APPENDIX 3-K
NISGA'A NATION ISSUES AND RESPONSES

Appendix 3-K. Nisga'a Nation Issues and Responses

Table K-1. Issues Raised by Nisga'a Nation during the pre-Application Review Stage

No.	Issue	Seabridge Response
Consultation and EA Process		
1	Compliance with Nisga'a Final Agreement (NFA) Chapter 10	In accordance with Chapter 10 of the NFA, reinforced by the BC EAO Section 11 Order, Seabridge's studies, its Application/EIS and the Nisga'a Economic, Social, Cultural Impact Assessment which it prepared based on Nisga'a guidelines, are all designed to assess potential Project effects on residents of Nisga'a Lands, Nisga'a Lands or Nisga'a interests; and the existing and future economic, social and cultural well-being of Nisga'a citizens.
2	Inclusion of marine traffic in Project scope	The CEA Agency, in a September 15, 2011 letter to NLG, conveyed its decision that marine transportation activities and marine terminal operations would not be included in the scope of the Project, and provided its rationale.
3	Inclusion of effects on oolichan in scope of assessment	The BC EAO, in a May 5, 2010 letter to NLG, conveyed its decision that oolichan need not be assessed for the Project EA, and provided its rationale. BC EAO decided that oolichan would not be included because they are primarily restricted to the lower reaches of the Nass River, and the Project is a significant distance from the area (approximately 200 kilometres). The BC EAO noted that other VCs for aquatic species such as Dolly Varden, bull trout, rainbow trout/steelhead, and Pacific salmon would be sufficient to determine whether there was potential for adverse effects on downstream oolichan populations. The CEA Agency, in a September 15, 2010 letter, conveyed its decision that oolichan did not need to be included as a VC.
4	Extend biophysical study area downstream to coast	The BC EAO advised NLG that it was satisfied with the biophysical study area presented in the draft AIR and its conclusion that extending the study area to the coast was not necessary for a sound EA.
5	Making Nisga'a villages a primary assessment focus	The BC EAO, in a February 26, 2009 letter to NLG, conveyed its conclusion that the Nisga'a villages need not be a primary assessment focus given their distance from the Project.
6	Broadening the range of future projects and activities considered in cumulative effects assessment	The cumulative effects assessment reported in the Application/EIS follows the approach set out in the Application Information Requirements (January 31, 2011). Reasonably foreseeable projects (those that are permitted or in the EA process) are assessed, but not speculative future-development scenarios. The cumulative effects assessment follows established methodologies as prescribed by the CEA Agency, including '*Determining Whether a Project is Likely to Cause Significant Adverse Environmental Effects*' (CEA Agency 1994) and *Cumulative Effects Assessment Practitioner's Guide* (CEA Agency 1999). It also follows BC EAO requirements.
7	Need for mining companies to be responsible for past impacts	Future impact management obligations will be secured through financial security posted by Seabridge and/or the KSM operating company under the BC *Mines Act*. This will ensure the availability of funding to fulfill permit conditions.
8	US role in EA	US federal and Alaska State government representatives are participating on the KSM Project Environmental Assessment Working Group, given that the Project is approximately 35 km from the BC/Alaska border on the Unuk River. Moreover, the Project is subject to the federal *International River Improvements Act (1985)*.

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Table K-1. Issues Raised by Nisga'a Nation during the pre-Application Review Stage (continued)

