats'ull's primary contacts regarding Gibraltar's application. Mr. Phillips and Mr. Robertson then tried to negotiate accommodations that would minimize the impact of the discharge. As part of that process, Mr. Phillips and Mr. Robertson raised with Gibraltar the possibility of treating the discharge. Mr. Robertson, Mr. Phillips and Mr. Michel met with Gibraltar's

representatives on January 18, 2006. In a follow-up to that meeting, Mr. Robertson sent an email to Bob Patterson (Gibraltar's Manager of Environmental and Governmental Affairs) on January 20, 2006, in which he stated, in part:

This issue of the water discharge, and how to provide greater comfort, more certainty in terms of impacts, is clearly the area in which we need to determine further. We understand that time is of essence and we've been proactive in getting discussions going, and we are prepared to move ahead as quickly as you are able. What we decide together in terms of being able to put in place monitoring and mitigating processes/technologies will determine the time it will take. If we cannot find agreement on mitigation which could be accomplished relatively quickly, this could take a great deal more time, as we will need to have much more discussion, possibly independent analysis (our consultants) of the discharge, we will need to find funding for this, we may require analysis of actual in-stream discharge to overcome the modeling uncertainties, and then consultation with the provincial government which could potentially wind up with having to put in measures anyway.

[337] The Xats'ull submit that Mr. Patterson was very angry after he received that email, and he advised Mr. Phillips during a telephone call that he would not meet with Mr. Robertson again. The Xats'ull submit that Gibraltar's refusal to have further discussions with Mr. Robertson ended any further discussions towards accommodation. On February 9, 2006, Mr. Phillips and other Xats'ull representatives met with Gibraltar staff and raised concerns regarding fisheries and not having an agreement with Gibraltar.

[338] On February 15, 2006, the Director met with representatives from the Xats'ull, including Mr. Robertson. The Xats'ull submit that their representatives raised concerns regarding the potential cumulative effects of the discharge on fish and on people eating fish. The Xats'ull submit that they also raised concerns regarding the approach that was used by Gibraltar's consultants, and they proposed possible solutions to those concerns, which involved technology and business development. However, the Xats'ull submit that the Director did not adequately address those concerns, and the next information provided to them was a notice that the Amended Permit has been issued.

[339] The Xats'ull note that the Amended Permit was issued despite the fact that the Director knew there were ongoing discussions between the Xats'ull and the Ministry of Energy, Mines and Petroleum Resources regarding capacity and consultation. The Xats'ull submit that this was surprising to them given that the obligation to consult is the responsibility of the Government ministry that is issuing the Permit.

[340] The Xats'ull submit that the Director only addressed the Xats'ull's concerns to the extent that they would not interfere with Gibraltar's proposal. The Xats'ull submit that the Director did not require Gibraltar to conduct further studies to address the Xats'ull's concerns respecting sturgeon or the health of salmon stocks, nor did he impose restrictions regarding the flow of discharge during periods when salmon are in season. The Xats'ull also submit that, in February 2006, they asked

the Director for more time to negotiate with Gibraltar regarding treatment of the discharge, but he declined.

[341] Finally, the Xats'ull submit that the adaptive management plan set out in the Amended Permit is of no assistance to them, because they have little confidence that the Director would address, or require Gibraltar to address, any issues that might arise in the future regarding the discharge. Further, they submit that it is unlikely that approval of the discharge would be cancelled or withdrawn once the diffuser is installed.

The Panel's Findings

[342] Some of the key questions raised in this case are whether both the Director and the Xats'ull acted in good faith, and whether the Director intended to substantially address the Xats'ull's concerns. Consultation at even the low end of the spectrum requires the Crown to give notice, disclose information, and discuss any issues raised in response to the notice for the purpose of seeking a mutual understanding: *Haida*, paragraph 43. The Crown must act in good faith and proceed "with the intention of substantially addressing" the concerns of aboriginal peoples: *Delgamuukw*, para. 168; *Haida*, para. 42. *Haida* also sets out requirements for aboriginal claimants. Aboriginal claimants are obligated to outline their claims with clarity. They must also act in good faith, and must not frustrate the Crown's reasonable good faith attempts, nor should they take unreasonable positions to thwart government from making decisions.

[343] Given the Panel's finding that the level of consultation required in this case is in the middle of the spectrum, the Panel finds that the steps taken by Director and others who acted on his behalf amounted to meaningful consultation in the circumstances. The Panel finds that, although the steps taken by the Crown during the process of consulting with the Xats'ull and providing reasonable accommodations may not have been perfect, perfection is not what is required by the *Haida* test. What is required of the Crown is that it must act in good faith, conduct meaningful consultation, make reasonable accommodations (where necessary) with the intention of addressing First Nation's concerns, and above all, conduct itself in a way that upholds the honour of the Crown. The Panel recognizes that consultation is not an easy process for any of the parties involved. It is much easier to look at a consultation process in hindsight and point to the flaws in the process.

[344] The Panel finds that the evidence shows that the Crown, through steps taken by the Director and other Ministry staff, and through steps that were delegated to Gibraltar, took various steps to consult with the Xats'ull. The aspects of the consultation process that were carried out directly by the Director or other Ministry staff are summarized as follows:

- Staff from the Ministry's Environmental Protection Section sent a letter to Chief Dorothy Phillips of the Xats'ull First Nation in February 2005, notifying her of the proposal.
- On June 22, 2005, Brian Chapman, an Environmental Protection Officer with the Ministry, telephoned the Xats'ull's office and spoke with Ken Michel about setting up a meeting regarding Gibraltar's proposal. Mr. Michel advised that he was planning to meet with the

Band Council about issues and concerns with the proposal, and then would contact Mr. Chapman about meeting in the future.

- On July 15, 2005, Mr. Chapman telephoned Mr. Michel and discussed having a meeting where Band members could ask questions of Ministry staff.
- On July 28, 2005, the Director, Mr. Chapman, and other Ministry staff met with Ken Michel to discuss the Xats'ull's concerns regarding Gibraltar's proposal.
- On August 23, 2005, the Director and representatives of Gibraltar attended a meeting organized at the Deep Creek Community Hall, where Xats'ull community members had the opportunity to ask questions of Mr. Patterson and the Director regarding Gibraltar's proposal.
- On September 2, 2005 an email was sent from the Director to Terry Robertson explaining the consultation process.
- On November 8, 2005, the Director telephoned Ken Michel and left a message to call him back. On November 14, Ken Michel emailed the Director indicating that he was unable to meet with him on December 6, 2005, because the Xats'ull were awaiting further "clarifications" from Gibraltar, needed to meet with the Ministry of Energy, Mines and Petroleum Resources, and had "more technical work to do."
- On November 22, 2005, the Director emailed Ken Michel and Mr. Robertson asking if he could assist with providing information that the Xats'ull were waiting to receive from Gibraltar. Mr. Robertson emailed in reply, saying that the Xats'ull would continue discussions directly with Gibraltar.
- On November 29, 2005, the Director forwarded a "Table of Concerns" summarizing concerns expressed during the consultation process, and proposed responses or solutions, to Ken Michel, Terry Robertson, and Thomas Phillips via email.
- On December 14, 2005, the Director sent a draft of the Amended Permit, copy of the Permit without amendments, and mine bonding information to Gibraltar, Ken Michel, Mr. Robertson, and Thomas Phillips, and advised that he was available to meet. In response, Mr. Robertson sent an email to the Director advising that the Xats'ull are not able or prepared to "engage" with the Ministry until they have had further discussions with Gibraltar and the Ministry of Energy, Mines and Petroleum Resources.
- On January 5, 2006, the Director forwarded some general information on mine reclamation bonding to Mr. Robertson, and advised him to contact the Ministry of Energy, Mines and Petroleum Resources for further information on bonding.
- On January 26, 2006, Mr. Robertson requested that the Director provide him with specific mine reclamation bonding information

regarding Gibraltar. He also advised that he had met with Gibraltar and had started discussing "water discharge issues", but needed more time for further meetings and consideration of the discharge issue. He also asked whether he should be talking to Fisheries and Oceans Canada.

- On January 30, 2006, the Director advised Mr. Robertson that the federal government has some jurisdiction over the discharge, and he provided Mr. Robertson with the name and telephone number of a contact person at Environment Canada. Regarding further information on mine reclamation bonding, the Director provided Mr. Robertson with the name and telephone number of a contact person at the Ministry of Energy, Mines and Petroleum Resources.
- On February 15, 2006, the Director met with representatives of the Xats'ull including Ken Michel, Mr. Robertson, and Thomas Phillips, as well as a representative of the Cariboo Tribal Council at the Deep Creek hall. At that meeting, the Xats'ull's representatives advised that, if the Xats'ull had the ability to be involved in monitoring and impact mitigation projects, they would have a better level of comfort with Gibraltar's proposal and would not need to be involved in a detailed review of the impact assessment. Mr. Robertson presented joint venture concepts whereby the Xats'ull would be involved with recognized firms in effluent monitoring and impact mitigation projects, pit water treatment, and metal recovery. The Xats'ull's representatives also expressed concern about uncertainties regarding the results or conclusions in the Hatfield Report and Golder Report, such as uncertainties about the dispersion of the effluent plume and effects on downstream habitat.
- On February 16, 2006, the Director forwarded some internet links to Mr. Michel regarding information on cumulative impacts assessment and provincial water quality guidelines.

[345] It is clear from the evidence that the Director understood that consultation with the Xats'ull was necessary before he could make a final decision regarding whether to issue the Amended Permit. It is also clear from the evidence that his actions in the consultation process, along with those acting on his behalf in consultations (including other Ministry staff and Gibraltar's staff), went well beyond simply providing notice, and met the moderate to middle level of consultation that was required in this case.

[346] The Director notified the Xats'ull of Gibraltar's intention to apply for the amendment several months in advance of the application being filed. He directed Gibraltar to inform the Xats'ull about the details of its application and the possible effects on water quality and fisheries. The Director himself met with Xats'ull representatives on at least three occasions to provide information and to listen to their concerns. He initiated arrangements for another meeting that was scheduled for December 6, 2005, but that meeting was cancelled by the Xats'ull. After he found out that the meeting was cancelled, he sent the Xats'ull a table summarizing the concerns that had been identified during the consultation process, and the

action that he was proposing to address those concerns. The Xats'ull did not respond.

