

## Information Request 5

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## **IR 5 – Assessment of Alternative Mine Development Plan**

### **References:**

EIS, Section 2.4.3.1

EIS, Section 2.7.2.5

EIS Appendix 2.4.3.1-A (Assessment of Alternatives for Mine Waste Disposal), Section 6.1 and 7.1

### **Related Comments:**

CEAR # 277 (Fisheries and Oceans Canada)

CEAR # 292 (Environment Canada)

### **Rationale:**

The assessment of alternatives examines two different mine development plans (MDP) in detail: the MDP T6 (Tête Angela Creek) and MDP T2 (Fish Creek South). Despite the fact that the two alternatives are described in Section 6.1 as MDPs, for many Multiple Accounts Analysis (MAA) indicators described in Section 7.1, it is not clear whether the alternatives have been assessed on the basis of the MDPs as a whole, or on the basis of the characteristics of the TSFs associated with each MDP. The project layout for the two MDPs is different and potentially affects the assessment of these two MDPs against many of the indicators used in the MAA, particularly indicators in the environmental and technical accounts.

### **Information Requested:**

The Panel requests that Taseko:

- a. Revise the MAA so that the MDPs can be properly compared and the validity of the MAA outcomes established. All indicators used in the MAA should be applied to reflect a consistent consideration of the MDPs as a whole, not just the TSF. Alternatively, a justification should be provided for the approach used in the EIS.
- b. Provide the following information for each of the following indicators and sub-accounts:
  - i. Sub-Account: Aquatic Habitat - The presence or absence of fish in the comparison of permanent and ephemeral streams directly and indirectly affected by each MDP and compare the value of the habitat affected;
  - ii. Indicator: Number of Watersheds Affected – Clarify which watersheds are likely to be affected by each of the MDP options;
  - iii. Indicator: Traditional Land Use - Provide a definition of what constitutes an “activity” in relation to the indicator traditional land use by aboriginal peoples as measured by the number of activities and provide a reference of where the data have been obtained;
  - iv. Indicator: Potential Impacts to Water Quality - An assessment of the potential impacts of the MDPs on water quality using an appropriate measure for the assessment rather than related to the type of water treatment facility and the duration of treatment;

- v. Indicator: Ability to Limit Impacts to Taseko River - Clarify how the metric for this indicator was measured, in particular: clarify whether potential impacts from groundwater discharges were taken into account, and if not, why;
- vi. Clarify whether potential impacts associated with releases of surface drainage and seepage into Wasp Lake and Beece Creek from the TSF for MDP T2 were taken into account, and if not, why?;
- vii. Sub-Account: Water Quality - Include an indicator to assess the impacts of MDPs T2 and T6 on water quality in Fish Lake, using a metric appropriate to the assessment of potential effects on water quality;
- viii. Sub-Account: Terrestrial Habitat - Provide a rationale for why the MAA only includes an indicator for Barrow's Goldeneye, and not for other migratory bird species identified as Key Indicator Species;
- ix. Indicator: Potential for Dust Emission - The metric for this indicator only refers to potential dust emissions from haul roads, and does not consider potential dust emissions from the exposed tailings. Potential dust emissions from tailings in assessing the potential dust emissions from MDPs T2 and T6 should be taken into account;
- x. Indicator: Wetlands - The range of impact for the wetland indicator descriptor is <100ha to >500ha, but a rationale for this range is not provided. Provide a rationale for the surface area range used for the metric to assess impacts on wetlands with a rationale for the surface area ranges used for the metric to assess other Terrestrial Ecology indicators;
- xi. Indicator: Rare Plants - Clarify how the field counts enumerated in Table 6.1 were determined. The clarification should be accompanied by a map showing areas searched in and around MDPs T2 and T6 as well as a map of occurrences of all rare plants found in and around MDPs T2 and T6;
- xii. Sub-Account: First Nations Impacts - Confirm that MDPs T2 and T6 are equal in terms of their impacts on the Tsilhqot'in National Government, An indicator that would support an assessment of the impacts of MDPs T2 and T6 on First Nations cultural values should ideally be developed and applied;
- xiii. Indicator: Number of Users - The metric used is number of individuals using the land for traditional purposes - The basis for the scoring for number of users of land should be provided for the sub-account First Nations Impacts;
- xiv. Sub-Account: Recreational and Commercial Use - Given the differences between MDPs T2 and T6, it is likely that there would be differences in terms of accessibility and associated safety for anyone choosing to use Fish Lake during mine operations. The quality of that experience would also be determined in part by the locations of key components of the mine infrastructure, which differ between MDPs T2 and T6. An additional indicator to assess the impacts of MDPs T2 and T6 on those using Fish Lake during the mine life, including accessibility safety, and quality of the experience should be developed and applied.

**Information Request #5a**

Revise the MAA so that the MDPs can be properly compared and the validity of the MAA outcomes established. All indicators used in the MAA should be applied to reflect a consistent consideration of the MDPs as a whole, not just the TSF. Alternatively, a justification should be provided for the approach used in the EIS.

**Response Summary**

The panel should note that the fundamental difference between MDPs is the location of the respective TSFs so it would be reasonable to expect that although indicators have been selected to consider the MDPs as a whole, the differentiating aspects of most indicators are going to be related to the TSFs themselves or activities associated with them.

The MAA has been revised to provide clarity and discussion with respect to how each indicator considers the MDPs as a whole. For those few that are applied to a single aspect of the MDPs, a discussion of the appropriateness of the indicator has also been provided. The revised Appendix 2.4.3.1-A (assessment of Alternatives for Mine Waste Disposal) has been provided as part of this submission.

**Discussion**

The panel should note that the fundamental difference between the two MDPs is the location of the TSFs within the two MDPs. All other components are either identical (eg. open pit) or virtually the same (eg. MDP T6 has identical plant site and ore stockpile and similar waste stockpile shifted to the north relative to MDP T2) so it would be reasonable to expect that although indicators have been selected to consider the MDPs as a whole, the differentiating aspects of most indicators are going to be related to the TSFs themselves or activities associated with them.

The MAA has been revised to provide clarity and explanation with respect to how each indicator considers the MDPs as a whole. For those few that are applied to a single aspect of the MDPs, a discussion of the appropriateness of the indicator has been provided. The revised Appendix 2.4.3.1-A (assessment of Alternatives for Mine Waste Disposal) has been provided as part of this submission. The additional clarity for each indicator has been added to the indicator descriptions in Section 7.1.

**Information Request #5b-i**

Provide the following information for each of the following indicators and sub-accounts:

Sub-Account: Aquatic Habitat - The presence or absence of fish in the comparison of permanent and ephemeral streams directly and indirectly affected by each MDP and compare the value of the habitat affected;

**Response Summary**

Based on fish and fish habitat surveys completed by Triton in the late 90s, all permanent streams directly impacted by both MDPs are fish bearing. While the ephemeral streams may not be fish bearing, they provide nutrients in the same manner as those in the Fish Creek watershed. The permanent streams downstream of both TSFs are also fish bearing to the confluence of the Taseko River. Based on stream characteristics such as width, depth, gradient, substrate, and fish presence the value of the stream habitat in Tete Angela Creek West is approximately equivalent to that in the Fish Creek watershed on a per m<sup>2</sup> basis.

**Discussion**

The footprints of both MDPs provide stream and lake habitat for a monoculture of rainbow trout.

With respect to permanent and ephemeral streams directly and indirectly affected by each MDP, There are no permanent streams within the footprints of the plant site, non-PAG waste stockpile, or ore stockpile associated with either MDP.

While there are ephemeral streams in the area of the differing footprints of ore and waste stockpiles and the plant site, the density of streams are equivalent for both MDPs. Any differential between the two is immaterial with respect to the comparison of the MDPs as a whole.

The differential component of permanent and ephemeral streams directly and indirectly affected is as a result of the alternate TSF locations.