No.	Issue	Seabridge Response
Consultation and EA Process *(cont'd)*		
9	Independence of EA	Under the BC *Environmental Assessment Act* and *Canadian Environmental Assessment Act*, proponents are responsible for conducting and reporting on EA studies which are then reviewed by other review participants. The Nisga'a, as a working group member, will have an opportunity to review and comment on the Application/EIS.
Project Design and Operation		
10	Capacity of Tailing Management Facility (TMF) to store water	The hydrological design used for the TMF dams, both ultimately, and year by year, as tailing dams are raised, is conservative. The TMF North, CIL and South cells are designed to store the 30-day Probable Maximum Flood (PMF). The tailing dams are provided with one metre of freeboard above the PMF flood level, and dam designs assume that all perimeter diversions are inoperative during extreme flood events. Seepage recovery dams are designed to store the 200-year 24-hour flood with snowmelt without discharge, and will have 3 m of freeboard above the maximum flood level. Water will be stored in the TMF until it is released between May 15 and October 15 of each year. This discharge schedule is proposed to follow the natural hydrograph in order to minimize any impacts. Water storage also takes advantage of natural improvement in water quality such as reduction in total suspended solids in large ponds. Because the final tailing dam crest elevations will not be achieved until October at the end of each construction season, each year's dam raise will provide in advance the required storage needed until October of the following year. This will ensure that adequate dam freeboard and tailing storage capacity is available at all times. As a conservative measure, it was assumed that all perimeter diversions would be inoperative during the extreme flood event. The PMF storage allowance provides ample room for temporary increases in water storage during storm events or snow-melt events.
11	Use of tunnel rock for TMF dam construction	To minimize metal leaching/acid rock (ML/ARD) drainage risk, only non-potentially acid generating (not PAG) tunnel rock will be used for TMF dam construction. Samples of rock proposed for TMF dam construction will undergo geochemical testing prior to use, in accordance with procedures identified in the ML/ARD Management Plan (see Chapter 26 of the Application/EIS).
12	Long-term risks associated with TMF	To mitigate for long-term risks, TMF design will meet or exceed strict criteria for static and seismic stability (i.e., 2007 Canadian Dam Safety guidelines). TMF management, including long term monitoring, maintenance and safety inspections, will continue after mine closure. Instrumentation will be installed in the main dams to monitor phreatic levels and surface settlement. Management procedures will be detailed in an Operation, Maintenance, and Surveillance Manual that will be required by Ministry of Energy, Mines and Natural Gas prior to operation of the TMF and will be updated during the mine life and for closure.
13	Design of rock storage facilities (RSFs)	RSFs have been designed according to the BC Mine Waste Rock Pile Research Committee Interim Guidelines (1991), and will be managed according to the RSF Management and Monitoring Plan (see Chapter 26 of the Application/EIS).
14	Camp operations/sustainability	At camps, sewage treatment facilities or holding tanks will be installed, as well as incinerators, to dispose of kitchen wastes. Strict waste management practices will be enforced, including use of secure waste management facilities to avoid creating wildlife attractants. Employees and contractors will be prohibited from possessing firearms or other weapons for hunting. Fishing will not be permitted. Siting of camps will consider wildlife and vegetation effects. Electric fencing may be installed to deter wildlife interactions.

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Table K-1. Issues Raised by Nisga'a Nation during the pre-Application Review Stage (continued)

No.	Issue	Seabridge Response
Project Design and Operation *(cont'd)*		
15	Cold weather contingencies	The Project site will experience cold winter temperatures (ranging between 0° and – 40° Celsius) high snowfalls, deep snowpacks and strong winds. An aggressive avalanche monitoring and control plan will be implemented to protect employees and Project infrastructure. The mine fleet will include dedicated snow removal equipment. The Mitchell-Treaty Twinned Tunnels (MTT) will provide secure access to the Mine Site in all weather conditions. The TMF and Water Storage Facility (WSF) dams will be raised during snow-free months, with sufficient freeboard to accommodate any anticipated avalanche induced waves.
16	Status of Mitchell Glacier	The Mitchell Glacier is actively retreating, although rates of retreat were slower in 2011-2012 than in the period 2004-2010. A comparison of current areal extent to pre-early-1990s data suggests that glacier size has remained relatively unchanged in upper elevations, but has been shrinking in lower elevations. Project component design at the Mine Site is based on continuing glacial retreat. Glacial advance is considered highly unlikely, but if it occurred, it could affect Mine Site components, although not personnel safety.
17	Handling and storage of chemicals	Chemicals will be transported in accordance with the federal *Transportation of Dangerous Goods Act* (1992), as well as provincial requirements and the Dangerous Goods and Hazardous Materials Management Plan (see Chapter 26 of the Application/EIS). Waste materials transported off-site will be segregated, inventoried, and tracked in accordance with government requirements. A secure storage area will be established on site with appropriate controls to manage spillages. Hazardous materials will be labelled and stored in appropriate containers prior to shipment to approved off-site disposal facilities.
18	Plans for sludge disposal during construction, operation, and closure	Construction-phase sludge will be dewatered and stored in a secure landfill located near the Water Treatment Plant (WTP) at the Mine Site. During operation, sludge will be transported on a year-round basis via the MTT ore conveyor to the Processing and Tailing Management Area (PTMA) and deposited in the TMF. The sludge will amount to approximately less than 0.15% of the ore material being conveyed daily. On closure, a secure landfill area will be developed on the Mitchell and McTagg RSFs to store sludge over the long term.
19	Option of keeping all Project infrastructure in one valley outside of Nass system	TMF siting alternatives were evaluated in accordance with Environment Canada's (2011) "Guidelines for the Assessment of Alternatives for Mine Waste Disposal" that apply when tailing storage in natural water bodies frequented by fish is proposed. All TMF alternatives that were confined within the Sulphurets and Unuk drainages were eliminated through fatal flaw analysis except for the Unuk Valley TMF alternative. However, following multiple accounts analysis, the Upper Teigen/Treaty TMF was preferred over the Unuk Valley/West Teigen Lake TMF alternative.
20	Consideration of flood events in TMF alternatives assessment	The capacity of the TMF alternatives to manage unpredictable glacial run-off and extreme flood events was taken into account in calculating the design flood (PMF). All TMF alternatives were able to store or divert the PMF; so this potential indicator was not found to be differentiating between alternatives.