[347] Moreover, the Director sent a copy of the draft Amended Permit, along with a request for comments, to the Xats'ull on December 14, 2005. When he sent those materials, he reiterated his availability to meet with the Xats'ull to discuss the draft. It was not until approximately four months had passed, without a response from the Xats'ull regarding the draft Amended Permit, that he issued the Amended Permit.

[348] In the meantime, the Director continued to make efforts to engage in consultation with the Xats'ull. On February 15, 2006, he made himself available on short notice to meet with their representatives. The evidence is that, while there was discussion at that meeting about environmental impacts, no new concerns were raised. Following that meeting, the Director responded to a request from the Xats'ull for information about water quality guidelines. There were no other outstanding requests from the Xats'ull when the Amended Permit was issued.

[349] Although it is true that the Director could have waited for the negotiations between Xats'ull and Gibraltar to be completed, the Panel finds that it was not unreasonable for him to consider the consultation to be complete and to issue the Amended Permit in the circumstances. Those circumstances were that the Xats'ull no longer wanted to consult with the Director, he was advised that the negotiations between Gibraltar and the Xats'ull related to other matters, not directly related to the impact of the amendments to the Xats'ull's rights or title, and the technical evidence suggested that the aboriginal rights claimed by the Xats'ull would not be adversely impacted by the Amended Permit.

[350] Although the Director concedes that some aspects of the consultation process were delegated by him to Gibraltar, the *Haida* test allows the Crown to delegate aspects of consultation to industry proponents seeking a particular development.

[351] In this case, Gibraltar conducted some of the more technical aspects of the consultation with the Xats'ull. The reason for this was likely twofold: Gibraltar held most of the technical information and could obtain further information, and later because the Xats'ull only wanted to deal with Gibraltar. In such instances, it is critical for the Crown to ensure that it supervises the process. The Panel finds that the Director did so by monitoring the exchange of information and progress of negotiations between Gibraltar and the Xats'ull.

[352] The Xats'ull argue that the Director did not properly monitor the process as some of the information provided to the Xats'ull was incorrect. Of note, the Xats'ull were advised by Gibraltar on June 8, 2005 that the concentrations of the contaminants of concern in the discharge "drop below all provincial and federal water quality guidelines within 10 m of the outfall with the exception of molybdenum which drops below the guidelines within 100 m." However, it is now evident that both copper and cadmium exceeded those guidelines.

[353] The Panel notes that the Plume Modeling Study correctly identified the exceedances and that Gibraltar provided a copy of this report to the Xats'ull on August 8, 2005. Thus, the Panel finds that the misinformation was corrected by the Plume Modeling Study and therefore the consultation was not based on misinformation.

[354] Moreover, it is evident that the Director took the claims that had been raised by the Xats'ull seriously. The Ministry Review notes that the Xats'ull had expressed concerns about the discharge, especially regarding fisheries, and it recommends taking those concerns into account in the Amended Permit. The Ministry Review recommended mitigation strategies, which were adopted into the conditions of the Amended Permit. To the Director's credit, the terms of the Amended Permit impose some requirements that the Director intended to address the concerns expressed by the Xats'ull. In particular, the Amended Permit includes provisions requiring monitoring of certain water quality parameters, and an "adaptive management" process involving a 5-year review of the Permit based on monitoring results and any concerns identified. Although the Xats'ull are not entirely satisfied with the terms of the Amended Permit, the *Haida* test indicates that the concerns expressed by the Xats'ull during consultations need not have all been accommodated to the degree sought by the Xats'ull.

[355] The Panel finds that the Xats'ull did not always meet their responsibilities in the consultation process. The Xats'ull acknowledge that their approach to consultations with the Director changed around the time that they hired Mr. Robertson to represent them. Although the parties have different perspectives on the reason for that change, the Panel finds that the Xats'ull, on Mr. Robertson's instructions, expressly refused to respond to the Director's reasonable inquiries and attempts to consult with them.

[356] Specifically, on November 18, 2005, Mr. Robertson instructed Ken Michel to tell the Director that the Xats'ull were unable to meet with the Director until they have gathered more information from Gibraltar. After Ken Michel relayed that message to the Director, the Director asked whether he could provide the information in question, and he continued to try to engage the Xats'ull in a process that might address their concerns, but there was little response or cooperation from the Xats'ull. The Director sent an email on November 22, 2005, asking what further information the Xats'ull were seeking from Gibraltar, and whether he could assist in some way. In response, Mr. Robertson advised the Director that the Xats'ull would be continuing discussions with Gibraltar directly.

[357] Additionally, the Xats'ull failed to respond to the summary of concerns that the Director sent to them on November 29, 2005, or the draft Amended Permit sent to them on December 14, 2005. Despite their failure to respond, the Director continued to provide the Xats'ull with information that they requested in January and February 2006, and he met with the Xats'ull on February 15, 2006. Although Mr. Patterson eventually refused to deal with Mr. Robertson by late January 2006, the Director continued to respond to inquiries and meet with the Xats'ull's representatives, including Mr. Robertson, after that occurred. The Xats'ull's refusal to engage with the Director for much of November 2005 to mid-February 2006 frustrated the Director's reasonable good faith attempts to consult during that period.

[358] There is also evidence that the Xats'ull attempted to stall or frustrate the consultation process with the Director in other ways. Thomas Phillips testified that any discharge to the River would be disrespectful, and that no amount of consultation would be adequate unless the Xats'ull community approved the discharge application by a majority vote. This suggests that the Xats'ull may have

taken the view that they could exercise “veto power” over the proposal, which is contrary to *Haida*. Despite that testimony by Thomas Phillips, the Xats’ull’s representatives actively pursued proposals for joint ventures or business opportunities linked to the discharge. Perhaps not all members of the Xats’ull community thought that the discharge was unacceptable despite any economic benefits that it may provide to them. Alternatively, perhaps the Xats’ull position in that issue changed after the appeal was filed. If the latter is true, then it is disingenuous for the Xats’ull to claim, on the one hand, that discharging supernatant to the Fraser River offends and infringes their aboriginal values, while on the other hand they sought to benefit financially from the discharge.

[359] Moreover, in Mr. Robertson’s January 20, 2006, four page email to Mr. Patterson, he implies that the Xats’ull would cause delays in the consultation regarding the amendment unless Gibraltar provided funding “right away” to the Xats’ull for, among other things, an interim benefit agreement negotiator (which was Mr. Robertson’s position at that time), and unless Gibraltar would sign an interim benefit agreement with the Xats’ull relatively quickly. Mr. Robertson’s brief comments on the Amended Permit within that email were as follows:

We understand that time is of essence, and we have been proactive in getting discussions going, and we are prepared to move ahead as quickly as you are able. What we decide together in terms of being able to put in place monitoring and mitigation processes/technologies will determine the time it will take. If we cannot find agreement on mitigation which could be accomplished relatively quickly, this could take a great deal more time as we will need to have much more discussion, possibly independent analysis (our consultants) of the discharge, we will need to find funding for this, we may require analysis of actual instream discharge to overcome modeling uncertainties, and then consultation with the provincial government which could potentially wind up with having to put in measures anyway.

...

We appreciate we cannot do everything at once, and therefore can set out reasonable timelines as long as we have assurances as outlined in each area above. In other words, we are looking for clarity of contracting/supply and enough agreement to for us to get the ball rolling in a number of areas.

[underlining added]

[360] Such an approach made by Mr. Robertson, on behalf of the Xats’ull, does not amount to consulting in good faith and verges on sharp dealing. Under the circumstances, the Panel is not prepared to entertain an application for costs from the Appellant.

[361] For all of those reasons, the Panel finds that the Director, on behalf of the Province, met his duty to engage in meaningful consultation with the Xats’ull, and provided reasonable accommodations in response to their concerns. Accordingly, the Panel finds that the moderate level of consultation that was required of the Director has been met.

DECISION

[362] The Panel has considered all the submissions and arguments made whether or not they have been specifically referenced herein.

[363] For the reasons provided above, the Panel finds that the Amended Permit is inadequate to ensure the protection of the environment, as required by section 16(1) of the *Act*.

[364] Accordingly, the Amended Permit is sent back to the Director, with directions as set out in paragraph 219 of these reasons for decision. Further, the authorization to discharge tailings impoundment supernatant to the Fraser River near Marguerite, BC, as set out in the Amended Permit is hereby suspended until such time as the Director carries out a further review of the application to amend the Permit in accordance with the Panel's directions.

[365] The Panel further finds that the Crown, as represented by the Director and those acting on his behalf for the purposes of consultations, conducted meaningful consultation with the Xats'ull and took reasonable steps to accommodate the concerns that they raised during the consultation process. Therefore, that part of the appeal is dismissed.

[366] However, if the Director makes further changes to the Amended Permit arising from the Panel's directions he must continue to consult with the Xats'ull in respect of those further changes.

[367] Accordingly, the appeal is allowed, in part.

"Alan Andison"

Alan Andison, Chair
Environmental Appeal Board

"Robert Cameron"

Robert Cameron, Member
Environmental Appeal Board

May 9, 2008

MINORTIY DECISION OF PANEL MEMBER, CINDY DERKAZ

[368] I agree with the findings of the majority on issues 1, 2(1), 2(2), 2(2.1) and 2(2.2). I respectfully disagree with their findings on issue 2(3): Did the Crown fulfill its duty in this case?

[369] Specifically, I agree with the finding that the Director's duty to consult the Xats'ull falls in the middle part of the spectrum; however, I find that the level of consultation that was required of the Director has not been met.

[370] The particulars of meetings, telephone calls, correspondence and reports relevant to this issue which are discussed in the majority's decision, are referred to in my decision without further description.

[371] In reaching my conclusion I have considered the *Provincial Policy for Consultation with First Nations*, dated October 2002 (previously defined as the "2002 Consultation Policy"). The 2002 Consultation Policy articulates "the Provincial approach to consultation with First Nations on aboriginal rights and/or title that have been asserted but *have not* been proven through a Court process" [italics in original]. It applies to all provincial ministries, agencies and Crown corporations, including the Ministry in this case.