A detailed description of the habitat and presence of fish in Tete Angela Creek West has been added to Sections 6.1.2 and 7.1.1.4 of the revised Appendix 2.4.3.1-A (Assessment of Alternatives for Mine Waste Disposal) included in this submission. A summary of that information is provided here.

The downstream end of the mainstem of Tete Angela Creek is assumed to provide habitat to multiple species including Chinook and Bull Trout, perhaps as high as a nine metre falls located on Tete Angela mainstem approximately 1.6 km upstream from the Taseko Lake Road. The falls prevents upstream passage of anadromous fish species. As a result of the barrier, the upper watershed (Tete Angela West and East) supports rainbow trout only, as confirmed by electroshocking in the creek and gill net studies in the lakes.

The Tete Angela Creek West watershed covers an area of 74.7 km<sup>2</sup> and contains several wetlands and lakes. Tete Angela Creek West is characterized by slow, meandering flows through extensive wetland type habitat created by numerous beaver impoundments. In the upper reaches of the watershed where the TSF for MDP T6 is located, the creek channel is approximately 1.5 to 3 metres wide with a gradient of 0.5-1.5% and a relatively uniform substrate distribution. Fish sampling in the creek identified only rainbow trout, ages 0+ to 2+ with a corresponding distribution in size.

**Information Request #5b-ii**

Provide the following information for each of the following indicators and sub-accounts:

Indicator: Number of Watersheds Affected – Clarify which watersheds are likely to be affected by each of the MDP options;

**Response Summary**

One watershed would be directly impacted by MDP T2; Fish Creek.

Three watersheds would be directly affected by MDP T6; Fish Creek, Tete Angela West, and Vick Lake.

With respect to indirect effects, MDP T2 has the potential to affect the Beece Creek and Big Onion watersheds, both watersheds through potential groundwater effects and Beece Creek through discharge of the south catchment area when water quality permits.

There are no watersheds anticipated to be indirectly affected by MDP T6 in addition to those directly affected.

A correction has been made to Table 6.1, Appendix 2.4.2.1-A (Assessment of Alternatives for Mine Waste Disposal) with respect to number of watersheds directly affected and an indicator added to assess number of watersheds directly and indirectly affected.

The edits to Appendix 2.4.2.1-A do not result in a material change to the multiple accounts assessment or its conclusion.

**Discussion**

The panel should note that the statement made in the executive summary of Appendix 2.4.2.1-A (Assessment of Alternatives for Mine Waste Disposal) is correct. The statement reads, “A significant distinguishing factor favouring Fish Creek South is the ability to limit direct impacts to a single watershed”.

However there is an error in Indicator #5 of Table 6.1 of that appendix which reflects 2 and 4 watersheds directly affected for MDP T2 and MDP T6 respectively. This has been corrected to 1 and 3 in the revised appendix included as part of this submission.

To provide additional clarity a new indicator has been added to the assessment; “Number of watersheds directly and indirectly affected”.

With respect to indirect effects, MDP T2 has the potential to affect the Beece Creek and Big Onion watersheds, both through potential groundwater effects and Beece Creek through discharge of the south catchment area when water quality permits.

There are no watersheds anticipated to be indirectly affected by MDP T6 in addition to those directly affected.

The correction and addition of the clarifying indicator do not have a material effect on the multiple accounts scoring and the conclusion is unchanged.

**Information Request #5b-iii**

Provide the following information for each of the following indicators and sub-accounts:

Indicator: Traditional Land Use - Provide a definition of what constitutes an “activity” in relation to the indicator traditional land use by aboriginal peoples as measured by the number of activities and provide a reference of where the data have been obtained;

**Response Summary**

The source reference for this data is Cindy L. Ehrhart-English April 1994 Heritage Significance of the Fish Lake Study Area Ethnography (2009 EIS Appendix 8-2-B).

There are 42 activities included in this reference that fall in the general categories of fishing, hunting, trapping, picking and harvesting. 27 of these activities are reported as having occurred within the direct footprint of MDP T2 while the balance occurred in the region outside the direct footprint.

Taseko reviewed the basis for the scoring of this indicator and revised the associated metric and values. The revised metric is number of activities x area used.

This revision now reflects an increased preference for MDP T6 with respect to the effect on the number of traditional uses, but this is largely driven by low data density in the Tete Angela watershed.

These revisions are reflected in Table 6.3 of the revised Appendix 2.4.3.1-A (Assessment of Alternatives for Mine Waste Disposal) included with this submission.

**Discussion**

The source reference for this data is Cindy L. Ehrhart-English April 1994 Heritage Significance of the Fish Lake Study Area Ethnography (2009 EIS Appendix 8-2-R). This report discusses and quantifies both the number of individuals who use the area and the number of activities undertaken throughout the area. The figure used to derive information on number of activities is figure 19, reproduced here as Figure 5B-1 for the convenience of the panel.

The activities quantified as having occurred within the direct footprint of MDP T2 in this reference include:

Fishing	Blueberry picking	Strawberry picking
Crowberry picking	Soopalallie picking	Kinnikinnick picking
Thimbleberry picking	Balsam harvesting	Cottonwood harvesting
Bobcat trapping	Cougar trapping	Wolverine trapping
Fisher trapping	Squirrel hunting	Marten trapping
Rabbit trapping	Deer hunting	Moose hunting
Coyote trapping	Grouse hunting	Muskrat trapping
Labrador Tea harvesting	Lily pad harvesting	Beaver trapping
Squirrel trapping	Weasel trapping	Lynx trapping

Additional activities quantified in the region but occurring outside the direct footprint of MDP T2 include:

Raspberry Picking	Huckleberry picking	Gooseberry picking
Saskatoon picking	Wild onion harvesting	Willow harvesting
Mountain potato harvesting	Aspen harvesting	Wild rhubarb harvesting
Goat hunting	Groundhog hunting	Goose hunting
Bear tooth harvesting	Pine harvesting	Junniper harvesting

There is no data available for the area of the TSF associated with MDP T6 in the Tete Angela watershed. While it is reasonable to assume that there was traditional land use by aboriginal peoples in this area, in the absence of data Taseko has assumed none.

In reviewing this indicator Taseko determined that it should also consider the area over which traditional activities took place, not just the number of activities. As a result the metric for this indicator has been modified to number of activities x area of direct impact using the coloured

contours in this reference and the mid-point of each range. The value for the TSF associated with MDP T2 is calculated as:

$1200 \text{ ha} \times (10\% \times 5 \text{ activities} + 20\% \times 7.5 \text{ activities} + 20\% \times 10 \text{ activities} + 45\% \times 12.5 \text{ activities} + 5\% \times 15 \text{ activities}) = 12,450 \text{ activity-hectares (AH)}$ .

In the absence of data for the TSF associated with MDP T6, the value has been assumed to be zero.

The pit area is identical both MDPs. The plant site and stockpiles footprints are roughly equivalent in area for both MDPs and are located in a common area with low number of activities. The differentiating component of MDPs for this indicator is the TSF footprints.