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Table K-1. Issues Raised by Nisga'a Nation during the pre-Application Review Stage (continued)

No.	Issue	Seabridge Response
Alternatives Assessment		
21	Option of combining West Teigen Lake/Unuk Valley TMF alternatives	Subsequent to a March 2012 Working Group meeting and an April 2012 meeting with NLG, both to discuss the February 2012 Assessment of Alternatives for the KSM Project Tailing Management Facility, Seabridge assessed two additional TMF alternatives: 1) combining the original Unuk Valley and West Teigen Lake TMF options; and 2) the original Unuk Valley TMF and West Teigen Lake options, combined with a new dam upstream of the Unuk Valley TMF option. Under both options, there was insufficient storage capacity available in the Unuk River watershed to store all life-of-mine tailing, and both options would affect both the Unuk River and Teigen Creek watersheds.
22	Option of dry-stacking of tailing	Dry stacking of tailing was abandoned as a potential disposal method during initial Project design work. Due to wet climatic conditions and topography in the Project area, it is not technically feasible, and would also require large containment facilities.
Air Quality and Climate		
23	Effects of climate change; effects of air emissions from carbon-regeneration process	The most significant climate change risk is linked to precipitation, potentially affecting mine water management. For this reason, major water storage structures (e.g., WSD and TMF dams) are designed to meet Canadian Dam Association guidelines (2007), based on the PMF (1:200-year event). To minimize the Project's contribution to climate change, Seabridge has assessed the Project's estimated GHG emissions, identified mitigation measures, and developed a Greenhouse Gas (GHG) Management Plan to reduce the Project's carbon footprint. The Project will be subject to the reporting requirements under the *Greenhouse Gas Reduction Cap and Trade Act* (2008). Based on air quality modelling, rates of acid deposition from ore processing will be less than 1% of baseline measurements. Several measures proposed to reduce GHG and particulate emissions will help reduce NOx and SO2.
24	ML/ARD characterization	The geochemical program has characterized and predicted the potential for Project-related ML/ARD associated with waste rock, ore, pit walls, tailing, non-deposit material and groundwater seep geochemistry. Waste rock, ore, and potential pit wall material were assessed in 2,030 ABA and solid-phase elemental analyses from waste rock and ore samples, 40 waste rock humidity cells (12 ore and 28 waste rock samples), and 17 field leach barrels from waste rock and ore samples. Tailing material was assessed in 33 static tailing samples, eight humidity cells, six subaqueous columns, and three aging tests. Naturally occurring groundwater seeps were sampled at the Kerr Deposit (five seeps), Sulphurets Deposit (one seep), Mitchell Deposit (23 seeps), McTagg Creek Valley (three seeps), and Ted Morris Creek Valley (five seeps). Non-deposit samples were collected from overburden and rock to assess ML/ARD potential in areas that may be disturbed, exposed, or excavated during mining activities such as infrastructure development. The program conforms to the BC Ministry of Energy and Mines (1998) Guidelines for Metal Leaching and Acid Rock Drainage at Minesites in British Columbia.

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Table K-1. Issues Raised by Nisga'a Nation during the pre-Application Review Stage (continued)

No.	Issue	Seabridge Response
Water Quality and Quantity		
25	ML/ARD mitigation	The proposed ML/ARD Management Plan (see Chapter 26 of the Application/EIS) sets out plans to monitor, mitigate, and adaptively manage the potential effects of ML/ARD on surface water quality, groundwater quality, fish and fish habitat, wildlife and human health during all Project phases. Actions to avoid and mitigate adverse effects of ML/ARD include: • permanently storing mine site waste rock, either in two engineered RSFs or backfilled into the Sulphurets Pit; • routing contact water from the RSFs and ore stockpile to the WSF and WTP; • maintaining a geochemical inventory of waste rock and ore stored at the Mine Site to validate ML/ARD predictions; and • establishing an on-site laboratory to allow for timely ARD characterization and management of waste rock.
26	Management of PAG material in RSFs	Benches and the tops of the RSFs will be lined to minimize infiltration of precipitation through the waste rock, minimizing ML/ARD associated with PAG waste. Water from the waste rock backfill in the Sulphurets Pit will be collected in a basal drain and routed to an ion-exchange selenium treatment plant. Some not-PAG waste rock from the Sulphurets Deposit will be used as construction material for the WSD and RSF basal drains. Non-contact surface runoff will be diverted around these facilities. Contact runoff from the Mitchell and McTagg RSFs will be collected and directed to the WSF for treatment through the WTP prior to discharge to the receiving environment.
27	TMF operation, closure and post-closure plans (seepage, contingencies)	The TMF has been designed to account for possible contaminated seepage. Seepage collection ponds have been located and designed based on localized groundwater modeling. Downstream water quality impacts are not predicted.
28	Potential for Mitchell-Treaty tunnels seepage	The MTT is designed to slope downwards from the PTMA towards the Mine Site. MTT water that enters the Mine Site will be routed to the WSF and WTP. The water balance for the Mine Site incorporates a factor for MTT seepage volume.
29	Assessment of seismic hazards	A site-specific seismic hazard assessment was carried out to establish earthquake design ground motion parameters for the TMF, in accordance with the 2007 Canadian Dam Safety guidelines for seismic hazard assessment. Both probabilistic and deterministic seismic hazard analyses were conducted to derive the ground motions for the Mine Site and TMF. For design, the 10,000-year return period ground motions were selected for design of the tailing dams. A detailed discussion is contained within the engineering design reports for both the WSF and the TMF to be included in Chapter 4 of the Application/EIS.
30	Management of PAG during ore tunnel construction	Seabridge has completed field studies and environmental geochemical testing of rock representative of the proposed tunnel alignments. Potentially acid generating (PAG) rock is not anticipated in the east catchment tunnel. Where PAG material is encountered, it will be assessed and identified. Appropriate remediation measures will be implemented where there is risk to aquatic life from ARD, as outlined in the proposed ML/ARD Management Plan (see Chapter 26 in the Application/EIS).
31	Management of PAG during access road construction	Seabridge has completed an ARD assessment of rocks encountered along the proposed access roads. Any PAG material will be addressed as stated above for PAG rock encountered in the MTT.