[372] The background and rationale for the 2002 Consultation Policy are found in Part I "Consultation Policy Context". On page 5, it states:

Until aboriginal rights and/or title are proven through a Court process, the Province has an obligation to consider aboriginal interests in decision-making processes that could lead to impacts on those interests.¹³

[373] Part II of the policy outlines "a process for the appropriate consideration of those interests in Provincial land and resource use decision-making" and stipulates at page 16:

It is important that the methods outlined below are understood and applied *in their entirety*. ... **Consistent application of this Policy across government is essential.**

[italics and bold in the original]

[374] The process to be followed by a decision-maker consists of a number of steps which are summarized on page 22 of the 2002 Consultation Policy as follows:

Pre-Consultation Assessment

Stage 1 – Initiate Consultation

Stage 2 – Consider the impact of the decision on aboriginal interests

¹³ The Policy defines "aboriginal interests" as potentially existing aboriginal rights and/or title.

Stage 3 – Consider whether any likely infringement of aboriginal interests could be justified in the event that those interests were proven subsequently to be existing aboriginal rights and/or title

Stage 4 – Look for opportunities to accommodate aboriginal interests and/or negotiate resolution bearing in mind the potential for setting precedents that may impact other Ministries or agencies.

[375] At each stage of the process, decision-makers are directed to make an assessment or determination in respect to aboriginal interests before proceeding to the next stage. For example, at Stage 1 the decision-maker shall determine if a “sound” claim to aboriginal interests has been established: i.e., is there a reasonable probability that those aboriginal interests may be proven subsequently to be existing rights and/or title. If so, the decision-maker is directed to proceed to the next stage. If not, the decision-maker may choose to conclude the consultation process.

[376] In addition to the 2002 Consultation Policy, the NStQ have developed the *Consultation and Accommodation Guidelines for Government and Third Parties*, dated June 2003 (the “NStQ Guidelines”). The Xats’ull provided a copy of the NStQ Guidelines to Gibraltar in 2004 in the course of other business discussions. However, Mr. Patterson stated that he did not refer to the NStQ Guidelines in respect to the permit amendment application. The Director had not seen the NStQ Guidelines prior to the hearing.

[377] The Director was aware from the outset that consultation would be required with First Nations in respect to Gibraltar’s application to discharge tailings pond supernatant to the Fraser River. Based on his review of maps filed in treaty negotiations, the Director knew that the Xats’ull, and other First Nations, claim aboriginal title to the territory where the Gibraltar Mine is located. He also knew of the Xats’ull Heritage Village located by the Fraser River at Soda Creek.

[378] With respect to aboriginal rights, the Director was aware that the Fraser River was used for fishing by First Nations, although he did not have any specific information about fishing by the Xats’ull.

[379] At the February 7, 2005 pre-application meeting, representatives of the Ministry and Gibraltar discussed the permitting that would be required for the proposed discharge of tailings water to the Fraser River. The notes of the meeting state: “We had a brief discussion on consultation with First Nations”. From the evidence, it appears that this was limited to determining which First Nations should be contacted by Gibraltar.

[380] The Director did not refer Gibraltar to the 2002 Consultation Policy, or provide Gibraltar with a copy of the policy, at any time during the process leading up to the issuance of the Amended Permit. Nor was there any discussion between the Director and Gibraltar about the protocol to be followed for consultation with First Nations or the Crown’s duty in respect to such consultation.

[381] Both the Director and Mr. Patterson testified that Gibraltar was to inform the communities and to seek their comments and input. The Director testified that he wanted to see if Gibraltar could address any concerns directly before the final permit amendment application was submitted to the Ministry.

[382] In his evidence, Mr. Patterson could not recall any discussion with the Director about any requirement for consultation with First Nations beyond public notification in accordance with the *Public Notification Regulation*, B.C. Reg. 202/94, under the *Environmental Management Act*. He said that from the company's point of view, their role was to "explain" the project. He said that the company does not "get into aboriginal rights and title".

[383] This is consistent with the approach taken by both the Ministry and Gibraltar in their initial contact with the Xats'ull as follows.

[384] Mr. Chapman's February 28, 2005 letter to Chief Dorothy Phillips advised that the Ministry expected Gibraltar to apply for a major permit amendment which the Ministry "will be processing ... to ensure that Gibraltar Mines meets the requirements of the Environmental Management Act." The letter goes on to say:

A requirement of the applicant is to notify the public that may be affected by the proposed major amendment. You should soon be receiving a notification package from Gibraltar Mines providing details of the project proposal for the amendment.

We would appreciate hearing what specific concerns you would like addressed in their technical assessment.

[underlining added]

[385] This letter does not indicate what type of permit amendment is being contemplated.

[386] On March 3, 2005, Gibraltar sent a form letter, together with a copy of its permit amendment application and the first Hatfield report, to local land owners, environmental groups and three First Nations, including the Xats'ull. The letter describes Gibraltar's mini-hydro project (subsequently dropped from the proposal) and the discharge. The letter concludes as follows:

It is our intention to complete the consultation process for this application within a reasonable time frame as we have commitments to meet with B.C. Hydro in regard to this proposed project. If you have questions in regard to this application please feel free to contact us within 30 days of receipt of this letter. We would be happy to discuss this application by phone or meet with you personally to offer further explanations if you so wish. If you wish to comment or make recommendations to Gibraltar about this application in writing please forward a copy of the same to the Regional Waste Manager ...

[underlining added]

[387] Neither letter refers to aboriginal interests or seeks to engage the Xats'ull in a consultation process in respect to their aboriginal interests.

[388] In this appeal, the Director has argued that he delegated some aspects of the consultation process to Gibraltar as contemplated by the Court in *Haida*. I find that this is not supported by the evidence. Specifically, the Director never told Gibraltar which steps in the consultation process the Director was delegating to Gibraltar.

[389] In order for there to be a proper delegation, the delegate must clearly understand what is being delegated and what it is expected to do. If the Director

did intend that Gibraltar would gather information relevant to the decisions required of the Director under the 2002 Consultation Policy, he should have made this clear to both Gibraltar and the Xats'ull.

[390] Nevertheless, on March 29, 2005 Mr. Michel responded, on behalf of the Xats'ull, in a letter to Gibraltar, copied to the Director. He advised that the discharge,

will impact on our traditional territory as described in the map provided to the BC Treaty Commission in our statement of intent. Evidence provided by our elders through traditional use and occupancy studies confirms that we have always used the area in question.

[391] The letter goes on to list four particular concerns (including use of the Fraser River for fishing and traditional and community activities), states that the concerns must be addressed in a manner that is acceptable to the Xats'ull and suggests a meeting to work towards a solution.

[392] In spite of Mr. Michel's advice that the Xats'ull have aboriginal interests that must be addressed, neither the Director nor Gibraltar specifically asked the Xats'ull about those interests or how the proposed discharge might affect them. Nor did they ask the Xats'ull about their traditional or community use of the Fraser River or the nature of their aboriginal fishery, i.e., what, when, how and where the Xats'ull fish, both now and in the past. The Director did not request copies of the traditional use and occupancy studies referred to in Mr. Michel's letter.

[393] This information, which would have been readily available to the Director on enquiry, is the type of information that the Director must consider under Stage 1 of the 2002 Consultation Policy in order to assess whether a sound claim of aboriginal interests has been made out. If the Director had inquired about the Xats'ull's aboriginal interests, he would have received much of the information that was presented to the Panel at the hearing. This would have included information about the spiritual significance of the Fraser River to the Xats'ull, their respect for the river and the importance of their food fishery.

[394] The 2002 Consultation Policy contemplates that consultation methods will vary from situation to situation depending upon previous dealings by a ministry with the First Nation and the preferences of the First Nation, provided that such preferences are reasonable. In this case, the Director did not ask the Xats'ull about how they wished to be consulted in respect to their aboriginal interests.

[395] During a telephone call with the Director on August 31, 2005, Terry Robertson asked about the consultation process the Ministry was following in regard to the permit amendment application. The Director sent an email to Mr. Robertson on September 2, 2005, providing the internet address for the 2002 Consultation Policy and advising:

... The first question that government must ask itself is whether or not we need to consult. Further to recent legal decisions in respect of the Province's duty to consult with First Nations, we have engaged in consultations with First Nations including the Xats'ull in order to assess whether the application in question represents an impact on aboriginal interests. It may be determined upon review of the impact

assessment submitted in support of the application that there is no impact on the fishery or access to it, and therefore, no impact on aboriginal interests. However, I would like to emphasize that we also wish to consult as a means to improve communications and relations between government and the Xats'ull, and to the extent possible, involve the Xats'ull in the decision and regulatory process.

...

The basic steps we have left are:

- To continue to gather information relevant to the application, I expect this to be complete by the end of September
- To complete our assessment of this information, hopefully by the end of October
- To review our finding and proposed decision with the applicant, the Xats'ull, and others in November
- To issue a decision sometime in December

Of course these are just rough timelines, and they could change depending in how quickly this work is completed.

The ministry intends to uphold its legal obligations to consult with First Nations. I think that the ministry and the applicant are being diligent in communicating with first nations and providing opportunities for discussion about the specifics of the application. Based on an evaluation of the predicted impacts and the information provided to us by First Nations, we will assess the need for further consultation as appropriate.

[396] This email appears to be the only time that the 2002 Consultation Policy was referred to in the process leading up to the issuance of the Amended Permit.

[397] I find that the Director's email to Mr. Robertson is an accurate summary of the Crown's duty to consult in accordance with the 2002 Consultation Policy. However, I find that the Director did not follow these steps in his dealings with the Xats'ull. In particular,

- he did not seek information from the Xats'ull specific to their aboriginal interests;
- he did not advise the Xats'ull of his findings (if any) in respect to his assessment of the soundness of their aboriginal interests (Stage 1 of the policy); and
- he did not make a separate assessment of whether there is a likelihood that the issuance of the Amended Permit will result in an infringement of the Xats'ull's aboriginal interests (Stage 2 of the policy).

[398] I have considered the portions of the Ministry Review relevant to consultation with First Nations (an excerpt of which is found in the Background to this decision). I find that the Ministry Review does not mention the 2002 Consultation Policy and the Director does not appear to have followed the analysis of aboriginal interests as required pursuant to the policy.