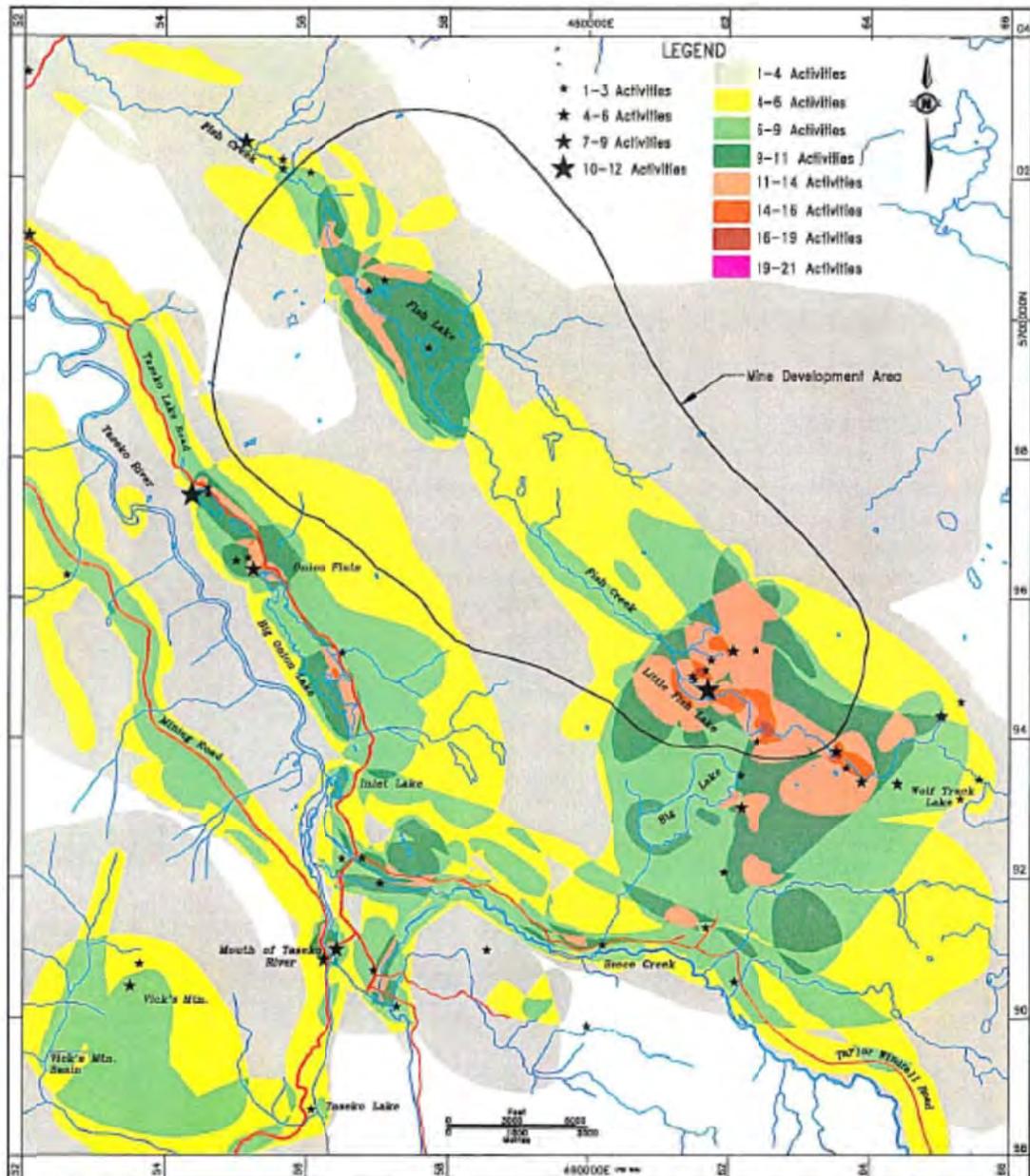
Taseko is of the opinion that a difference of 4,000 activity-hectares it is appropriate to differentiate between alternative MDPs.

The revision now reflects an increased preference for MDP T6 with respect to the effect on the number of traditional uses. However it is important to note that this indicated preference for MDP T6 is largely driven by the differential in data density between the two alternatives.

These revisions are reflected in Table 6.3 of the revised Appendix 2.4.3.1-A (Assessment of Alternatives for Mine Waste Disposal) included with this submission.

**Figure 5B-1. Number of Activities Taking Place in Fish Lake Study Area.**

The Heritage Significance of the Fish Lake Study Area: Ethnography



Number of Activities taking place in the Fish Lake Study Area

7 April 1994

Scale 1 : 75,000

Figure 19

HARMONY Human and Environmental Studies Ltd.

**Information Request #5b-iv**

Provide the following information for each of the following indicators and sub-accounts:

Indicator: Potential Impacts to Water Quality - An assessment of the potential impacts of the MDPs on water quality using an appropriate measure for the assessment rather than related to the type of water treatment facility and the duration of treatment;

**Response Summary**

The water quality of each MDP can be assumed equal due to the identical nature of waste and water management. The receiving environments are of similar quality and extent, and the expected protection of the receiving environment should be assumed identical. As a result, the impacts to the receiving environment are also considered similar. For these reasons, the chosen metric of type and duration of water treatment is considered reasonable for the assessment of potential impacts to water quality.

**Discussion**

The waste management strategy is the basis for assessing potential impacts to water quality for either MDP T2 or MDP T6. For instance, where and how tailings are placed will affect water quality within a TSF, and therefore potential impacts to water quality in the receiving environment. Furthermore, the method and location for managing waste rock, such as in a sub-areal or sub-aqueous manner, and/or within or outside a TSF, will also affect water quality in the receiving environment.

For both MDP T2 and MDP T6, the waste management strategy for tailings and waste rock is the same. Specifically, tailings are placed within a TSF as conventional slurry at 70,000 tonnes per day. Waste rock is segregated into PAG and non-PAG components, with the non-PAG waste rock being placed in a sub-areal manner north or east of the open pit, while the PAG waste rock is transported to the TSF basin, and co-disposed with the tailings slurry so that it will remain in a permanent sub-aqueous environment. The volume of slurry tailings, non-PAG waste rock and PAG waste rock for both MDPs is identical.

The ore stockpile potentially affects water quality operationally, prior to processing within the mill, as well as once it is processed and tailings are generated. The quantity of ore stockpiled is identical while the location of the ore stockpiles are different for each MDP, but the management of water from each stockpile, both surface and sub-surface, is assumed to be the same. That is, the contact water is collected and directed into the mill and ultimately the TSF. Once the ore within the stockpile is processed, the tailings are placed within the TSF for both MDPs.

The Open Pit is another source of contact water for assessing impacts to water quality for both MDPs. Since the volume of tailings, non-PAG waste rock and PAG waste rock are the same for

both MDPs, so too is the geometry, areas of pit walls and rock types within the pit walls, all of which affect water quality predictions.

The second primary factor affecting water quality predictions relates to how water is managed throughout the site. With respect to the TSF for each MDP, the upstream catchment area providing non-contact water to each TSF is approximately the same, as is the beach/supernatant pond area. Therefore, since the volumes of waste materials being managed within each TSF are the same (i.e. slurry tailings and PAG waste rock), and the volumes of contact water and non-contact water directed to the TSF are the same (i.e. beach/supernatant pond and upstream catchments), it follows that the resultant water quality from each TSF will be similar. Furthermore, any water reaching the receiving environment from each TSF will be of similar quality for the same reasons listed above.

The contact water from the non-PAG waste rock and the ore stockpile will be managed in the same fashion. That is, surface and sub-surface will be collected and directed to the mill and ultimately the TSF for each MDP. As the overall volumes are the same, the quality of water from each facility will also not differ, thereby not affecting the TSF water quality differently.

The Open Pit water quality will be identical for both MDPs during operations, for those reasons listed earlier related to the volumes of materials leaving the pit. Once active mining ceases after Year 16, the pit will begin to fill with water. Different rates of pit filling could suggest a divergence of water quality from the open pit, where filling faster may mean better water quality. The pit filling rate, however, is assumed similar for both MDPs, for the following reasons:

- For MDP T6, it is assumed that excess water from Fish Lake is pumped around the open pit and released to lower Fish Creek (north of the pit).
- During the final years of operations when the ore stockpile is being processed, and during the closure phase when the pit is filling, this water management strategy continues, so as not to increase flow reductions in lower Fish Creek under MDP T6 compared to the operations period.
- The filling rate of the pit for MDP T6 is therefore driven by the contact water from the TSF, groundwater inflows and direct precipitation on the open pit, and contact water from the non-PAG waste rock stockpile, if required.
- The filling rate of the pit for MDP T2 is driven by the same items listed for MDP T6, as well as excess water from the Fish Lake catchment between the TSF and the Open Pit.
- Summarily, the pit filling rate could be filled somewhat faster for MDP T2, and therefore have somewhat improved water quality compared to MDP T6. This improvement is considered minor, and therefore negligible for the purpose of comparison of the two MDPs.