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Table K-1. Issues Raised by Nisga'a Nation during the pre-Application Review Stage (continued)

No.	Issue	Seabridge Response
Water Quality and Quantity *(cont'd)*		
32	Monitoring of Mine Site and TMF dams (operation, closure, post-closure)	Constructed facilities such as the WSD, RSFs, and the TMF dams will be monitored during operation, closure, and post-closure to ensure long-term stability.
33	Incorporation of sludge geochemistry into water quality model	Seabridge's water quality modelling includes loading contributions from sludge. The chemical contribution from the flotation tailing material includes 0.15% sludge.
34	Presence of hazardous materials in tailing	Hazardous materials such as chemicals utilized in the ore separation process will be present in the tailing only in insignificant volumes. Water will be contained in the TMF, and not released to the receiving environment unless it satisfies water quality objectives. "Sulphide tails" will comprise approximately 10% of the total tailing volume. The TMF design was changed to accommodate the concerns of the Nisga'a and other Aboriginal groups. The tails will be isolated and kept saturated within a lined centre TMF cell to prevent ARD. Water going to the Carbon-in-Leach (CIL) lined cell will have been treated already for cyanide, dissolved metals and suspended solids. The water decanted from the CIL cell to the main flotation tailing pond will also be treated.
35	Volume of water to be discharged and criteria for treating water	The volume of water to be discharged annually from the TMF is approximately 14 Mm^3/yr. This water will be released from May 15 to October 15 of each year, approximating the natural hydrograph to minimize impacts. Water from the TMF will need stringent government discharge criteria.
36	Effects of sludge on TMF water quality	Test work suggests that the sludge will have no impact on the tailing stream or TMF water quality. It will be <0.15% of the total volume contained within the TMF.
37	Quantity of material to be stored at TMF from tunnel development	Approximately 113,125 m^3 of rock will be stored at the processing plant portal.
38	Handling of PAG material from tunnel excavation	Material excavated during tunnel construction classified as not PAG will be removed for use as construction material. PAG material will be transported to temporary lined storage pads located near the portal sites. Treatment ponds will be constructed to collect tunnel drainage and seepage from the temporary rock storage areas. These settlement ponds will include lime dosing reactor tanks to treat metals, suspended solids, and residual ammonia. PAG tunnel muck will be hauled to permanent disposal sites when roads are open.
39	Estimate of groundwater flow into tunnels	Groundwater flow estimates are provided in Chapter 11 of the Application/EIS.
40	Health of [Nass] River and possible pollution	Water will not be discharged into the Nass River. TMF discharge will be routed via pipeline into Treaty Creek approximately 23 km upstream from where it joins the Bell-Irving River. The confluence of the Nass and Bell-Irving rivers is a further 70 km downstream. Moreover, the TMF discharge will only be released if it meets permitted discharge criteria. No impacts on the Nass River are predicted.