[399] Meaningful consultation requires that information provided by the parties must be accurate. I disagree with the majority that the Plume Modeling Study satisfactorily corrected the misinformation in Gibraltar's June 8, 2005 letter with respect to all applicable water guidelines being met. The same incorrect information is contained in the Hatfield Report's Executive Summary and Conclusions, which is likely the basis of Gibraltar's letter. The Plume Modeling Study is only found as Appendix 2 to the Hatfield Report: it is not a separate document and does not specifically correct the Hatfield Report; it simply contains the right information.

[400] Further, the incorrect information is repeated in the introduction to the Golder Report as follows:

... Hatfield (2005) concluded that the proposed discharge would disperse rapidly in the Fraser River and that the parameters of concern would meet WQG [water quality guidelines] within 10 m of the diffuser with the exception of molybdenum, which would meet the most stringent WQG before the edge of the initial dilution zone...

[401] Although I find that this was an honest error on the part of Mr. Davies of Hatfield Consultants and Gibraltar, and in no way intended to mislead the Xats'ull, I am concerned that the discussions between the parties were based, in part, on incorrect information about a substantive matter. There is a substantial difference between the assurance that the discharge will meet the "most stringent" water quality guidelines at the edge of the IDZ, and the fact that the lowest water quality guideline for two of the four contaminants of concern (namely, copper and cadmium) cannot be met because the background levels of the Fraser River exceed the guidelines. The error in the expert reports was not brought to the attention of the Xats'ull, or the Panel, until Mr. Davies testified at the hearing.

[402] In reaching my decision, I have considered the meetings and correspondence between the Xats'ull and Gibraltar and/or the Director. I find that both Gibraltar and the Director were receptive to the Xats'ull and made themselves available to meet with them and to discuss the proposed discharge. I also find that both Gibraltar and the Director acted in good faith in their interactions with the Xats'ull.

[403] However, I find that both Gibraltar and the Director focussed on providing assurances to the Xats'ull that the proposed discharge would not affect water quality or the salmon fishery in the Fraser River. As Mr. Patterson advised Mr. Michel in the April 8, 2005 letter, "While we feel that the tailings water will have very little effect on Fraser River water quality nor impact the fishery resource, it is obvious that we will need to demonstrate this to your community." To that end, a number of the meetings were for the purpose of explaining the mining process and the proposed discharge to the Xats'ull: the April 8, 2005 mine tour; the May 30, 2005 PowerPoint presentation; and the August 23, 2005 presentation and question and answer session at the Deep Creek Community Hall. There was no meeting arranged for the purpose of gathering information about the Xats'ull's aboriginal interests and finding out how such interests might be addressed.

[404] I find that meaningful consultation requires more than explanations and assurances. The Director should have informed himself as to the nature of the aboriginal interests claimed and made clear, separate and reasoned assessments of

the soundness of those claims and of the likelihood of the proposed discharge resulting in an infringement on those aboriginal interests.

[405] On the other hand, there is an obligation on the Xats'ull to provide information about their aboriginal interests and to consult in good faith. I agree with the majority that the Xats'ull did not always meet their responsibilities in the consultation process. I also agree with the finding that the Xats'ull's refusal to engage with the Director for much of November 2005 to mid-February 2006, and their failure to respond to the Director's Table of Concerns and draft Amended Permit, frustrated the process. Further, I find that Mr. Robertson's attempt to pressure Gibraltar into signing an interim benefit agreement was improper.

[406] After the August 23, 2005 community meeting, the Xats'ull believed that there was no way that their concerns would be addressed before the Amended Permit was issued and they turned their efforts to attempting to negotiate some accommodations. I do not find that this shift in direction and the Xats'ull's failure to communicate with the Director in November through mid-February, remedies the flawed consultation process up to that point.

[407] The Director argued that the Amended Permit includes several provisions that are intended to address concerns expressed by the Xats'ull, including requiring monitoring of certain water quality parameters and an adaptive management plan involving a 5-year review of monitoring results and any concerns identified. I do not find that these provisions were specific to the Xats'ull. They also address the concerns of the Ministry biologist and the Cariboo Chilcotin Conservation Society.

[408] Furthermore, the Amended Permit does not mention the Xats'ull or any other First Nation. Section 2.10 "Adaptive Management Plan" states: "... The five year review will be conducted to include involvement of key interested parties." The Ministry Review provides the rationale for the adaptive management plan and 5-year review. It provides: "... This process is expected to involve key interested parties such as local first nations."

[409] I do not find that the provisions of the Amended Permit and, in particular, the inclusion of the requirement for an adaptive management plan, satisfy the Xats'ull's concerns or amount to accommodation of their aboriginal interests. The Xats'ull were not consulted in respect to the inclusion of the adaptive management plan in the Amended Permit, and it is unclear how they were to discern that this was meant to address their concerns.

[410] On an administrative review of the consultation process, the test is whether the decision-maker made reasonable efforts to inform and consult: *Haida* at paragraph 62. Consultation efforts should be made diligently and be meaningful, with the intention of "substantially addressing the [aboriginal] concerns as they are raised": *Haida*. As the Court also stated in *Haida*, "there is no duty to agree; rather, the commitment is to a meaningful process of consultation". Thus, the quality of consultation is important.

[411] After considering the 2002 Consultation Policy and the evidence, I find that the consultation process in this case does not meet the test of reasonableness given that the level of consultation required was at the middle of the spectrum. The Xats'ull were never asked about their aboriginal interests or told that Gibraltar would carry out some of the consultation process for the Director. The Xats'ull

were provided with erroneous information about a substantive issue. The Director did not follow the framework for consultation pursuant to the 2002 Consultation Policy and the Xats'ull's concerns were not addressed in a meaningful way.

[412] Finally, it is clear from the evidence of Mr. Michel and Mr. Phillips that the Xats'ull lack the financial and technical capacity to deal with the numerous referrals from companies seeking to carry on industrial activities that may affect their aboriginal interests. I have sympathy for the Xats'ull staff who are trying to deal with complicated applications without adequate resources. It is an unequal, and perhaps inherently unfair, relationship. This lack of capacity must be addressed if the province is going to live up to the vision expressed in the New Relationship with aboriginal people. However this is a matter beyond the jurisdiction of this Board.

DECISION

[413] For the reasons set out above, I find that the Director did not meet his duty to conduct meaningful consultation with the Xats'ull in respect to their aboriginal interests or to accommodate those interests.

[414] The appeal on this issue should be allowed and the matter sent back to the Director to carry out proper consultation on the amendment application in accordance with the 2002 Consultation Policy and with my findings.

"Cindy Derkaz"

Cindy Derkaz, Panel Member
Environmental Appeal Board

May 9, 2008

APPENDIX "A"

APPEAL NO. 2006-EMA-006

BRITISH COLUMBIA ENVIRONMENTAL APPEAL BOARD

In the matter of an appeal under section 100 of the Environmental Management Act, S.B.C. 2003.

BETWEEN:

Xats'ull First Nation

APPELLANT

AND:

Director, Environmental Management Act

RESPONDENT

AND:

Gibraltar Mines Ltd.

THIRD PARTY

Joint Chronology

The parties agree that there is evidence in the record of the events referred to in this Joint Chronology. Nothing in this Joint Chronology, however, constitutes an admission by any party that a particular event is relevant to matters before the Board. Where appropriate, parties may address the issues of relevance and weight in their written and oral submissions.

1971 July 1	Conditional water licence No. 37361 issued, authorizing diversion of water from Fraser River at a maximum of 5,985,000 gallons per day for mining purposes and 15,000 per day for industrial purposes
1971 July 13	Permit PE-00416 issued (the "Permit") which authorized the discharge of effluent and tailings to the tailings impoundment, PE-00417 issued to authorize the discharge of tailings and overflow to Cuisson Creek
1972	Water licences 38657 and 38658 issued to allow the diversion and storage of portion of East Fork of Cuisson Creek
1972	Gibraltar Mine opens
1978	Permits PE-00416 and PE-00417 amalgamated
1989	Discharge to Cuisson Creek deleted from Permit PE-00416
1996 October	Gibraltar Mine sold by Placer to Westmin (Westmin is later taken over by Boliden)
1998 Nov 5	PE-00416 amended to regulate the storage of water in Gib East Pit and allowed the diversion of all water to Gib East Pit
1998 December	Gibraltar Mine shut down due to low copper prices
1999 July	Taseko acquires Gibraltar
2004 February 17	Thomas Phillips (Xats'ull) letter to Ronald Thiessen (Taseko) advising of Chief & Council's desire to have him review the NStQ Consultation Guidelines and then to meet to discuss concerns
2004 May 4	Tom Milner and Bob Patterson meet with representatives of Xats'ull to discuss mine restart
2004 June	Gibraltar Mine restarts mining operations
2004 October	Gibraltar Mine restarts mill
2004 October 18	Bob Patterson and George Desmarais meet with Thomas Phillips, Ellie Mitchell, Gilbert Sellars and Lennie Sellars at Deep Creek office. Xats'ull indicate interest in obtaining protocol and/or Impact Benefit Agreements with Gibraltar. Xats'ull provide copy of NStQ Consultation Guidelines to Gibraltar
2004 November 5	Bob Patterson, Ryan Slemko and George Desmarais meet with Thomas Phillips and take him for a tour of the Mine
2005 January 21	Thomas Phillips meets with Bob Patterson and George Desmarais at Band Office to discuss employment and funding sources
2005 February	Hatfield Consultants release report entitled Assessment of Predicted Effects of Gibraltar Mines Ltd. Proposed Micro Hydro Facility on Fraser River Water Quality (First Hatfield Report)
2005 February 7	Pre-application meeting between MoE and Bob Patterson and Todd Wambolt
2005 February 15	Bob Patterson telephones Thomas Phillips to discuss mini-Hydro project and discharge and to advise that Gibraltar will be applying for an amendment to the Permit
2005 February 21	Gibraltar sends out copies of preliminary application for Permit amendment to various government departments, including DFO, MWLAP, and Environment Canada
2005 February 28	Brian Chapman (MWLAP) letter to Dorothy Phillips advising that an application by Gibraltar for an amendment to the Permit is expected.
2005 March 3	Gibraltar (Bob Patterson) sends letter (along with copies of application for