The characteristics of the receiving environment are one variable that could be considered different between each MDP, and is compared as follows:

- The primary area downstream of MDP T2, which will receive most surface and sub-surface water from the TSF, is several kilometers of stream inlet as well as Fish Lake
- The primary area downstream of MDP T6, which will received most surface and sub-surface water from the TSF, is similarly several kilometers of stream inlets as well as Rat Cabin Lakes North and South
- Some sub-surface drainage for the TSF of MDP T2 is assumed for Wasp Lake to the south and Big Onion Lake to the west.
- There is both surface and sub-surface drainage from the TSF of MDP T6 to Vick Lake to the west.

Based on this comparison, the type and extent of the receiving environment for both MDPs is reasonably similar that it is not considered a variable in the assessment of water quality impacts from each MDP. Furthermore, the receiving environment for the open pit for both MDPs is identical, so that can also not be considered a variable.

Considering, therefore, that the water quality of each MDP can be assumed equal due to the identical nature of waste and water management, the receiving environments are of similar quality and extent, and the expected protection of the receiving environment should be assumed identical, it follows that the method and extent of water treatment is a suitable metric for the assessment of water quality. That is, the water quality from the facilities of each MDP will be the same, the rate of release will be the same, the level of protection will need to be the same, and the sensitivity of the receiving environment is the same. Whatever volume of water that reaches the receiving environment for either MDP will have the same effects.

If enough differences in waste and water management between each MDP were identified, then a different water quality from each MDP may result. However, the level of protection for the receiving environment would be the same. Therefore, the metric of effort for water treatment that is needed to achieve a similar receiving environment effect is suitable, as it would differentiate the level of effort needed to achieve the same protective result.

**Information Request #5b-v**

Provide the following information for each of the following indicators and sub-accounts:

Indicator: Ability to Limit Impacts to Taseko River - Clarify how the metric for this indicator was measured, in particular: clarify whether potential impacts from groundwater discharges were taken into account, and if not, why;

**Response Summary**

The ability of an MDP to limit or minimize potential impacts to the Taseko River is a function of the number and character of pathways for contact water to reach the river and the effectiveness and robustness of the measures applied to prevent this.

For MDP T2 the pit provides redundancy in mitigation, containing all uncaptured surface and sub-surface contact water from the ore and non-PAG waste rock stockpiles and the TSF, while it does not for MDP T6.

Pathways considered in this indicator include both surface and sub-surface flows. For MDP T2 these include Fish Creek, Wasp Lake/Beece Creek, and to a lesser extent, towards Big Onion Lake. For MDP T6 these include Fish Creek, Vick Lake and Tête Angela Creek.

The metric for this indicator has been modified for clarity in the revised Appendix 2.4.3.1-A included with this submission. The indicator evaluates the type/effectiveness of water control structures and the pathways to the Taseko River for potential contaminants.

**Discussion**

This indicator focuses on the ability to limit or minimize potential impacts to the Taseko River and it accounts for all contact water, both surface and sub-surface, from each MDP.

The ability of an MDP to limit or minimize potential impacts to the Taseko River is a function of the number and character of pathways for contact water to reach the river and the effectiveness and robustness of the measures applied to prevent this.

For MDP T2 the pit provides redundancy in mitigation, containing all uncaptured surface and sub-surface contact water from the ore and non-PAG waste rock stockpiles and the TSF, while it does not for MDP T6.

Primary pathways are those sub-catchments of the Taseko River in which mine waste materials are located (i.e. pit, waste rock and tailings) and therefore where surface contact water can reach the Taseko River. In the case of MDP T2, the primary pathway is Fish Creek. In the case of MDP T6, the primary pathways are Fish Creek, Vick Lake and Tête Angela Creek.

Additional pathways include sub-surface flows, constituting a much lower volume of contact water than surface flows that can potentially reach the Taseko River. In the case of MDP T2 these include Fish Creek, Wasp Lake/Beece Creek, and to a lesser extent, towards Big Onion Lake. In the case of MDP T6 these include Fish Creek, Vick Lake and Tête Angela Creek.

The two MDPs use subsurface excavations and above-ground constructed structures to minimize surface contact water reaching the Taseko River. Subsurface excavations structures are preferred over above-ground constructed structures because they require less maintenance and are able to intercept groundwater flows.

MDP T2 has a configuration of a main embankment of the TSF (above-ground constructed structure) within the same watershed and upstream of the open pit (subsurface excavation). MDP T6, on the other hand, has a main TSF embankment located in two watersheds, separate from the open pit, as well as an open pit located in a third watershed.

Both MDPs employ similar mitigation strategies to limit sub-surface flows in the form of pump back wells downstream of embankments. These would be designed to provide equivalent protection of the downstream environment for both MDPs. For MDP T6 these would be required in both the Tête Angela and Vick Lake drainages, while for MDP T2 they are required in the Fish Creek drainage and are contingency measures in Wasp Lake/Beece Creek and the Big Onion Lake drainages.

While both surface water controls and sub-surface mitigation measures are designed to maximize protection, there is a small component that is assumed to not be captured. It is the uncaptured component of both surface and sub-surface contact water that can pose a potential effect to the Taseko River.

Surface contact water is managed both operationally and in closure in a similar fashion for both MDPs. That is, all contact water is collected and ultimately directed to each TSF in the first 16 years of operations, and during the pit filling phase, all contact water is directed to either the TSF and/or the open pit.

For MDP T2 the pit contains all uncaptured surface and sub-surface contact water from the ore and non-PAG waste rock stockpiles, while it does not for MDP T6. For MDP T2, the uncaptured sub-surface contact water from the non-PAG waste rock stockpile naturally drains to the open pit. The uncaptured sub-surface contact water from the ore stockpile partially flows towards the open pit, with a small amount flowing toward Fish Lake. For MDP T6, the uncaptured sub-surface contact water from the non-PAG waste rock flows in the direction of lower Fish Creek and ultimately the Taseko River. Similarly, the uncaptured sub-surface contact water from the ore stockpile partially flows towards the open pit, with a small amount flowing towards lower Fish Creek and the Taseko River.

For MDP T2 the pit contains virtually all uncaptured surface and sub-surface contact water from the TSF, while it does not for MDP T6. During closure and post-closure, the surface contact water from the TSF of MDP T2 is directed to the open pit until suitable to be discharged to Fish Lake and ultimately the Taseko River. The majority of the uncaptured sub-surface contact water from the TSF of MDP T2 during operations, closure and post-closure is conservatively assumed to report to the inlets of Fish Lake and ultimately to the open pit. Of this majority, any sub-surface contact water from this TSF that bypasses the inlets to Fish Lake will likely report to the open pit as well, given the depth of the open pit down-gradient of the TSF and Fish Lake. A small portion of sub-surface flow from the TSF for MDP T2 is assumed to flow in the direction of Wasp Lake/Beece Creek, and to a lesser extent, towards Big Onion Lake.

Similarly, surface contact water from the TSF of MDP T6 will be directed towards the open pit during closure and post-closure until suitable to be discharged to the Tête Angela Creek West watershed and ultimately the Taseko River. The majority of the uncaptured sub-surface contact water from the TSF of MDP T6 during operations, closure and post-closure will report to Tête Angela Creek West, Rat Cabin Lakes North and South, Tête Angela Creek and finally the Taseko River. A smaller portion of the uncaptured sub-surface contact water from this TSF will flow towards Vick Lake and eventually the Taseko River.

The metric for this indicator has been modified for clarity in the revised Appendix 2.4.3.1-A included with this submission.

**Information Request #5b-vi**

Provide the following information for each of the following indicators and sub-accounts:

Clarify whether potential impacts associated with releases of surface drainage and seepage into Wasp Lake and Beece Creek from the TSF for MDP T2 were taken into account, and if not, why?