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Table K-1. Issues Raised by Nisga'a Nation during the pre-Application Review Stage (continued)

No.	Issue	Seabridge Response
Water Quality and Quantity *(cont'd)*		
41	Effects on water quality at Mine Site and PTMA	At the Mine Site, selenium concentrations above the BC water quality guideline are predicted in the Unuk River downstream in the Unuk River after Year 15. Key mitigation measures to minimize effects include construction and maintenance of an extensive system of water management facilities to divert non-contact water away from disturbed areas and to collect water that has contacted disturbed areas for treatment before release. The WSF will temporarily store Mine Site contact water to attenuate seasonal flows and regulate the flow to the WTP prior to release. Water will not be released unless it meets discharge permit levels. Effluent water quality will also be monitored at the Mine Site. At the PTMA, total cadmium, total chromium, total copper, total iron, and total zinc were observed to be higher than BC MOE water quality guidelines in Treaty Creek during baseline studies. No concentrations above water quality guidelines or baseline concentrations are predicted. Key measures to mitigate water quality effects due to discharge from the TMF include: 1) diverting clean water around the TMF; 2) using cyanide destruction and metal recovery water treatment processes in the Process Plant; and 3) staging discharge from the TMF to Treaty Creek to match the natural hydrograph. With mitigation of TMF water quality, no adverse effects on water quality are predicted for discharges from the PTMA.
42	TMF water quality	Water treatment at the TMF is focused on controlling identified key parameters such as cyanide, dissolved metals, and suspended solids through various treatment methods. Recovering cyanide and copper in the CIL process will be accomplished with the introduction of the SART/AVR process. Low cyanide and copper levels are controlled through a SO2/air process to reduce residual concentrations of cyanide. The target cyanide and copper treatment is set at 0.5 mg/L respectively. A polishing step, using activated carbon, will be used to effectively reduce dissolved copper and other trace metals down to less than 0.5 mg/L. As a result, water going to the CIL lined tailing containment cell will be treated. As an added safety measure, the water decanted from the CIL cell to the main flotation tailing pond will go through a final polishing water treatment step using hydrogen peroxide. The hydrogen peroxide step will further reduce any residual cyanide and any potential thiosalts from the CIL process. The only discharge to the receiving environment will be routed from the large flotation tailing pond through a pipeline then diffused into Treaty Creek. Discharge will be from May 15 to October 15 of each year to ensure proper mixing in the receiving environment. Each spring after ice break-up a floating clarifier will be installed in the pond to skim surface water into the clarifier where flocculants could be added to control total suspended solids. Federal Metal Mining Effluent Regulations (MMER) (2002) discharge criteria for suspended solids is 15 mg/L. Suspended solids contribute to total metals and as such will have to be controlled below 15 mg/L. Federal MMER and provincial discharge criteria will be achieved to protect aquatic life.
43	Management of total suspended solids (TSS)	TSS in discharge from the WSF and the TMF will be controlled with the aid of flocculants, where necessary. The federal MMER discharge criteria for suspended solids is 15 mg/L. Federal and provincial discharge criteria will be achieved to protect aquatic life (see response #42).
44	Estimate of efficiencies of diversions and flow direction	Diversion efficiency varies, depending on the time of year and throughout the watershed, depending on their relation to geohazards. Diversion efficiency ranges from 60 – 90%.

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Table K-1. Issues Raised by Nisga'a Nation during the pre-Application Review Stage (continued)

No.	Issue	Seabridge Response
Fish and Aquatic Habitat		
45	Level of fish sampling effort in lower Teigen and lower North Treaty creeks, effects on productive capacity of Teigen and Treaty creeks, fish habitat compensation issues	Sampling, including electrofishing, was conducted over five field seasons (2008 - 2012) to determine the fish community, fish community composition, fish biology, relative abundance and density in the proposed Project area. Fish sites were selected based upon the proximity to the Project and potential for downstream effects. Sampling in lower South Teigen and lower North Treaty creeks was done to identify habitat use by resident and migratory fish species in 2009, 2010, and 2011. This sampling included electrofishing, snorkel assessments, and spawning and redd surveys. The results found: 1) Dolly Varden are the most dominant species present in lower South Teigen Creek (below the falls) and lower North Treaty Creek; 2) Bull trout are present in lower South Teigen Creek (below the falls) in low abundance; 3) Rainbow trout and mountain whitefish are present in lower South Teigen Creek (below the falls); and 4) Mountain whitefish are present in low abundance near lower North Treaty Creek near the outlet to Treaty Creek. No migratory salmonid species were found in lower South Teigen Creek (below the falls) and lower North Treaty Creek. Snorkel surveys indicate there is limited spawning in the reach. Fish and fish habitat assessments were conducted in the Bell-Irving River in 2009 (baseline data collection) and 2010 (part of fish habitat compensation planning). Chinook were sampled in the Bell-Irving River.
46	Effects on productive capacity of Teigen and Treaty creeks (water quality, flows, temperature)	Baseline studies found that Teigen Creek has a higher productive capacity than Treaty Creek, with greater fish species and habitat diversity and population abundance, influenced by factors such as water temperature, turbidity, inputs from surrounding glaciers and role of lakes. Treaty Creek is a cold, turbid, and highly glaciated watershed. In comparison, Teigen Creek is a lake headed watershed, with limited glacial inputs from surrounding glaciers. Discharge in Teigen Creek is controlled by the headwater Teigen Lake. Discharge in Treaty Creek is variable due to glacial headwaters.
47	Fish habitat compensation (install baffles in highway culvert at Glacier Creek, integrate habitat values into diversion ditches)	Installation of baffles in the Glacier Creek culvert to provide fish passage was examined as possible fish habitat compensation during 2010 and 2011 fieldwork, but there are higher value compensation sites. Also, integration of fish habitat values into diversion ditches was considered, but it is not technically feasible based upon gradient and fish access.
Terrestrial Ecosystems and Wetlands		
48	Scope of wetland compensation	The Project affects approximately 59 ha of wetlands. Seabridge will compensate for impacts to wetlands according to the 1996 Federal Policy on Wetland Conservation, 1996. Compensation projects involving 48 ha of wetlands (in the TMF area) are proposed, plus restoration of 75 ha of additional wetlands through reclamation. The wetland compensation plan is included as an appendix to Chapter 16 in the Application/EIS.
Wildlife and Wildlife Habitat		
49	Effects on disruption of wildlife movement	All major river valleys in the wildlife Regional Study Area (RSA) are believed to be moose movement corridors (Bell-Irving River, Teigen and Treaty creeks, Unuk and Bowser rivers). Moose impacts are minimized in the Saddle Area by placing MTT-related infrastructure underground.
50	Presence of mineral licks	Based on incidental observations during baseline wildlife surveys, two mineral licks have been identified, one of which lies outside the wildlife RSA.