	Permit amendment and the first Hatfield Report) to various aboriginal groups (Xats'ull, TNG and Williams Lake), local land owners, and environmental groups describing mini-Hydro project and discharge. Xats'ull copy is addressed to Chief Dorothy Phillips and Thomas Phillips
2005 March 10	Thomas Phillips follow-up letter to Bob Patterson asking that Bob Patterson respond by letter stating that Taseko would like to move forward with exploring joint business opportunities.
2005 March 14	Gibraltar posts notice of the application for Permit amendment pursuant to the Public Notification Regulation of the Environmental Management Act.
2005 March 15	Bob Patterson calls Thomas Phillips, who confirms that he has received the application package sent by Gibraltar on March 3
2005 March 24	Bob Patterson and Thomas Phillips plan a meeting to discuss future business matters
2005 March 29	Letter from Xats'ull (Ken Michel) to Gibraltar (Bob Patterson) setting out Xats'ull's concerns with respect to the application for Permit amendment and requesting a meeting to negotiate. Letter copied to MoE.
2005 April 5, 6	Bob Patterson calls Ken Michel to discuss Xats'ull concerns regarding the application for Permit amendment; Mr. Patterson leaves a message.
2005 April 6	Ken Michel returns Bob Patterson's calls and a meeting is arranged for April 8 at the Gibraltar Mine.
2005 April 7	Ken Michel advises Bob Patterson that he is unable to attend mine tour on April 8, and that he will send Teena Sellars in his stead
2005 April 8	Teena Sellars is given a tour of the Mine, along with representatives from the TNG and the Williams Lake Band
2005 April 11	Bob Patterson and Thomas Phillips plan a meeting to discuss future business matters
2005 April 14	Gibraltar (Bob Patterson) writes to Xats'ull (Ken Michel), responding to Xats'ull's letter of March 29, 2005.
2005 April 15	Bob Patterson calls Thomas Phillips to set meeting for April 28, 2005
2005 April 20	Bob Patterson calls Thomas Phillips and a meeting is arranged for April 25 to discuss future business matters
2005 April 22	Bob Patterson calls Ken Michel to set up meeting on April 25, after meeting with Thomas Phillips on the same day, but Ken Michel is not in. Bob Patterson leaves message
2005 April 25	Bob Patterson, George Desmarais and Thomas Phillips meet to discuss future business matters
2005 April 28, May 3	Bob Patterson leaves a number of telephone messages with Ken Michel to schedule further meetings regarding the application for Permit amendment
2005 May	Hayco releases report entitled Near Field Modelling Study of Tailings Water Dispersion in the Fraser River Ken Michel publishes Xats'ull letter of 2005 March 29 in the Fraser River Run under the title "Soda Creek's Response to Gibraltar wanting to pump mining effluent into the Fraser"
2005 May 2, 3	Bob Patterson calls Ken Michel to schedule further meeting regarding the application for Permit amendment
2005 May 4	Bob Patterson calls Ken Michel and they agree to discuss further meeting dates at the meeting of the Weldwood Public Advisory Group, scheduled for May 5
2005 May 5	Ken Michel calls Bob Patterson to advise that the next suitable date for a

	meeting with the members of Xats'ull is May 30
2005 May 30	Bob Patterson and Todd Wambolt meet with Ken Michel and Noella William at Soda Creek Band Office and deliver a PowerPoint presentation concerning, the application for Permit amendment
2005 June	Revised Hatfield Report released with Hayco report entitled Near Field Modelling Study of Tailings Water Dispersion in the Fraser River (appended)
2005 June 8	Letter from Gibraltar (Bob Patterson) to Xats'ull (Ken Michel) summarizing concerns raised by Xats'ull and proposing ways to address them
2005 June 22	Brian Chapman calls Ken Michel to arrange meeting regarding application for Permit amendment and parties agree to try to meet in July
2005 June 23	Bob Patterson, George Desmarais and Thomas Phillips meet to discuss apprenticeship programs for the Mine
2005 July 14	Brian Chapman leaves message for Ken Michel to call him back
2005 July 15	Brian Chapman calls Ken Michel and the two set up a meeting for July 28
2005 July 26	Golder Associates releases Report on Supplementary Environmental Impact Study for the Proposed Tailings Supernatant Discharge from the Gibraltar Mine to the Fraser River near Marguerite, BC
2005 July 28	Meeting at MoE offices among Ken Michel, Doug Hill, Kym Keogh, and Brian Chapman regarding the application for Permit amendment
2005 August	EVS Lab releases Gibraltar Mines Ltd. Toxicity Testing Program: July 2005 Sample
2005 August 5	Kym Keogh (MoE) sends her April summary review comments on the First Hatfield Report to Xats'ull (Ken Michel)
2005 August 8	Gibraltar (Bob Patterson) writes to Xats'ull (Ken Michel), clarifying meaning of "Tailings," addressing literature searches for effects of molybdenum, attaching Summary of Concerns and summary of Response, and inviting further comment Ken Michel emails Doug Hill to inform him that he has arranged for Bob Patterson, Todd Wambolt and George Desmarais to appear at the August 23rd Treaty Working Group meeting and to invite Doug Hill and anyone else from MoE to attend.
2005 August 9	Gibraltar files final application for Permit amendment Gibraltar (Bob Patterson) writes to TNG (Joe Alphonse/Chief Doris Baptiste) and WLIB (Chief Alphonse), clarifying meaning of "Tailings," attaching Summary of Concerns and Summary of Response, and inviting further comment
2005 August 15	Doug Hill sends email to Ken Michel confirming his attendance at a meeting on August 23
2005 August 16	Doug Hill forwards to Ken Michel minutes of the meeting that took place on July 28
2005 August 23	[Daytime] Terry Robertson and Thomas Phillips meet Bob Patterson for a tour of Gibraltar Mine [Evening] Doug Hill, Bob Patterson, Todd Wambolt attend a Treaty Working Group meeting at Deep Creek Hall, which includes a presentation to the Xats'ull community and question-and-answer session regarding the application for Permit amendment
2005 August 30	Ken Michel calls Doug Hill as a follow-up to August 23 meeting
2005 August 31	Terry Robertson calls Doug Hill to discuss consultation process, alternatives to discharge, and reclamation bonding
2005 September 2	Email from Doug Hill to Terry Robertson and Ken Michel regarding the

	application for Permit amendment and consultation process
2005 October 25	Terry Robertson, Ken Michel and Thomas Phillips deliver PowerPoint presentation entitled "Gibraltar Mine IBA: Agreement Component Review" to Bob Patterson at Gibraltar Mine
2005 October 26	Terry Robertson and Ken Michel attend Gibraltar Mine again and deliver same Power Point presentation as on previous day, this time to Bob Patterson, Todd Wambolt, Rob Rotzinger and other senior mine personnel
2005 November	Ken Michel publishes "Natural Resources Report" in the Fraser River Run, advising in part that he and Terry Robertson have met with Gibraltar to start negotiations for an Impact Benefit Agreement.
2005 November 8	Doug Hill calls Ken Michel; leaves message to return call
2005 November 8	Letter from Gibraltar to Doug Hill requesting to include in its application an increase in the cumulative amount of effluent directed to the Gib E Pit
2005 November 14	Ken Michel calls Doug Hill. Doug Hill suggests December 6th meeting. Ken Michel says he will see what he can do.
2005 November 21	Ken Michel emails Doug Hill regarding Ken Michel's inability to meet with Doug Hill on December 6th, as Xats'ull are awaiting "further discussions, clarifications, etc." from Gibraltar, need to meet with MEMPR, and have "more technical work to do."
2005 November 22	Doug Hill emails Ken Michel and Terry Robertson asking if he can be of assistance with respect to providing the information the Xats'ull await from Gibraltar Terry Robertson emails Doug Hill, Ken Michel and Thomas Phillips saying that as Rob Rotzinger had indicated that he would be getting back to them this week, Xats'ull would continue discussions directly with Gibraltar
2005 November 23	Doug Hill emails Terry Robertson, Ken Michel, and Thomas Phillips inquiring whether they think that there is a specific technical issue requiring involvement of MEMPR
2005 November 29	Doug Hill forwards Table of Concerns to Terry Robertson, Ken Michel, and Thomas Phillips as email attachment
2005 December 14	Doug Hill sends draft Permit, copy of existing Permit, and bonding information to Ken Michel, Terry Robertson, and Thomas Phillips, and advises he is available to meet Terry Robertson emails Doug Hill saying that Xats'ull will not be able/prepared to engage with MoE until they have had further discussions with Gibraltar and MEMPR
2006 January 5	Doug Hill forwards additional information on bonding to Terry Robertson
2006 January 6	Terry Robertson emails Rob Rotzinger to summarize Xats'ull's approach and confirm meeting of January 18th
2006 January 11	Thomas Phillips and Terry Robertson meet with MEMPR in Victoria
2006 January 18	Rob Rotzinger and Bob Patterson meet with Terry Robertson, Ken Michel and Thomas Phillips
2006 January 20	Terry Robertson emails Bob Patterson and Rob Rotzinger regarding various items related to January 18 meeting
2006 January 26	Terry Robertson emails Doug Hill requesting specific information regarding bonding for mine reclamation and updating Hill on discussions with Gibraltar regarding "water discharge issues" which were ongoing and would require more time.
2006 January 27	Terry Robertson emails Rob Rotzinger and Bob Patterson regarding potential meeting on February 15
2006 January 28	Bob Patterson calls Thomas Phillips and advises that because of the content of Terry Robertson's January 20 email, Gibraltar is unwilling to

	negotiate further with the Xats'ull with Terry Robertson present
2006 January 30	Doug Hill sends Terry Robertson information on MMER, federal jurisdiction, and a possible source of funding for projects in the Fraser Basin. Thomas Phillips calls Bob Patterson to discuss further meetings.
2006 February 2, 3	Bob Patterson calls Thomas Phillips to schedule a meeting.
2006 February 6	Thomas Phillips returns Bob Patterson's calls and a meeting is scheduled for February 9 at the Gibraltar Mine
2006 February 9	Thomas Phillips, Wenona Gordon, and Noella William attend Gibraltar Mine to discuss future business opportunities and discharge permit with Bob Patterson and Rob Rotzinger
2006 February 15	Doug Hill attends a meeting at Deep Creek Hall at Deep Creek with Xats'ull representatives including Terry Robertson, Thomas Phillips, Ken Michel, and Wenona Gordon
2006 February 16	Doug Hill emails Ken Michel website links for information on cumulative impacts assessments and water quality guidelines
2006 April 9	Terry Roberston emails Tom Kearns of MMEPR to say that Xats'ull is waiting on MEMPR for capacity funding
2006 April 10	Ministry Review of Gibraltar's application for Permit amendment
2006 April 12	Permit Amendment issued
2006 April 21	Xats'ull receive notice that Permit amendment has been granted
2006 May 23	Xats'ull file Notice of Appeal

**APPENDIX "B"**

Appendix B is a modified version of the Amended Permit created for the convenience of the reader. This version has highlighting and cross-outs representing the changes to the Permit.