**Response Summary**

The potential impacts associated with the releases of surface drainage and seepage into Wasp Lake and Beece Creek from the TSF for MDP T2 was taken into account in the metric related to 'The Ability to Limit Impacts to the Taseko River'. The metric for this indicator has been modified for clarity in the revised Appendix 2.4.3.1-A included with this submission. The indicator evaluates the type/effectiveness of water control structures and the pathways to the Taseko River for potential contaminants. A greater discussion can be found in the response to IR #5b-v.

**Discussion**

Primary pathways are those sub-catchments of the Taseko River in which mine waste materials are located (i.e. pit, waste rock and tailings) and therefore where surface contact water can reach the Taseko River. In the case of MDP T2, the primary pathway is Fish Creek. In the case of MDP T6, the primary pathways are Fish Creek, Vick Lake and Tête Angela Creek.

Additional pathways include sub-surface flows, constituting a much lower volume of contact water than surface flows that can potentially reach the Taseko River. In the case of MDP T2 these include Fish Creek, Wasp Lake/Beece Creek, and to a lesser extent, towards Big Onion Lake. In the case of MDP T6 these include Fish Creek, Vick Lake and Tête Angela Creek.

Both primary and subsurface pathways to Wasp Lake and Beece Creek from the TSF for MDP T2 have been taken into account as explained in the response to IR#5b-v.

**Information Request #5b-vii**

Provide the following information for each of the following indicators and sub-accounts:

Sub-Account: Water Quality - Include an indicator to assess the impacts of MDPs T2 and T6 on water quality in Fish Lake, using a metric appropriate to the assessment of potential effects on water quality;

**Response Summary**

The indicator has been modified specific to potential impacts to Fish Lake. The metric is the same as used previously, and the rationale for why this is a suitable metric has been provided within the response to IR5(iv). Because a modification to this metric will create a flaw in the assessment of potential impacts to water bodies other than Fish Lake, a new indicator to assess potential impacts to water quality in other directly impacted watersheds has been added. This will therefore account for potential impacts to water quality from MDP T6.

**Discussion**

Indicator #6 of the environmental indicators, “Potential Impact to Water Quality” has been revised to be more specific to Fish Lake, “Potential Impact to Water Quality in Fish Lake”. This revision means that the effect on water bodies other than Fish Lake would not be assessed. To address this flaw, a new indicator has been added, “Potential Impact to Water Quality in Other Directly Impacted Watersheds”, that evaluates the effects of both MDPs on water quality in other directly affected watersheds.

The metric chosen to assess potential effects on water quality in Fish Lake, and for that matter, potential effects to water quality in other directly impacted watersheds, is the same as identified in IR5(iv). That is, the type of water treatment facility and the duration of treatment. Within the response to IR5(iv), the rationale was provided as to why this metric is appropriate to assess potential effects on water quality.

The potential impacts to water quality in Fish Lake for MDP T2 have been stated in the EIS, and remain the same. That is, prolonged water management with water treatment as a contingency, which will result in suitable water quality in the long-term for MDP T2. The potential impacts to water quality in Fish Lake for MDP T6 are assumed to be minimal, as the mitigation required would be simple water management and handling.

Contrarily, the potential impacts to water quality in other directly impacted watersheds will see a reversal of mitigation effort for each MDP. For MDP T2, there are no other directly impacted watersheds. For MDP T6, there are two additional directly impacted watersheds; the Vick Lake watershed and the Tete Angela West watershed. The level of mitigation for one or both of these watersheds related to potential impacts to water quality is assumed to be the same as that for Fish Lake for MDP T2. That is, prolonged water management with water treatment as a contingency.

The rationale for this conclusion has been outlined in the response to IR5(iv). That being, the water quality for the TSF of MDP T6 is considered suitably similar to the TSF for MDP T2, and the receiving environment is similar as well (several kilometers of streams and a lake downstream). Since the level of protection for the receiving environment should be the same, it follows that the mitigation to achieve that result is also identical.

**Information Request #5b-viii**

Provide the following information for each of the following indicators and sub-accounts:

Sub-Account: Terrestrial Habitat - Provide a rationale for why the MAA only includes an indicator for Barrow's Goldeneye, and not for other migratory bird species identified as Key Indicator Species;

**Response Summary**

The sixteen indicators under the aquatic habitat, terrestrial habitat and terrestrial ecology subaccounts are considered representative of wildlife as a whole and various combinations of these indicators are representative of different wildlife groups. For example, the 7 water-related indicators and Barrow's Goldeneye habitat are representative of wetland-associated migratory birds. Barrow's Goldeneye has diverse habitat requirements that encompass many of those of the other migratory birds likely to occur in the mine site.

Taseko considers the subset of indicators used adequately represents wildlife in the context of a MAA and does not believe that it is necessary to include all species addressed as key indicators in the environmental assessment in such an analysis.

**Discussion**

The MAA was developed based on guidelines from Environment Canada (2011) and uses a broad array of subaccounts and indicators to arrive at its findings. Specifically, in the environmental account in the revised Appendix 2.4.3.1-A (Assessment of Alternatives for Mine Waste Disposal), there are 7 subaccounts represented by a total of 30 indicators. Sixteen of these indicators under three subaccounts (aquatic habitat, terrestrial habitat and terrestrial ecology) are relevant to wildlife either directly or indirectly: permanent streams impacted; ephemeral streams impacted; downstream flow reductions; direct impacts to open water; number of fish-bearing lakes affected; area of fish-bearing lakes affected; deer winter shelter suitability; moose winter feeding habitat suitability; grizzly bear habitat capability; Barrow's goldeneye habitat capability; wetlands; rare ecosystems; old growth forest: spruce; old growth forest: lodgepole pine; grasslands; and rare plants. These indicators collectively are considered representative of wildlife as a whole and various combinations of these indicators are representative of different wildlife groups. For example, the water-related indicators (e.g., direct impacts to open water, wetlands) are representative of wetland-associated migratory birds.

Representing migratory bird KIs specifically was not a driver for the selection of indicators, just as inclusion of deer, moose, and grizzly bear habitat as indicators was not intended to represent all Key Indicator Species for terrestrial wildlife. Mallard, Sandhill Crane, Great Blue Heron, and Barrow's Goldeneye are migratory birds that are all likely to occur in the mine site. While

Barrow's Goldeneye is not necessarily a surrogate for all migratory birds, it has diverse habitat requirements that encompass many of those of the other migratory birds listed here.

**Information Request #5b-ix**

Provide the following information for each of the following indicators and sub-accounts:

Indicator: Potential for Dust Emission - The metric for this indicator only refers to potential dust emissions from haul roads, and does not consider potential dust emissions from the exposed tailings. Potential dust emissions from tailings in assessing the potential dust emissions from MDPs T2 and T6 should be taken into account;

**Response Summary**

The indicator related to dust emissions from the MDPs has considered the major potential sources of both MDPs as a whole; the pit (primarily blasting and crushing), plant site (stockpiling/conveying), stockpiles, TSFs, and roads.

Both MDPs have the same pits, crushing, stockpiling, and plant site activities, as well as the same prevailing winds from the south.

Historical wind data for Fish Lake indicates that dust emissions from both TSFs are negligible. Although the TSFs are in different watersheds, the equivalent areas of beach for both TSFs indicates that any dust emissions from both TSFs would be equivalent and effects the same for the purpose of comparison of the two MDPs.

Given the dispersed nature of roads they will be the primary differentiating source for dust.

**Discussion**

The consideration of dust emissions from the MDPs has considered the major potential sources of both MDPs as a whole; the pit (primarily blasting and crushing), plant site (stockpiling/conveying), stockpiles, TSFs, and roads.

Both MDPs have the same pits, crushing, stockpiling, and plant site activities, as well as the same prevailing winds from the south.