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Table K-1. Issues Raised by Nisga'a Nation during the pre-Application Review Stage (continued)

No.	Issue	Seabridge Response
Wildlife and Wildlife Habitat *(cont'd)*		
51	Effects on goats and grizzly bears in Nass headwaters	Mountain goats are assessed as a VC within the wildlife RSA. Goats have a restricted home range and are not likely to be affected by activities outside it. Goats have a restricted home range and are not likely to be affected by activities outside it. Grizzly bears are considered within the wildlife RSA. Projects in the Nass headwaters are included in the grizzly bear cumulative environmental effects assessment, due to their large home range.
52	Nature of grizzly bear DNA studies	Grizzly bear DNA analyses were conducted in 2008 and 2009. Thirty-one individual grizzly bears in the wildlife RSA were identified (15 females and 16 males). Based on these data, the total population of the area is estimated at 58 bears (31 females and 27 males). The study identified four bears from DNA studies conducted in nearby areas (2 females from Galore Creek in 2004, 1 female from Unuk River in 2004, and 1 male from Cripple Creek in 2007).
53	Scope of bird studies	Baseline surveys for birds included stand-watch surveys for raptors and call-playback surveys for northern goshawk (in 2008 and 2009), aerial surveys for wetland birds during the spring staging, pre-breeding, breeding, and fall staging periods (2008 and 2009), and point count surveys for forest and alpine birds during the breeding season (2008 and 2009).
54	Potential adverse effects on western toad habitat linked to fish habitat compensation in wetlands	Fish compensation sites were altered to avoid western toad breeding habitat, and to incorporate features to improve western toad breeding habitat.
55	Effects on tailed frogs	The Project area is north of the known range of the tailed frog (Dupuis and Bunnell 2000; Dupuis 2003). Surveys conducted by Rescan in 2010 did not detect tailed frogs north of Gitlaxt'aamiks (Rescan 2010d), which is approximately 200 km south of the Project area.
56	Effects on migratory birds	Aerial surveys for migratory wetland birds were conducted in 2008 and 2009 during spring staging, pre-breeding, breeding, and fall staging to identify presence and distribution of migratory wetland birds during breeding and staging and to identify species of conservation concern in the wildlife RSA. Point count surveys for migratory forest and alpine birds were conducted in 2008 and 2009 to identify habitats with high diversity of birds and species of conservation concern in the RSA. Migratory wetland birds and forest and alpine birds were observed throughout the Local Study Area (LSA) and RSA. Potential effects on migratory birds include habitat loss, sensory disturbance, direct mortality, attractants, and chemical hazards. Proposed measures for mitigating effects on migratory birds include: scheduling vegetation clearing activities outside of the general breeding periods; if clearing must be completed during the breeding period, conducting pre-construction surveys to identify areas where clearing will be prohibited; maintaining buffer zones around any identified active nests, and; monitoring wetland bird use of the TMF during operation and taking appropriate steps to attempt to deter birds from the TMF and water treatment areas if deemed necessary.
57	Effects on wildlife habitat loss	Potential effects of habitat loss were assessed for 11 VCs: moose, mountain goats, grizzly bears, black bears, American martens, hoary marmots, bats, raptors, wetland birds (within cavity nesting, riverine, and wetland habitats), forest and alpine birds, and western toads. Changes to Project design have been implemented to avoid or minimize loss of important habitat when alternatives were available (e.g., in the Saddle Area by placing the MTT infrastructure underground, and in the PTMA, by moving the Process Plant out of wetland habitat).