MINISTRY OF ENVIRONMENT

Environmental Protection

**PERMIT
PE-00416**

Under the Provisions of the ~~Environmental Waste Management Act~~

**Gibraltar Mines Ltd.
P.O. Box 130
McLeese Lake, British Columbia
VOL 1PO**

is authorized to discharge mine and mill effluent to the ground, *and tailings impoundment supernatant to the Fraser River near Marguerite, B.C.* from a copper-molybdenum mine and mill complex located near McLeese Lake, British Columbia, subject to the limitations and conditions set forth below. Contravention of any of these conditions is a violation of the ~~Environmental Waste Management Act~~ and may result in prosecution.

This permit supersedes and replaces all previous versions of Permit PE-00416, issued under Part 2 Section 14 of the ~~Environmental Waste Management Act~~.

1. AUTHORIZED DISCHARGES

1.1. This section applies to the discharge of supernatant from a tailings impoundment. The site reference number for this discharge is E261604.

1.1.1 The maximum authorized rate of discharge of effluent is 190 L/s. The maximum volume of effluent that may be discharged in any 24 hour period is 16,000 m³, and in any 12 month period is 5 million m³. The mean dilution ratio ($Q_{fr} : Q_{tw}$) over any 7-day period shall be at least:

$$\{(X_{tw} - 0.7)/0.21\} : 1$$

where:

Q_{tw} = mean rate of tailings water discharge for any seven consecutive days (m³/s)

Q_{fr} = mean rate of flow in the Fraser River at Marguerite for the corresponding seven consecutive days (m³/s)

X_{tw} = mean concentration of total molybdenum for the previous six month period (µg/L) in the discharged tailings supernatant based on monthly samples

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1.1.2 The authorized period of discharge is continuous.

1.1.3 At the point of discharge the characteristics of the discharge shall be equivalent to or better than:

Parameter	Maximum Concentration in a Grab Sample
dissolved gas	76 mm Hg (delta-P)
pH	6.5 to 9.0 pH units
total suspended solids	25 mg/L
sulphate	1800 mg/L
nitrate + nitrite	10 mg/L
ammonia	1 mg/L
ortho-phosphorus	2 mg/L
dissolved aluminium	0.7 mg/L
dissolved iron	0.3 mg/L
dissolved manganese	0.4 mg/L
total antimony	0.2 mg/L
total arsenic	0.01 mg/L
total cadmium	0.001 mg/L
total chromium	0.02 mg/L
total cobalt	0.02 mg/L
total copper	0.03 mg/L
total lead	0.05 mg/L
total mercury	0.0001 mg/L
total molybdenum	0.7 mg/L
total selenium	0.01 mg/L
total zinc	0.02 mg/L
toxicity (rainbow trout 96-hr LT50 bioassay)	minimum 50% survival in 100% effluent concentration for 96 hour exposure

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- 1.1.4 The authorized works area barge and pump, head tank, pipeline, a submerged outfall with diffuser, and related appurtenances approximately located as shown on the attached site plans.
- 1.1.5 The authorized works must be completed and in operation when the discharge commences.
- 1.1.6 The location from which the discharge originates is the Gibraltar Mine Tailings Impoundment, located at mineral claims HY5 (204316), HY10 (204302), HY 11, (204303), HY12 (204304), HY13 (204305), HY14 (204306), HY15 (204307), and HY16 (204308).
- 1.1.7 The location of the point of discharge is the Fraser River at mid-channel, adjacent to occupied crown land, Permit 8040, located near Marguerite, B.C.
- 1.2. This section applies to the discharge of tailings from a copper-molybdenum ore concentrator, seepage from embankment ponds, effluent from a domestic sewage lagoon, and treated open pit and treated rock dump drainage to a tailings impoundment. The site reference number for this discharge is E214755.
- 1.2.1 The maximum authorized rate of tailings slurry and domestic sewage discharged to the tailings impoundment is 100, 000 m³/d.
- 1.2.2 The characteristics of the effluent shall be typical of copper-molybdenum ore concentrate tailings, seepage pond effluent, treated domestic sewage effluent, and treated open pit and treated acid mine drainage.
- 1.2.3 The authorized works include, but are not limited to, a tailings impoundment including a main embankment, perimeter embankment, and saddle dam; a tailings discharge line and containment ditching system; a seepage collection system and pond; a supernatant reclaim system; a sewage lagoon; a mine drainage collection system; a waste rock surface drainage collection system; and, pipelines, pumps, and related appurtenances located approximately as shown on the attached site plans.
- 1.2.4 The location of the facilities from which the discharge originates is within the area covered by the Mineral Claims and Leases as per the attached appendix.
- 1.2.5 The location of the point of discharge is latitude 52°31'28" and longitude 121°19'36".
- 1.3. This section applies to the discharge of tailings main embankment seepage water, tailings impoundment supernatant excess raffinate, oil water separator underflow, open pit drainage, treated acid mine drainage, rock dump drainage, and treated domestic sewage effluent to the Gibraltar East Pit. The site reference number for this discharge is E233664.

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1.3.1 The maximum elevation to which effluent may be stored in the Gibraltar East Pit is 3190 feet (amsl).

1.3.2 The characteristics of the effluent shall be typical of tailings pond supernatant embankment seepage water, excess raffinate, open pit and rock dump mine drainage, and treated domestic sewage effluent. Oil water separator underflow shall contain less than or equal to 15 mg/L 100 mg/L of total extractable hydrocarbons Oil and Grease.

1.3.3 The works authorized include, but are not limited to, an effluent pipeline and containment ditching system, a sewage lagoon, a mine drainage collection system, pumping systems and related appurtenances, approximately as shown on the attached site plans.

1.3.4 The location of the facilities from which the discharge originates are within the area covered by the Mineral Claims and Leases as per the attached appendix.

1.3.5 The location of the point of discharge is latitude 52°31'28" and longitude 122°15'20".

2. GENERAL REQUIREMENTS

2.1. Maintenance of Works

The Permittee shall inspect the authorized works regularly and maintain them in good working order. The Regional Manager, Environmental Protection, shall be notified of any malfunction of these works.

2.2. Bypasses

~~The Permittee shall ensure that no waste is discharged without being processed through the authorized works unless prior written approval is received from the Regional Waste Manager.~~ The discharge of effluent which has bypassed the authorized treatment works is prohibited unless the approval of the Director is obtained and confirmed in writing.

2.3. Emergency Procedures

In the event of an emergency or condition beyond the control of the Permittee which prevents effective operation of the approved method of pollution control, the Permittee shall immediately take appropriate remedial action and shall notify the Regional Manager Waste, Environmental Protection:

(a) by telephone at 250-398-4530 if the condition occurs between the hours of

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08:00 and 16:30, Monday to Friday, excluding statutory holidays; and,
(b) by facsimile transmission at 250-398-4214 if the condition occurs at any other time.
All such reports must be received within 24 hours of the detection of the occurrence.
In addition, ~~emergencies involving major effluent discharges that could affect public health and spills subject to the requirements of the Spill Reporting Regulation,~~ all reportable spills to the environment (as defined in the Spill Reporting Regulation) shall be immediately reported to the Provincial Emergency Program at 1-800-663-3456, as prescribed in the Spill Reporting Regulation.

2.4. **Process Modifications**

The Permittee shall ~~have written approval from~~ notify the Regional Waste Manager, Environmental Protection, prior to implementing changes to any process or authorised works that may affect the quality and/or quantity of the discharge.

2.5. **Future Upgrading of Works**

The permit authorizes the continued use of the existing treatment and disposal works for the time being. Upgrading of the treatment works and disposal facilities may be required by the Director at any time based on monitoring results, and/or any other pertinent information.

2.6. **Posting of Outfall and Pipeline**

A sign shall be erected along the alignment of the outfall above the high water mark. The sign shall identify the nature of the works. The wording and size of the sign shall be acceptable to the Director.

Signs shall be posted along the effluent pipeline right-of-way at points of public access that identifies the right-of-way and provides emergency contact information.

2.7. **Tailings Pond Intake for Effluent Discharge**

Effluent to be discharged shall be drawn from the tailings pond no deeper than 3 metres from the surface, and no less than 2 metres from the bottom of the water column.