Dust emissions from stockpiles, and by extension TSF beaches, are typically considered when wind speeds are above 19.3 km/h (Section 8.9 in Environment Canada's Pits and Quarries Guidance [http://www.ec.gc.ca/inrp-npri/default.asp?lang=en&n=A9C1EE34-1#s8\\_9](http://www.ec.gc.ca/inrp-npri/default.asp?lang=en&n=A9C1EE34-1#s8_9)). Historical wind data for Fish Lake indicates that this wind speed is exceeded <1% of the time. In addition, the beach areas of the two MDPs at year 20 are equivalent at 327 ha and 325 ha for MDP T6 and MDP T2 respectively, and the tailings deposition plans for both MDP would be the same from a dust mitigation perspective. This would suggest that although the TSFs are in different watersheds, dust emissions from both TSFs would be equivalent and negligible for the purpose of comparison of the two MDPs.

Given the dispersed nature of roads they will be the primary differentiating source for dust emissions.

**Information Request #5b-x**

Provide the following information for each of the following indicators and sub-accounts:

Indicator: Wetlands - The range of impact for the wetland indicator descriptor is <100ha to >500ha, but a rationale for this range is not provided. Provide a rationale for the surface area range used for the metric to assess impacts on wetlands with a rationale for the surface area ranges used for the metric to assess other Terrestrial Ecology indicators;

**Response Summary**

The surface area ranges of impact selected by Taseko for wetlands and each of the other terrestrial ecology indicators used in 2012 are the same as those used in 2009 and are intended to be transparent, and differentiate between MDPs where differentiation is reasonable and appropriate.

Taseko took a subjective approach to defining ranges that considered the magnitude of the quantified area directly impacted for each MDP and selected equal magnitude steps in ranges that reasonably differentiated between MDPs where appropriate.

**Discussion**

The surface area ranges of impact selected by Taseko for wetlands and each of the other terrestrial ecology indicators used in 2012 are the same as those used in 2012 and are intended to be transparent, and differentiate between MDPs where differentiation is reasonable and appropriate.

Taseko took a subjective approach to defining ranges that considered the magnitude of the quantified area directly impacted for each MDP and selected equal magnitude steps in ranges that reasonably differentiated between MDPs where appropriate.

For example, the area of direct impact for wetlands is 312 ha for MDP T2 and 199 ha for MDP T6. Taseko is of the opinion that a difference of 100 ha in impacted wetlands reasonably differentiates between MDPs. The application of a 100 ha step in 6 sub-ranges for purposes of scoring results in a full range of <100ha to >500ha.

The area of direct impact for rare ecosystems is 1 ha for MDP T2 and 45 ha for MDP T6. Because the consideration is for rare ecosystems, Taseko is of the opinion that a difference of 5 ha reasonably differentiates between MDPs. The application of a 5 ha step in sub-ranges results in a full range of <5 ha to >25ha.

The area of direct impact for old growth forests: lodgepole pine is 610 ha for MDP T2 and 375 ha for MDP T6. Taseko is of the opinion that a difference of 250 ha reasonably differentiates between MDPs. The application of a 250 ha step in sub-ranges results in a full range of <250 ha to >1,250ha.

The area of direct impact for old growth forests: spruce is 150 ha for MDP T2 and 53 ha for MDP T6. Taseko is of the opinion that a difference of 25 ha reasonably differentiates between MDPs. This is lower than the 250 ha step used for lodgepole pine in order to enable differentiation between MDPs in acknowledgement of the heightened value that spruce may have in conserving areas of old growth forest despite the impact of the pine beetle. This also recognizes the increased relative contribution that areas of spruce may make to biological diversity in old growth forest with declining areas of pine. The application of a 25 ha step in sub-ranges results in a full range of <25 ha to >125ha.

The area of direct impact for grasslands is 1 ha for MDP T2 and 2 ha for MDP T6. Taseko is of the opinion that a difference of 10 ha reasonably differentiates between MDPs. The application of a 10 ha step in sub-ranges results in a full range of <10 ha to >50ha.

The indicator for rare plants has been removed from Table 6.1 of the revised Appendix 2.4.3.1-A (Assessment of Alternatives for Mine Waste Disposal) included as part of this submission. The reasons are detailed in the response to IR5 xi.

**Information Request #5b-xi**

Provide the following information for each of the following indicators and sub-accounts:

Indicator: Rare Plants - Clarify how the field counts enumerated in Table 6.1 were determined. The clarification should be accompanied by a map showing areas searched in and around MDPs T2 and T6 as well as a map of occurrences of all rare plants found in and around MDPs T2 and T6;

**Response Summary**

A map showing areas searched in and occurrences of all rare plants found is provided in Figure 5B-2.

Field survey targets were based on TEM mapping indicating likely areas for occurrence which were followed up by field investigation of those locations. Each site where a rare plant was located was counted as 1.

Taseko's review of this indicator indicates that its application is not appropriate and it has been eliminated as an indicator.

**Discussion**

A map showing areas searched in and occurrences of all rare plants found is provided in Figure 5B-2.

Field survey targets were based on TEM mapping indicating likely areas for occurrence which were followed up by field investigation of those locations. Each site where a rare plant was located was counted as 1.

It is apparent from Figure 5B-2 that although both MDPs fall within the area of TEM mapping reviewed, and field surveys were conducted in common areas of disturbance of MDP T2 and MDP T6 (pit, plant, and stockpile areas), no field surveys were conducted in the footprint of the TSF for MDP T6.

In the absence of field surveys in the footprint of the TSF for MDP T6 the use of field occurrences as a metric for rare plants is biased against MDP T2 and it has been removed as an indicator from Table 6.1 of the revised Appendix 2.4.3.1-A (Assessment of Alternatives for Waste Disposal) included with this submission.



**Information Request #5b-xii**

Provide the following information for each of the following indicators and sub-accounts:

Sub-Account: First Nations Impacts - Confirm that MDPs T2 and T6 are equal in terms of their impacts on the Tsilhqot'in National Government. An indicator that would support an assessment of the impacts of MDPs T2 and T6 on First Nations cultural values should ideally be developed and applied;

**Response Summary**

Taseko used the existence of proven aboriginal rights, the extent of traditional land use (# of users and # of activities), Local First Nations community response, and archeological potential as indicators reflective of First Nations cultural values in the comparison of MDPs.

In response to the Panels request, Taseko has added two indicators, "Effect on Ability to Pass Down Traditional Knowledge and Oral History" and "Protection of the Land", two themes that Taseko has heard and interpreted as important to the Tsilhqot'in National Government (TNG) and relevant to First Nations cultural values. Taseko believes the indicators now included in the revised Appendix 2.4.3.1-A provide sufficient coverage of aspects of First Nations cultural values for the purposes of a comparison of the MDPs.

Taseko is unable to confirm that MDPs T2 and T6 are equal in terms of their impacts on the Tsilhqot'in National Government. Despite our attempts to engage with the TNG on New Prosperity they have not supplied any information that would be helpful in assessing any difference in impact between the two alternatives. As a result, Taseko has assessed these indicators on the basis of our definitions of metrics for each indicator and our interpretation of comments related to the project in community meetings, previous panel hearing transcripts, public presentations, correspondence, personal conversations, and the media.

The Panel may hear the TNG views regarding the relative impact of the two alternative MDPs at the Panel hearings.

**Discussion**

Taseko used the existence of proven aboriginal rights, the extent of traditional land use (# of users and # of activities), local First Nations community response, and archeological potential as indicators related to First Nations cultural values. There has been no additional input from First Nations on this aspect of the assessment of alternatives. In order to further assess the two MDPs in respect of impacts on First Nations cultural values in compliance with the Panel's request, Taseko has added two indicators to the Table 6.3 of the revised Appendix 2.4.2.3-A provided as part of this submission.

The two additional indicators are, “Effect on Ability to Pass Down Traditional Knowledge and Oral History” and “Protection of the Land”, two themes that Taseko has heard and interpreted as important to the Tsilhqot’in National Government (TNG) and relevant to First Nations cultural values.