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Table K-1. Issues Raised by Nisga'a Nation during the pre-Application Review Stage (continued)

No.	Issue	Seabridge Response
Social		
58	Interested in training and apprenticeships	Seabridge has started to develop partnerships with local and regional post-secondary education institutions to ensure that appropriate programs are in place to facilitate worker preparedness for Project positions and to ensure that space is available for students from the region and Aboriginal communities. For example, Seabridge contributed $100,000 to the BC Aboriginal Mine Training Association (BC AMTA) in 2011 to provide training initiatives including mine skills training for the Nisga'a. The BC AMTA is one of 32 Aboriginal Skills Employment Programs (ASEP) operating in various industries throughout Canada. The ASEP programs are federal Aboriginal training-to-jobs initiatives under HRSDC (Human Resource Services Development Canada). The BC AMTA is focused on providing skills upgrading and training relevant to the mining sector for Aboriginal people in BC. During construction and operation, Seabridge is considering offering college and university bursaries to Aboriginal and non-Aboriginal communities.
59	Increased pressure on Nisga'a infrastructure and services	Potential effects to Nisga'a housing infrastructure and services due to population in-migration may occur during operation and are not anticipated to be significant. These effects are assessed in the Nisga'a Economic, Social, Cultural Impact Assessment report.
60	Safety concerns related to mine-related work and female workers at camp	The BC *Mines Act* (1996) and the Heath, Safety, and Reclamation Code for Mines in BC govern mineral exploration and mine sites in BC. Mining is one of the safest heavy industries in British Columbia. Discrimination against women and other workers will not be tolerated.
Economic		
61	Interested in employment and opportunities for Nisga'a businesses	The Project will provide an estimated average of 1,800 direct and 2,510 indirect BC construction jobs (over 5-year construction period), and 1,040 direct and 1,840 indirect BC operation jobs (over 51.5 year mine life), with positive economic benefits for local communities and the region. The estimated capital cost of the Project is $5.3 billion, with approximately $4.6 billion to be spent directly in Canada. The Project will contribute an estimated CAN$24.3 billion to BC's GDP and CAN$1.4 billion in tax revenues to BC. Nationally, the Project will generate approximately CAN$48 billion to Canada'a GDP and a total of CAN$9.1 billion in tax revenues during construction and operation.
62	Hiring practices	Hiring practices will meet government regulations, and will focus on hiring local people living in northwestern BC communities. Practices will be developed in consultation with local Aboriginal groups and northwestern BC communities.
63	Revenue sharing/economic benefits	Seabridge is committed to negotiating a Benefits Agreement with the Nisga'a Nation, including commitments related to training and employment. The Province is responsible for negotiating revenue sharing agreements with Aboriginal groups, and to date, has negotiated four Economic and Community Development agreements with Aboriginal groups to share mineral tax revenue from the New Afton, Mt. Milligan mine projects (two separate agreements) and new coal mines in southeast BC.
Cultural		
64	Effects on Nisga'a harvesting	The Mine Site is outside of the Nass Area. The TMF is located in the Nass Area and approximately 200 km from the mouth of the Nass River. No impacts on Nisga'a harvesting of shellfish, medicinal plants, and cedar are anticipated.
65	Accommodation of cultural obligations	Human resource policies at the KSM mine will take into account cultural obligations of Aboriginal employees.
66	Nature of camp diet	Food in camp will cater to a range of diets.

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Table K-1. Issues Raised by Nisga'a Nation during the pre-Application Review Stage (continued)