2.8. **Surface Runoff and Mine Drainage Control**

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- 2.8.1 To the maximum extent possible, seepage and runoff from the open pits, from the waste rock dumps, and from down gradient of the tailings impoundment shall be collected and conveyed to the tailings impoundment or Gibraltar East Pit as appropriate.
- 2.8.2 Surface runoff from undisturbed areas shall be diverted so that it does not flow to the tailings impoundment, or to the mine and mill area.
- 2.8.3 Surface runoff control works shall be provided for all areas disturbed by open pits, waste rock dumps, and the mill and ore storage areas. The surface runoff control system shall convey all flows up to a 1 in 10 year 24 hour storm event, and shall withstand all flows without significant physical damage up to a ~~1 in 100 year~~ 1 in 200 year 24 hour storm event.
- 2.8.4 The tailings impoundment main embankment shall provide at least ~~1.0 metre~~ 4.5 metres of freeboard and the tailings impoundment saddle dams shall provide at least 2.5 metres of freeboard, all other effluent storage ponds, seepage ponds and surface runoff settling ponds shall provide at least 0.5 metres of freeboard, up to a 1 in 200 year 24 hour storm event. If at any time the freeboard in the tailings impoundment main embankment is reduced to less than ~~1.0 metre~~ 4.5 metres, or to less than 2.5 metres for the tailings impoundment saddle dams, or to less than 0.5 metre in any other pond, the Permittee shall take appropriate remedial action and notify the Regional Waste Manager, Environmental Protection following the procedures in section 2.3 of this permit. After initially reporting such an occurrence, the Permittee shall report the freeboard weekly until such time as the required freeboard is re-established. Freeboard is defined as the difference in elevation between the contained liquid level and the top of the berm structure at its lowest point. The lowest point does not include spillways where a discharge is authorised or where the supernatant overflows to downstream collection works.
- 2.8.5 Sedimentation of watercourses shall be prevented during construction and operation of any mine works or facilities. The ~~Director~~ Regional Waste Manager may specify and require implementation of additional measures to prevent sedimentation of watercourses caused by construction or operational activity at the site.
- 2.8.6 All ponds, ditching, and other runoff or seepage collection and diversion works shall be inspected at least twice per year, once in the spring after freshet and once in the fall before freeze-up. Records of these inspections shall be maintained for inspection.
- 2.8.7 Mine site runoff, seepage water, or pit water may be used to control dust within the area served by the surface drainage collection system. The

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Permittee shall recycle tailings impoundment supernatant to the maximum extent practicable while the concentrator is operating.

2.9. **Environmental Emergency Response Spill Contingency Plan**

The Permittee shall maintain an Environmental Emergency Response Spill Contingency Plan which includes adequate procedures for responding to all probable environmental emergencies associated with the at the Gibraltar Mine operation and mine site area. The Permittee shall keep this plan up to date, and appropriate mine personnel shall be made aware of its contents. The Permittee shall provide the Regional Waste Manager, Environmental Protection with an up to date version of this plan any updates to this plan within 30 days of adoption of the plan update. The Director may require periodic review of the response plan, and/or a report on any emergency event associated with the mine operation or occurring at the mine site.

2.10. **Adaptive management plan**

The permittee shall develop and implement an adaptive management plan for managing tailings pond supernatant. The purpose of the plan is to provide terms of reference for reviewing the authorised discharge to the Fraser River once every five years. Such a review shall consider findings from the monitoring program, updates to the water balance, information presented in annual reports, and other relevant sources of information. The five year review will present what actions or permit amendments, if any, are advisable to limit impacts from current or future tailings pond discharges to the environment and to ensure compliance with permit requirements. The review shall also address attainment of objectives for key water quality parameters in the receiving environment. The five year review will be conducted to include involvement of key interested parties. An adaptive management plan shall be submitted to the regional manager, environmental protection before commencement of the discharge, and no later than October 31, 2006.

2.11 **Posting of Security**

The Permittee shall maintain security with the Minister of Finance, as a condition of the Permit Approving Work System and Reclamation Program issued by the Ministry of Energy, Mines and Petroleum Resources pursuant to the Mines Act.

3. MONITORING AND REPORTING REQUIREMENTS

3.1. **Sampling Procedures**

Sampling is to be carried out in accordance with the procedures described in the "British Columbia Field Sampling Manual for Continuous Monitoring Plus the

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Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples, 2003 Edition (Permittee)" ~~November 1996, or most recent edition,~~ or by suitable alternative procedures as authorized by the Director.

A copy of the above manual may be purchased from the Queen's Printer Publications Centre, P. O. Box 9452, Stn. Prov. Gov't. Victoria, British Columbia, V8W 9V7 (1-800-663-6105 or (250) 387-6409). A copy of the manual is also available for inspection at all Environmental Protection offices.

3.2. **Outfall and Pipeline Inspection**

The pipeline shall have a remote leak detection system installed, and the Permittee shall develop and implement a routine visual inspection program for the outfall and pipeline. Records of inspections and checks on the leak detection system shall be maintained for review by the Regional Manager, Environmental Protection.

Additionally, the Permittee shall ensure that comprehensive inspection and testing of the outfall and pipeline is conducted once each five years by a qualified professional to ensure they are in good working condition. An inspection report shall be submitted to the Regional Manager, Environmental Protection, within 60 days after the inspection date. The first report shall be submitted by June 30, 2007.

3.3. **Flow Measurement**

~~Once per month on a day which is representative of normal operations,~~ The Permittee shall measure and record the following:

- (a) tonnes of solids discharged to the main tailings impoundment each day;
- (b) cubic metres of water discharged to the main tailings impoundment each day;
- (c) cubic metres of supernatant recycled to the mill from the main tailings impoundment each day;
- (d) cubic metres of seepage pond supernatant recycled or returned each day;
- (e) cubic metres of effluent discharged to the Gibraltar East Pit each day; and,
- (f) cubic metres of effluent discharged to the Fraser River on a continuous basis.

The Permittee shall provide and maintain a suitable flow measuring device, and measure and record on a continuous basis the stream flow at a suitable location on the East Fork of Cuisson Creek. The flow measuring device shall be checked and calibrated at least annually.

3.4. **Water and Effluent Sampling**

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The Permittee shall collect grab samples from the locations and at the frequencies listed in Table 1 and Table 2 of this permit. Suitable sampling facilities shall be installed at all sample locations. Proper care should be taken in sampling, storing and transporting the samples to adequately control temperature and avoid contamination, breakage, etc.

3.5. **Analysis**

Samples collected in accordance with section 3.4 shall be analysed to the characteristics listed in Table 3. The minimum detection limits for the analyses shall be as listed in Table 3.

Analyses are to be carried out in accordance with procedures described in the "British Columbia Laboratory Methods Manual for the Analysis of Water, Wastewater, Sediment, Biological Materials (March 1994 Permittee Edition) and Discrete Ambient Air Samples (2003 Permittee Edition)", or the most recent edition, or by suitable alternative procedures as authorized by the Director Regional Waste Manager.

Copies A copy of the above manuals are available may be purchased from the Queen's Printer Publications Centre, P. O. Box 9452, Stn. Prov. Gov't. Victoria, British Columbia, V8W 9V7 (1-800-663-6105 or (250) 387-6409), and are also available for inspection at all Environmental Protection offices. These manuals are also available for inspection at all Pollution Prevention Program Offices.

3.6. **Biological, Toxicity and Environmental Effects Monitoring Program**

The Permittee shall conduct monthly toxicity testing on rainbow trout and Daphnia magna of tailings pond supernatant collected at the final outfall. The 96-hr LC₅₀ rainbow trout toxicity test shall be carried out in accordance with the procedures described in "Biological Test Method: Reference Method for Determining Acute Lethality of Effluent to Rainbow Trout", Report EPS 1/RM/13 July 1990. The 48-hr LC₅₀ Daphnia Magna toxicity test shall be conducted in accordance with the procedures described in "Biological Test Method: Reference Method for Determining Acute Lethality of Effluent to Daphnia Magna," (Reference Method EPS 1/RM/14), July 1990.

Sublethal toxicity testing of tailings pond supernatant collected at the final outfall shall be conducted twice annually in accordance with the Metal Mining Effluent Regulation (pursuant to Subsections 34(2), 36(5) and 38(9) of the federal *Fisheries Act*).

A river monitoring program shall be designed and conducted by a qualified professional to verify the modelling of the initial dilution zone and effluent dispersion, and to verify that receiving environment water quality guidelines are

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being attained for all applicable uses. A study design for this program shall be submitted to the Regional Manager, Environmental Protection before commencement of the discharge, and no later than October 31, 2006.

The Permittee shall develop an environmental effects monitoring program in accordance with the Metal Mining Effluent Regulation (pursuant to Subsections 34(2), 36(5) and 38(9) of the federal *Fisheries Act*), to assess impacts on the receiving environment. The program shall include an initial site characterization and habitat description, including identification of all near field downstream depositional areas of the river and aquatic plants, that is completed prior to commencement of the discharge. The biological monitoring program shall also include monitoring for potential metal bioaccumulation conducted in the vicinity of the outfall. A study design for the biological, toxicity and environmental effects monitoring program developed by a qualified professional shall be submitted to the Regional Manager, Environmental Protection before commencement of the discharge, and no later than October 31, 2006.

3.7. **Hydrogeological Assessment**

The Permittee shall conduct an ongoing hydrogeological monitoring and assessment program based on recommendations in the reports "Preliminary Hydrology Study", Klohn Leonoff (1992) and "Gibraltar Mine: 1995 Hydrogeology Review", Klohn Crippen (1995), as well as the ongoing findings of these assessments. A report reviewing the site hydrogeology and groundwater chemistry shall be completed by a qualified professional every five years. After each review, refinements to the program shall be made based on the ongoing findings and recommendations of these assessments.

3.8. **Quality Assurance**

The Permittee shall maintain a "Quality Assurance Manual" consistent with the "British Columbia Field Sampling Manual for Continuous Monitoring Plus the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples, November 1996 2003 edition (permittee)", or most recent edition. The Permittee shall ensure that all data submitted as a requirement of this permit is produced in accordance with the quality assurance manual, that data is handled and reviewed in accordance with a standard protocol, and is accompanied by quality assurance data required by this manual. The Permittee shall provide the Regional Waste Manager, Environmental Protection with any updates to this manual within 30 days of adoption of the update.

Analyses of samples for parameters designated under the Environmental Data Quality Assurance Regulation shall be at a laboratory registered for the designated parameter. In addition, the Permittee shall participate in quality assurance audits as required by the Regulation.

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4. REPORTING REQUIREMENTS**4.1. Quarterly Reporting**

Maintain data of field measurements, water and effluent samples analyses, flow measurements, toxicity testing, and quality assurance data for inspection and submit the data, suitably tabulated, to the Regional Waste Manager, Environmental Protection, for the previous quarterly. All reports shall be submitted within 60 days of the end of each three month period. Water and effluent sample data required by this permit shall be submitted in an electronic format suitable for entry into the provincial database system known as EMS.