Taseko has heard from the TNG that the Fish Lake area holds value as a place to gather, share oral history, and pass down traditional knowledge. While Taseko has committed to establishing a new campsite on Fish Lake, we understand that the location in which traditional knowledge and oral history is passed on is important and have assumed no mitigation value in regard to this indicator. Taseko has considered the indicator from the perspective of access to the area in which these activities have been reported to occur; specifically the existing forest service camp (FSC) site at the north end of Fish Lake. Taseko acknowledges that similar activities may have occurred at the cabins at Little Fish Lake as both Fish Lake and Nabas were reported by the TNG at the 2009 Panel hearings to be used currently. However we have assumed the use at Little Fish Lake to have been less frequent in recent years and more related to those actually habituating the cabins in the past. Taseko’s focus on access to the FSC site is based on testimony at the 2009 Panel hearings which would suggest a more frequent use of Fish Lake than Little Fish Lake.

“Patt Larcombe, on behalf of the Tsilhqot’in National Government, summarized the Tsilhqot’in connection to the Teztan Yeqox (Fish Creek) watershed as a place where the intergenerational transmission of traditional knowledge and traditional skills would occur. As described in sections 8.2, Teztan Biny (Fish Lake) and Nabas were reported to be used currently for this purpose through fishing, hunting, trapping and gathering activities. In addition, social gatherings were also identified as a means to transmit cultural information. Shari Hughson noted that for at least the past 2 years, the daycare program at Xeni Gwet’in (Nemiah Band) took the children to Teztan Biny to gather with the Elders who use the area as a teaching place. Bonnie Myers reiterated this position during the public hearing and noted “Fish Lake offers a luxurious view, relaxation, freedom, a place where our people can teach our children and future generations our culture, our traditions, our values and our legends.”

During the community hearing sessions, the Panel heard many Tsilhqot’in describe the importance of the Teztan Biny (Fish Lake) area for cultural gatherings. Many people described Elders gatherings, and how adults would work with the youth to teach values, culture and language. Family and social gatherings, including camping trips, fishing trips and recreational use were also identified. Catherine Haller noted that Elders Gatherings, food gathering ceremonies, youth ceremonies, and bathing ceremonies all occurred at Teztan Biny.”<sup>1</sup>

The metric for the indicator has been defined using a range evaluating access to the FCS site and immediate area and sensory impact to users as detailed in section 7.1.3.3 of the revised Appendix 2.4.2.3-A.

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<sup>1</sup> CEA Reference No. 09-05-44811, Report of the Federal Review Panel, Prosperity Gold-Copper Mine Project, Taseko Mines Ltd., British Columbia, Pages 192-193

Taseko has heard from the TNG, local First Nations communities, and First Nation individuals about the value of the land to First Nations peoples; that they are the caretakers of the land; that they are not opposed to mining (but opposed to the loss of Fish Lake); and that it is critical to protect the wild salmon stocks in the Taseko River. Taseko has considered this attachment to and value of the land under the indicator, “Protection of the Land”.

The metric for the indicator has been defined using a range evaluating land disturbance, risk to or loss of Fish and Little Fish Lakes, risk to the Taseko River, and likelihood of long term adverse effects in the area as detailed in section 7.1.3.3 of the revised Appendix 2.4.2.3-A.

Taseko is unable to confirm that MDPs T2 and T6 are equal in terms of their impacts on the Tsilhqot'in National Government. During the panel hearings, no specific comments from TNG were made in reference to a preference for the alternatives, other than their opposition to destruction of Fish Lake.

“During the public hearing, First Nations participants did not speak specifically about Mine Development Plans [T2 and T6]. However, they maintained their position of opposition regarding Mine Development Plan 3 (Prosperity as proposed in 2009) and the resultant destruction of Teztan Biny (Fish Lake).”<sup>2</sup>

“While First Nations were clearly opposed to the preferred alternative, no support was offered for any of the other alternatives. The Panel observes that the proximity of the open pit and associated mining facilities would be close enough to Teztan Biny (Fish Lake) to eliminate the intrinsic value of the area to First Nations even if another alternative were chosen. It appears to the Panel, therefore, that none of the alternative mine development plans examined would receive support from First Nations.”<sup>3</sup>

Despite our attempts to engage with the TNG on New Prosperity they have not supplied any information that would be helpful in assessing any difference in impact between the two alternatives. Taseko therefore assessed these indicators on the basis of what we have defined as the metrics for each indicator and our interpretation of TNG comments related to the project in community meetings, previous panel hearing transcripts, public presentations, correspondence, personal conversations, the 2009 panel hearings and in the media.

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<sup>2</sup> CEEA Reference No. 09-05-44811, Report of the Federal Review Panel, Prosperity Gold-Copper Mine Project, Taseko Mines Ltd., British Columbia, Page 47

<sup>3</sup> CEEA Reference No. 09-05-44811, Report of the Federal Review Panel, Prosperity Gold-Copper Mine Project, Taseko Mines Ltd., British Columbia, Page 50

**Information Request #5b-xiii**

Provide the following information for each of the following indicators and sub-accounts:

Indicator: Number of Users - The metric used is number of individuals using the land for traditional purposes - The basis for the scoring for number of users of land should be provided for the sub-account First Nations Impacts;

**Response Summary**

The source reference for this data is Cindy L. Ehrhart-English April 1994 Heritage Significance of the Fish Lake Study Area Ethnography (2009 EIS Appendix 8-2-B).

Taseko reviewed the basis for the scoring of this indicator and revised the metric and values for this indicator. The revised metric is number of users x area of use.

Taseko is of the opinion that a difference of 4,000 user-hectares is appropriate to differentiate between alternative MDPs.

This revision now reflects a preference for MDP T6 with respect to the effect on the number of users. This preference, however, is largely driven by a lack of data in the Tete Angela watershed.

The revisions are included in Table 6.3 of the revised Appendix 2.4.3.1-A (Assessment of Alternatives for Mine Waste Disposal) included with this submission.

**Discussion**

The source reference for this data is Cindy L. Ehrhart-English April 1994 Heritage Significance of the Fish Lake Study Area Ethnography (2009 EIS Appendix 8-2-R). This report discusses and quantifies both the number of individuals who use the area and the number of activities undertaken throughout the area. The source of data for number of users of land is figure 18, reproduced here as Figure 5B-3 for the convenience of the panel.

There is no data available for the area of the TSF associated with MDP T6 in the Tete Angela watershed. While it is reasonable to assume that there was traditional land use by aboriginal peoples in this area, in the absence of data Taseko has assumed none.

In reviewing this indicator Taseko determined this indicator should also consider the area over which the use took place, not just the number of users. As a result the metric for this indicator has been modified to number of users x area of direct impact using the coloured contours in this reference and the mid- point of the each range. The value for the TSF associated with MDP T2 is calculated as:

$1200 \text{ ha} \times (50\% \times 4.5 \text{ users} + 40\% \times 7.5 \text{ users} + 10\% \times 10 \text{ users}) = 7,500 \text{ user-hectares (AH)}$ .

In the absence of data for the TSF associated with MDP T6, the value has been assumed to be zero.