No.	Issue	Seabridge Response
Heritage and Archaeology		
67	Damage or disruption of archaeology sites	An archaeological impact assessment was conducted to identify archaeological sites that may be in conflict with the Project. Where possible, archaeological sites have been avoided, and when avoidance is not possible, mitigation measures such as monitoring, systematic data recovery, or site capping will be undertaken.
Land Use		
68	Fishing and hunting pressure	Under the Traffic and Road Use Management Plan, the Coulter Creek and Treaty Creek access roads will be gated to control access and prevent unauthorised entry. Employees and contractors will not be permitted to have fishing and hunting equipment on site.
Human Health		
69	Effects on country foods	Potential effects on country foods have been assessed pursuant to methodology recommended by Health Canada. Country foods considered in the assessment include moose (representative of large mammal frequently consumed), snowshoe hare (representative of small mammal), grouse (representative of bird) and berries. Results of the country food assessment are provided in the Chapter 25 of the Application/EIS.
70	Human health effects of contamination of air and water	Potential effects on drinking water quality were assessed by comparing predicted water quality (metal concentrations) downstream of the TMF and downstream of the WSD to BC drinking water guidelines. Metal concentrations are not predicted to exceed guidelines. Potential health effects from changes in air quality were assessed in the Application/EIS by: 1) comparing predicted air quality data with ambient air quality objectives and Canada Wide Standards for NO_2, SO_2, CO, TSP, $PM_{2.5}$, and PM_{10}; 2) estimating the number of excess deaths due to an increase in particulate matter pursuant to methodology by Health Canada; 3) calculating a hazard quotient for the inhalation of metals; and 4) calculating the incremental lifetime cancer risk. The extent of non-carcinogenic and carcinogenic health effects associated with modelled increases in SO_2, NO_2, CO, and metal concentrations were found to be negligible. Results are provided in Chapter 25 of the Application/EIS.
Project Traffic		
71	Effects on moose population between Cranberry Junction and Kitwanga	Potential traffic impacts to moose between the Cranberry Junction and Kitwanga were modelled for the Nass moose population. A moose/vehicle collision model was imbedded into a population dynamics model to emulate the fraction of moose mortality that can be explained by vehicle collisions. Assuming a base harvest rate of 50 bulls from 2012 onward, and assuming traffic patterns for the operation of the Project, results of the analysis indicate that the Nass moose population will be sustainable. This model showed that the Nass moose population could tolerate an increase in mortality rates of 2.46% (from vehicles or otherwise), which translates to an additional loss of 12.7 moose of the estimated 517 moose comprising the Nass population (see Appendix 22-C).
72	Need for industrial users of Highway 37 to collaborate	The BC Ministry of Transportation and Infrastructure has overall responsibility for public highways, including Highway 37. Seabridge is willing to consider participating in a BC government-led initiative with other industrial proponents if one is established.

(continued)

Table K-1. Issues Raised by Nisga'a Nation during the pre-Application Review Stage (completed)

No.	Issue	Seabridge Response
Project Traffic *(cont'd)*		
73	Methods used to predict vehicle collision and risk	Moose/vehicle collisions were modelled along Highway 37 using two sources of vehicle collision data (provincial Wildlife Accident Reporting System [WARS] data and Gitanyow survey data) integrated with results obtained from scientific literature (published relationships between traffic rates and moose collision rates). A population dynamics model was used to perform a historical reconstruction of the Nass population under known harvests and demographic rates. A statistical reconstruction produced a best fit model to empirical trends of abundance survey data and harvest survey data. A moose vehicle collision model was imbedded into the population dynamics model to emulate the fraction of moose mortality that can be explained by vehicle collisions.
74	Effects on public safety	Project traffic may contribute to an increase in risks to public safety along highways 37 and 37A due to increased traffic and increased probability of traffic accidents. Seabridge drivers will be required to complete safety training.
75	Effects on crossbill and siskin mortality	Direct mortality of birds, particularly flocking species such as pine siskins and crossbills, may occur because of increased traffic along the highways. Most road mortalities to these species occur during winter or early spring. Carduelinae finches (i.e., crossbills, grosbeaks, and siskins) are particularly vulnerable to vehicle collisions on highways, as they are attracted to road salts, gravel, and sand. It has also been noted that higher traffic volume roads can have a repelling or avoidance effect on small vertebrates, thus potentially decreasing the risk of mortality to birds on Highway 37.
76	Concern about quality of WARS data base; recommended compulsory inspection database be reviewed for data on mortality sinks	Wildlife Accident Reporting System (WARS) data were used to identify mortality hotspots along Highway 37 for traffic collision mortality and moose modelling purposes. WARS data limitations are recognized. The modeling of potential effects of increased traffic on the moose population is reported in the Application/EIS.
Accidents and Malfunctions		
77	Potential for dam failure	A Failure Effects Modes Analysis has been conducted to evaluate the risk of potential failures of key project components (e.g., the TMF and WSD dams) to environmental and safety objectives for the Project (see Chapter 35 of the Application/EIS).
Closure and Reclamation		
78	TMF closure and reclamation	The TMF dam face will be covered with coarse rock to reduce potential for erosion, and then covered by about 50 cm of till or overburden as a growth medium. The dam face will be benched to provide road access for long-term monitoring and to reduce slope length. Dam face slopes and benches not used for road access will be re-vegetated. Drainage structures on the benches will be used to direct water away from the slopes. The dam crest will be covered with 60 cm of till or overburden and seeded with the intention of creating a wildlife corridor to cross the valley. A layer of till starting at 50-cm thickness will be placed on the beaches, gradually thinning out towards the open water. Vegetation, including willow, will be planted in the drier parts of the beach. Sedges will be planted in the wetter areas. Water from the TMF pond will only be discharged once it meets permitted discharge criteria. Water will flow into both North Treaty and South Teigen creeks to re-establish flows. A Reclamation and Closure Plan is included in Chapter 27 of the Application/EIS.
79	TMF spillway capacity and diversions at closure	Both TMF spillways are designed to separately handle the PMF. At closure, diversions will be removed.

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