In the event that any monitoring requirement stipulated in this permit is not met the Permittee shall document the occurrence and provide an explanation for the omission in the quarterly report for that period.

4.2. Annual Environmental and Reclamation Report

The Permittee shall submit a comprehensive annual report by April 1st of each year. The annual report shall include:

- 4.2.1 An evaluation of the impacts of the mining and milling operations on the receiving environment;
- 4.2.2 A summary of all water quality and hydrology monitoring data for the previous calendar year, employing tables and graphs, and including an assessment of relevant quality assurance data;
- 4.2.3 Results of any assessments related to water quality objective attainment, including any results of investigations into improving detection limits for metals;
- 4.2.4 The results of all ongoing hydrogeological assessment work;
- ~~4.2.5 An evaluation of the impact of the tailings impoundment operation on downstream surface water quality, including an assessment of the seepage conditions and a water balance for the tailings impoundment;~~
- 4.2.4 The results of ongoing mine drainage chemistry studies. This shall include a review of any new acid seeps accompanied by a suitably scaled map showing the locations of the seepages;
- 4.2.5 The results and analyses of the ongoing review of the site water balance, tailings impoundment seepage conditions, and water management plan and assessment of the receiving environment, for the purpose of developing

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~~“Site Specific Water Quality Objectives” and discharge standards for closure of the tailings impoundment and mine site; and~~

4.2.6 The results of findings of any efforts to reduce or treat source contaminants.

The format of the annual report shall be suitable for review by the public or other government agencies ~~and is subject to approval by the Regional Waste Manager.~~ A copy of the annual report shall be placed at the McLeese Lake Public Library within 30 days of submission to Environmental Protection. ~~The Director Regional Waste Manager~~ may require modifications to the monitoring program based on the evaluation of the annual report and on any other information collected by ~~Environmental Protection Pollution Prevention~~ in connection with this discharge.

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Table 1: Surface Water Sample Sites and Monitoring Frequency

SITE NAME	EMS SITE NO.	GIBRALTAR REFERENCE	MINIMUM FREQUENCY
OUTFALL AT FRASER RIVER	E261604		M**
GIBRALTAR EAST PIT SUPERNATANT	E244555	303	M
LEWIS CREEK AT MINE ACCESS ROAD	0600332	107	M
EAST FORK CUISSON CREEK 375m UPSTREAM OF MOFFAT LAKE ROAD (CUISSON CREEK CONTROL)	E207578	101	M
EAST FORK OF CUISSON CREEK BELOW SEEPAGE POND DISCHARGE (CUISSON CREEK LOWER)	0600033	104	M
CUISSON CREEK AT BC HYDRO POWERLINE	E207584	218	4x/YR
LEWIS CREEK LOWER	0800001	102	M
TAILINGS IMPOUNDMENT SUPERNATANT	E214755	105	M
LEWIS CREEK CONTROL	E217191	106	M
TAILINGS IMPOUNDMENT SEEPAGE POND SUPERNATANT	0601004	111	M
CUISSON CREEK AT OUTLET OF SOURAN LAKE	0800002	109	4x/YR
SADDLE DAM SEEPAGE	E207500	114	4x/YR
CUISSON CREEK AT OUTLET OF CUISSON LAKE	E207501	112A	4x/YR
GRANITE CREEK AT INDIAN RESERVE	E207494	110	4x/YR
LEACHATE CONTROL POND NO.6	E207497	SDC-6	4x/YR
PIERCE CREEK U/S OF MINE ACCESS ROAD	E207498	113	4x/YR
CUISSON CREEK AT OUTLET OF VALERIE LAKE (BUSHIE LAKE OUTLET)	E207502	108	4x/YR
LEACHATE CONTROL POND NO.4	E207503	SDC-4	4x/YR
FINGER DRAIN 1	E207504	FD-14	A
FINGER DRAIN 2	E207505	FD-08	A
FINGER DRAIN 3	E207506	FD-06	A
FINGER DRAIN 4	E207507	FD-01	A
FINGER DRAIN 5	E207508	FD-13	A
FINGER DRAIN 6	E207509	FD-9	A

D = daily; M = monthly; 4x/yr = four times per year on a seasonal basis such that each of the four seasons (winter, spring, summer, and fall) are represented; A = annually

** except continuous for pH, temperature, TDS and turbidity

*Annually through the ice, preferably late January to early February.

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Table 2: Groundwater sample sites and monitoring frequency

SITE NAME	SEAM SITE NO.	GIBRALTAR REFERENCE	FREQUENCY
MW99-9 A & B (TAILINGS AQUIFER)	E261601/E261602	MW99-9 A & B	A
MW99-8 A & B (TAILINGS AQUIFER)	E261599/E261600	MW99-8 A & B	A
OW - 4 B (PIERCE CREEK AQUIFER)	E261603	OW-4B	A
MW91-7 A & B (SADDLE DAM AQUIFER)	E261597/E261598	MW91-7 A & B	A
ARTESIAN WELL NO. 1	E207510	AW 1	A
ARTESIAN WELL NO. 2	E207511	AW 2	A
PERIMETER WELL NO. 2	E207513	PW 2	4X/YR
PERIMETER WELL NO. 3	E207514	PW-3	A
PERIMETER WELL NO.4	E207515	PW-4	4X/YR
PERIMETER WELL NO. 5	E207516	PW 5	4X/YR
PERIMETER WELL NO. 6	E207517	PW-6	4X/YR
PERIMETER WELL NO. 7	E207518	PW 7	4X/YR
PERIMETER WELL NO. 8	E207519	PW-8	A

A = annually; 4x/yr = four times per year on a seasonal basis

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Table 3: Characteristics to be Analyzed

(*MDL = Minimum Detection Limit; All units are in mg/L unless otherwise specified; " " minimum units of resolution)

CHARACTERISTIC	SITE	MDL*
PH (FIELD)	ALL SITES	0.1 PH UNITS **
TEMPERATURE (FIELD)	ALL SITES	0.1 °C**
SPECIFIC CONDUCTIVITY (FIELD)	ALL SITES	5 µS/CM**
TOTAL DISSOLVED GAS (FIELD)	FRASER RIVER OUTFALL	1 MM HG**
TURBIDITY (CONTINUOUS)	FRASER RIVER OUTFALL	1 NTU**
NON-FILTERABLE RESIDUE	ALL SITES, EXCEPT GROUNDWATER SITES	5
FILTERABLE RESIDUE	ALL SITES	10
HARDNESS	ALL SITES	1
ACIDITY	303, SDC-4, SDC-6	1
ALKALINITY (TOTAL)	ALL SITES EXCEPT: FINGER DRAINS, 303, SDC-4, SDC-6, 105, AW-1, AW-2	1
SULPHATE (DISSOLVED)	ALL SITES	1
CHLORIDE	ALL SITES	0.5
AMMONIA	FRASER RIVER OUTFALL	0.005
NITRATE	FRASER RIVER OUTFALL	0.005
NITRATE PLUS NITRITE, AS N	101, 104, 107, 113, PW-3, PW-4, PW-6, PW-8, MW99-9A&B, MW99-8A&B, OW-4B, MW91-7A&B, FRASER RIVER OUTFALL	0.005
DISSOLVED ORGANIC CARBON	FRASER RIVER OUTFALL	1
ALUMINUM (TOTAL & DISSOLVED)	ALL SITES, EXCEPT DISSOLVED ONLY AT GROUNDWATER	0.01
ANTIMONY (TOTAL & DISSOLVED)	ALL SITES, EXCEPT DISSOLVED ONLY AT GROUNDWATER	0.001
ARSENIC (TOTAL & DISSOLVED)	ALL SITES, EXCEPT DISSOLVED ONLY AT GROUNDWATER	0.001
BARIUM (TOTAL & DISSOLVED)	ALL SITES, EXCEPT DISSOLVED ONLY AT GROUNDWATER	0.0005
BORON (TOTAL & DISSOLVED)	ALL SITES, EXCEPT DISSOLVED ONLY AT GROUNDWATER	0.1
CADMIUM (TOTAL & DISSOLVED)	ALL SITES, EXCEPT DISSOLVED ONLY AT GROUNDWATER	0.0005
CALCIUM (TOTAL & DISSOLVED)	ALL SITES, EXCEPT DISSOLVED ONLY AT GROUNDWATER	0.2
CHROMIUM (TOTAL & DISSOLVED)	ALL SITES, EXCEPT DISSOLVED ONLY AT GROUNDWATER	0.005
COBALT (TOTAL & DISSOLVED)	ALL SITES, EXCEPT DISSOLVED ONLY AT GROUNDWATER	0.001
COPPER (TOTAL & DISSOLVED)	ALL SITES, EXCEPT DISSOLVED ONLY AT GROUNDWATER	0.001
IRON (TOTAL & DISSOLVED)	ALL SITES, EXCEPT DISSOLVED ONLY AT GROUNDWATER	0.03
MAGNESIUM (TOTAL & DISSOLVED)	ALL SITES, EXCEPT DISSOLVED ONLY AT GROUNDWATER	0.05
MANGANESE (TOTAL & DISSOLVED)	ALL SITES, EXCEPT DISSOLVED ONLY AT GROUNDWATER	0.0005
MOLYBDENUM (TOTAL & DISSOLVED)	ALL SITES, EXCEPT DISSOLVED ONLY AT GROUNDWATER	0.0005
NICKEL (TOTAL & DISSOLVED)	ALL SITES, EXCEPT DISSOLVED ONLY AT GROUNDWATER	0.005
POTASSIUM (TOTAL & DISSOLVED) 1	ALL SITES, EXCEPT DISSOLVED ONLY AT GROUNDWATER	0.5

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SELENIUM (TOTAL & DISSOLVED)	303, TSF, and TSF SEEPAGE POND, ALL SITES, EXCEPT GROUNDWATER SITES ALL GROUNDWATER SITES, DISSOLVED ONLY	0.0005 0.001
STRONTIUM (TOTAL & DISSOLVED)	ALL SITES, EXCEPT DISSOLVED ONLY AT GROUNDWATER	0.001
ZINC (TOTAL & DISSOLVED)	ALL SITES, EXCEPT DISSOLVED ONLY AT GROUNDWATER	0.01

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