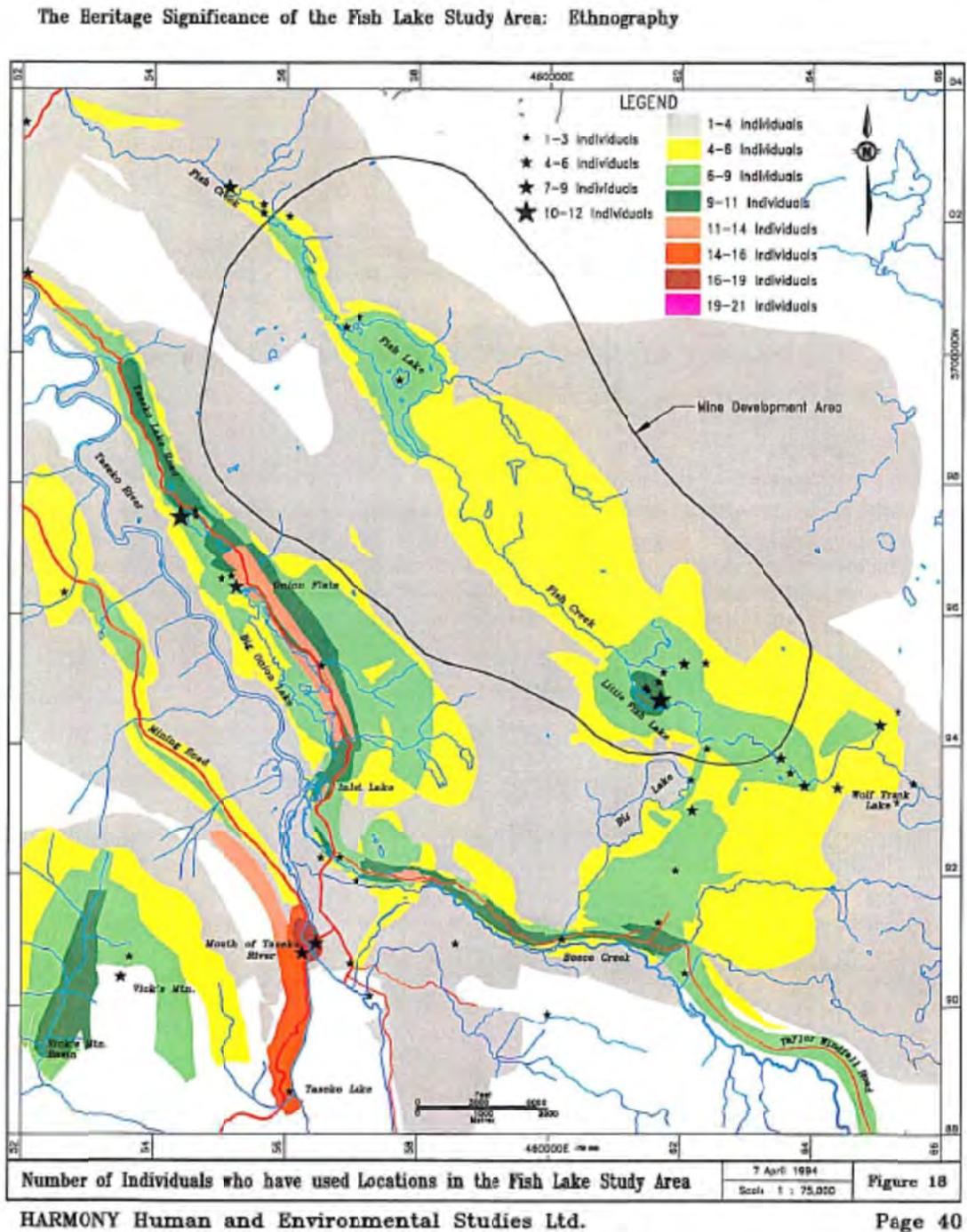
The pit area is identical both MDPs. The plant site and stockpiles footprints are roughly equivalent in area for both MDPs and are located in a common area with low number of users. The differentiating component of MDPs for this indicator is the TSF footprints.

Taseko is of the opinion that a difference of 4,000 user-hectares is appropriate to differentiate between alternative MDPs.

This revision now reflects a preference for MDP T6 with respect to the effect on the number of users. However it is important to note that this indicated preference for MDP T6 is largely driven by the differential in data density between the two alternatives.

These revisions are reflected in Table 6.3 of the revised Appendix 2.4.3.1-A (Assessment of Alternatives for Mine Waste Disposal) included with this submission.

**Figure 5B-3. Number of Individuals Who Have Used Locations in the Fish Lake Study Area.**



**Information Request #5b-xiv**

Provide the following information for each of the following indicators and sub-accounts:

Sub-Account: Recreational and Commercial Use - Given the differences between MDPs T2 and T6, it is likely that there would be differences in terms of accessibility and associated safety for anyone choosing to use Fish Lake during mine operations. The quality of that experience would also be determined in part by the locations of key components of the mine infrastructure, which differ between MDPs T2 and T6. An additional indicator to assess the impacts of MDPs T2 and T6 on those using Fish Lake during the mine life, including accessibility safety, and quality of the experience should be developed and applied;

**Response Summary**

In the case of both MDP T2 and T6, the access to all areas in which there are continuous and semi continuous hazards to the public will be secured in the same fashion, irrespective of the location of the components of the MDPs. The area of potential blast influence will be common to both MDPs and the same blasting protocols will apply to users of Fish Lake.

Accessibility and associated safety for anyone choosing to use Fish Lake during mine operations is considered in Socio-economic indicator #2; Risk to Public Safety, evaluating the risk to public safety of the MDP as a whole, including Fish Lake but the description of the metric in Table 6.3 of the revised Appendix 2.4.3.1-A has been modified for clarity. The two MDPs remain equivalent with respect to risk to public safety.

The quality of recreational experience in the areas of the MDPs as a whole has been considered with the use of two indicators added to the revised Appendix 2.4.3.1-A (Assessment of Alternatives for Mine Waste Disposal). The two indicators are, "Impact on Quality of Recreational Experience at Fish Lake" and, "Impact on Quality of Recreational Experience in Other Accessible Watersheds".

The two MDPs are equivalent with respect to the impact on quality of recreational experience at Fish Lake while MDP T2 is preferred with respect to the impact on quality of recreational experience in other accessible watersheds.

**Discussion**

Public safety at mine operations is generally assured by a number of key measures. Physical barriers, such as fences and secure gates prevent road access to areas which may pose a threat to public safety. Signage, warning of potential hazards is used where access is poorly defined such as roadsides or in the bush reasonably proximate to hazards. During construction activity any interaction with the public may also include these measures as well as flag persons. These methods address virtually all continuous and semi continuous hazards to the public.

Blasting presents a risk to mine personnel and the public in the form of potential fly rock generated by the blast. In order to ensure the safety of all personnel, an area of potential influence is determined from which all personnel must be cleared prior to the blast and re-entry of the area prevented by mine personnel guarding the access until safe to re-enter. Depending on the location of areas open to the public relative to the blast, this can require clearing and guarding those public areas as well.

In the case of both MDP T2 and T6, the access to all areas in which there are continuous and semi continuous hazards to the public will be secured in the same fashion, irrespective of the location of the components of the MDPs. The area of potential blast influence will be common to both MDPs and the same blasting protocols will apply to users of Fish Lake.

Accessibility and associated safety for anyone choosing to use Fish Lake during mine operations is considered in Socio-economic indicator #2; Risk to Public Safety, evaluating the risk to public safety of the MDPs as a whole, including Fish Lake. The description of the metric has been revised for clarity in Section 7.1.3.1 of the revised Appendix 2.4.3.1-A.

The two MDPs remain equivalent with respect to risk to public safety.

The quality of recreational experience in the areas of the MDPs as a whole has been considered through the use of two indicators added to the revised Appendix 2.4.3.1-A (Assessment of Alternatives for Mine Waste Disposal); Impact on Quality of Recreational Experience at Fish Lake and Impact on Quality of Recreational Experience in Other Accessible Watersheds.

The metric for Impact on Quality of Recreational Experience at Fish Lake has been defined using a range evaluating restriction of access to Fish Lake and the immediate area, and sensory impact to users of the Lake as detailed in section 7.1.3.6 of the revised Appendix.

The metric for Impact on Quality of Recreational Experience in Other Accessible Watersheds has been defined using a range evaluating restriction of access to those watersheds and their immediate area, and sensory impact to users of those watersheds as detailed in section 7.1.3.6 of the revised Appendix.

The two MDPs are equivalent with respect to the impact on quality of recreational experience at Fish Lake while MDP T2 is preferred with respect to the impact on quality of recreational experience in other accessible watersheds.